17th Annual Conference of the

EuroMed Academy of Business

Global Business Transformation in a Turbulent Era

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Published by: EuroMed Press

17th Annual Conference of the

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CONFERENCE READINGS

BOOK PROCEEDINGS

September 11-13 2024

Pisa, Italy

Global Business Transformation in a Turbulent Era

FOREWORD

The Annual Conference of the EuroMed Academy of Business aims to provide a unique international forum for the exchange of cutting-edge information. This is achieved through multidisciplinary presentations that focus on examining and building new theories and business models for success through management innovation.

The conference has established itself as one of the major conferences of its kind in the EuroMed region. This is evident in terms of its size, the quality of its content, and the standing of its attendees. Many of the papers presented significantly contribute to the business knowledge base.

The conference attracts hundreds of leading scholars from top universities, as well as principal executives and politicians from around the world. Participation includes presidents, prime ministers, ministers, company CEOs, presidents of chambers of commerce, mayors, and other leading figures.

This year, the conference attracted over 230 people from more than 30 different countries. Academics, practitioners, researchers, and doctoral students from around the world submitted original papers for conference presentations and publication in this Book of Proceedings. All papers and abstracts underwent a double-blind review process. The result of these efforts produced empirical, conceptual, and methodological papers and abstracts involving all functional areas of business.

ACKNOWLEDGEMENT

Many individuals and organizations played crucial roles in the successful outcome of the 17th Annual Conference of the EuroMed Academy of Business. We extend special thanks to the Conference Chair, Dr. Iacopo Cavalini, and the organizing committee from the University of Pisa, Italy, for their exceptional work. We also express our appreciation to the conference hosting institution, as well as our sponsors and supporters.

A successful conference of this magnitude would not be possible without the professional work and special cooperation of the Track Chairs and Reviewers. Their efforts in reviewing and commenting on the numerous papers submitted to this conference were invaluable. Special thanks also go to the Session Chairs and Paper Discussants, whose interventions and discussions significantly contributed to the success of the conference.

Last but not least, we acknowledge all those who submitted and presented their work at the conference. Their valuable and cutting-edge research has greatly contributed to the continued success of the conference.

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THE DIGITAL TRANSORMATION IN THE BANKING SECTOR. A FOCUS ON ITALIAN RETAIL BANKS

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ABSTRACT

Retail banks are going through a period of profound change dictated by technological evolution and changes on the demand side. The aim of this paper is to provide an overview of the current scenario, identifying the strategies retail banks are pursuing with the aim of creating experiential opportunities with an increasing use of digital solutions. To this end, the investments recently made by Italian retail banks in digitalisation have been considered and classified in order to get a schematic picture of them useful to identify the strategic directions taken by them to achieve important results in terms of competitive advantage and customer value. The analysis of the factors behind the change made it possible, at a later stage, to understand the choice of the strategic guidelines outlined above, also highlighting differences between small and large banks. The paper concludes with some managerial implication, a description of the limitations of the study and suggestions for future research.

Keywords: digital transformation, banking, customer experience, ominichannel

1. INTRODUCTION

All economic sectors are affected by the digital transformation and by the growing importance assigned to sustainability in doing business, declined in ESG criteria, albeit under different aspects and with different degrees of intensity and pervasiveness. The banking sector is one of those in which these changes have become particularly evident, so much so that a veritable transformation of traditional banks is underway, in which they are increasingly engaged in digital transformation and sustainability initiatives with the customer at the centre of their business model. The goal is to be able to continuously have a value proposition judged to be of value by the customer in a world increasingly dominated by technology that allows for real-time, secure, easy-to-use and sustainable solutions. All this has led to outlining a bank that is attentive to environmental, economic and social issues and that offers services with a high degree of digitalisation. Combining digital transformation with the theme of sustainability has therefore initiated traditional banks to a profound rethinking of their business model in line with the changing external environment and the growing emergence of

the Fintech sector. Rethinking the bank from a digital and sustainable perspective requires the adoption of a comprehensive and synergetic approach that includes technological (with increasing use of big data and Artificial Intelligence), organisational, cooperative and infrastructural aspects. Moreover, the customer demands the possibility to have a customer journey in an increasingly phygital and sustainable context, with an acceleration due to the Covid-19 pandemic period.

The purpose of this study is to bring out these changes taking place in the Italian banking context, focusing on the factors that are most influencing banks in their strategic and operational choices.

The RQs can be summarised as follows:

- How is digital transformation changing the business model of retail banks?

- What are the main factors driving banks towards the adoption of digital solutions?

- What value effects do banks aim to achieve?

After an analysis of the national and international literature on the subject of digital transformation in the banking sector and the consequent effects on the value proposition and Bank's business model, a desk analysis based on Banca d'Italia and ABI documentation was carried out in order to schematise the investment projects recently launched in the banking sector on the subject of digital transformation. This made it possible to identify some of the main strategic directions taken by traditional Italian banks engaged in the digital transformation process. The analysis of the factors behind the change made it possible, at a later stage, to understand the choice of the strategic guidelines outlined above with a view to pursuing market performance improvement objectives. The paper concludes with a description of the managerial implications and limitations of the study and some suggestions for future research..

2. RETAIL BANKING IN THE DIGITAL AGE

Over the past decades many changes have taken place mainly due to digital disruption understood as "transformation caused by emerging digital technologies and business models that change the value propositions of goods and services" (Chkoniya et al., 2020, p. 161). In the banking sector, this transformation has led to a real revolution in the service model in order to succeed in combining the physical and digital customer experience, enabling the customer to access services in an omnichannel logic. Over the 2008-2021 period, data show a significantly growing trend of omnichanneling: relationship channels (consultant, agency, contact centre and chat with operator) + do-it-yourself channels (ATM, Internet banking, mobile banking) increased from 72% to 88% (ABI, 2022, p.51). This is also considering that the number of Internet users has grown considerably and continues to do so exponentially: from 2.6 million users in 1990 to 5.158 million in 2023 due to the development of the Word Wide Web and the change on the consumer behaviour front accelerated during the pandemic

period by Covid 19. Today, customers increasingly tend to use different channels for information and/or device contacts with banks, adopting an increasingly 'phigital' approach. Verint's VXI Banking report shows that 53% of consumers use digital channels to conduct transactions, compared to 23% of those who go to the branch (Hudson, 2023). The trend of increasing use of digital solutions is therefore evident, especially with regard to low-complexity transactions that can be carried out quickly and securely by the customer wherever and whenever he or she wants, using one of the various devices available. In this regard, the ABI Lab Digital Banking Observatory (ABI Report March 2023, p.14) highlighted that as of July 2022, the most widely used network connection tool by individuals aged between 18 and 64 is the smartphone (97.3%), followed by PC (75.4%) and Tablet (53.0%). This change at the level of consumer behaviour has led traditional banks to implement a process of revision of their business models to incorporate the advances of technology[1], with the goal to increase the customer satisfaction and customer loyalty level as a guarantee of growth (Cecchin, 2008). This goal appears difficult to achieve also because of the growing competition in the sector, which sees the presence of new players that are very aggressive, marketing-oriented and with strong IT skills. These are the fintech players with whom traditional banks have to deal, but with whom they have also initiate profitable collaborative relationships in order to have positive impacts on customers in terms of new products/services characterised by an increasing level of personalisation and realised increasingly quickly (Econopoly, 2023). Underlying the success of such collaborations is the interaction between different competencies and the willingness to bring them together to produce benefits for all parties involved, primarily traditional banks, fintechs and customers. The latter benefit from the innovations introduced, both at the level of products/services and in the way they access them, which simplify their lives and contribute responsibly to the achievement of ESG objectives. On the other hand, the more customers are able to access remotely, the less they need to travel to the branch with obvious impacts on the environment. This is just one example of how a bank, thanks to the solutions it offers its customers, can produce positive effects in the area of sustainability. In fact, it has been observed that sustainability for a bank can essentially concern two aspects: the first refers to its organisation and the adoption of business practices related to the areas of sustainability (e.g. energy consumption, waste, relations with employees) and the second relates to the performance of its activities in particular with regard to the management of credit and customer savings[2]. This orientation towards sustainability has led to a change in the relationship with the various stakeholders and to the implementation of a real transformation of the branches, which are becoming centres of

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[1] According to the ABI Lab Report, the total IT expenditure that Italian banks have dedicated to digital transformation in 2022 amounts to EUR 5.3 billion. Moreover, 92% of them plan a growing or stable budget compared to last year, and the growth levers identified by the ABI Lab Report are the following: becoming a Data Driven Bank; reviewing the internal organisation from a Learning Organisation perspective; investing in Exponential Architectures; and continuing in the wake of Resilience. https://www.aziendabanca.it/notizie/tecno/rapporto-abi-lab-2022

[2] https://www.lacassa.com/upload/carira/finanza/VademecumFinanzaSostenibile-ABI.pdf

experience, where it is possible to carry out a series of activities even in self-service mode by accessing digital equipment that is easy and quick to use, as well as being able to take advantage of a high-value consultancy service. This is in addition to the possibility of remote access, in a logic of integrated and synergetic approach, which recalls the already mentioned omnichannel[1]. The branch is therefore increasingly seen as a space to provide advice to customers and to give them a good service experience. The issue of customer experience (CE), defined as the cognitive and affective outcome of a customer's exposure to or interaction with a company's people, processes, technologies, products, services and outputs, is therefore becoming increasingly important and strategic (Buttle, 2009; Klaus 2008). In order to manage CE, banks need to proceed with the definition of targeted management actions and the development of consistent business processes focused on customer clusters. For this purpose, it is essential to acquire, process and analyse customer data, identifying in detail the specific needs of the various customer segments, as well as acquiring important input on their purchasing process and how it has changed, and is changing, as a result of the spread of IT and, more recently, artificial intelligence (AI) (Armutcu et.al., 2024). Indeed, the solutions proposed to the market by banks must constantly be able to offer effective solutions to their customers, with much more widespread use of technology today than in the past. Listening and data processing capabilities seem to be of crucial importance in this regard (Omarini, 2014) to guide the efforts of retail banks. To this end, a data warehouse can be very useful for integrated decision support management (Mehmood and Anees 2019). Furthermore, by increasing the use of technology, banks can improve their financial services (Filotto et al., 2021) and ability to interact with customers (Kothari and Seetharaman, 2020). To this end, it is increasingly necessary for banks to consider adopting big data analytics systems (Al-Khatib, 2022) to make proper financial decisions and achieve results in terms of reducing financial and credit risks (Hung et al 2020).

As already mentioned, all these initiatives involve more and more external operators in order to systemise a complex of differentiated know-how and resources useful to strengthen the competitive advantage of all the actors involved. Moreover, such an arrangement appears to be valid insofar as it guarantees the strategic and operational flexibility required by digital disruption, which is already a reality today and which recalls the concept of flexible banking (Previati D., 2002). The latter is characterised by being a proactive and strongly change-oriented bank in order to operate successfully in its target markets.

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[1] These changes have led to a progressive closure of branches on the Italian territory: from 2012 to 2021 the number of bank branches fell from 32,881 to 21,650, of which about 51% in the last five years (ABI 2023, p.5).

3. THE PRINCIPAL DRIVERS OF DIGITAL CHANGE IN BANKING SECTOR

The commitment to the adoption of new digital solutions stems from several factors. Research shows that nearly 71% of the executives surveyed listed customer expectations as a disrupting factor for the banking sector in 2018 according to Capgemini (Figure 1, Source Statista). Regulatory pressure, increasing demand for digital channels and emerging techonology were also considered important factors. In general, it can be seen that the adoption of advances on the technology front is motivated mainly by pressures from the demand side, which appears increasingly digitised and eager to access even complex services remotely than by advances on the new digital solutions front. Such adoption is therefore aimed at obtaining benefits mainly at the level of products/services offered to the market and at initiating changes in internal processes, also with a view to achieving greater internal efficiency and cost reduction.

Figure 1 - Most important factors disrupting banking sector according to senior banking executives worldwide in 2018
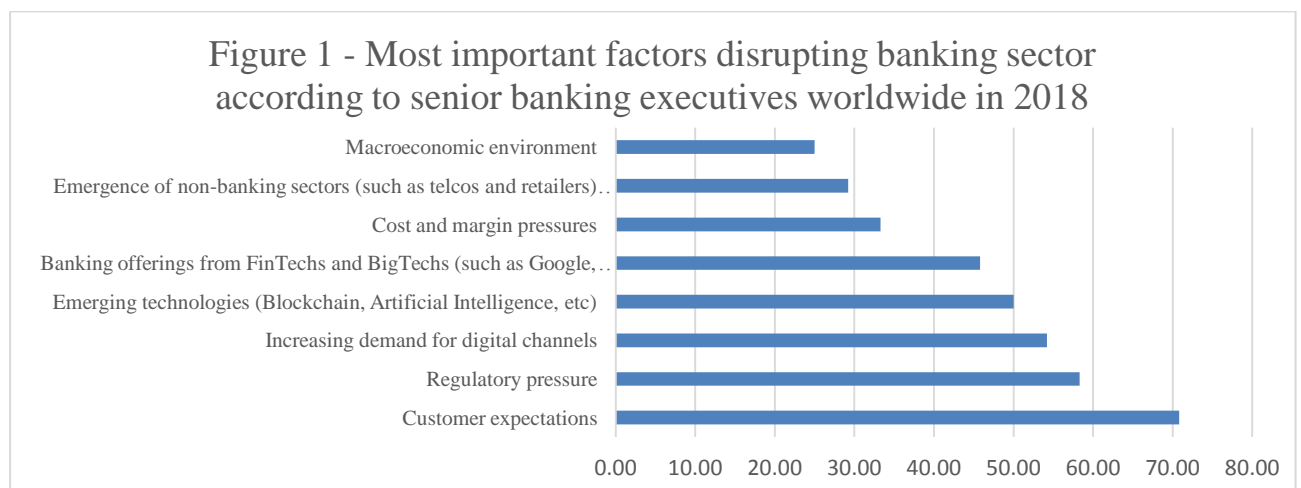
Source: Capgemini; EFMA, 2018.

It seems, therefore, that innovation is seen as a means of achieving better performance also through the possibility of affecting customer satisfaction. On the other hand, the use of new digital solutions such as mobile technology, cloud computing, social media, internet of things, big data analytics (Uhl et.al. 2016) make it possible to develop the ability to manage and anticipate customer expectations (Valdani, Busacca, 1995), influencing strategic and tactical corporate choices aimed at satisfying customer needs more and more responsibly. In the service sectors, a particular focus is on improving the customer experience, both in a physical and digital environment. Within the banking sector, this is also reflected in the latest Fintech report, which states that there is a strong push by the main players in the system to redesign the way in which the customer experience is designed, leading to the emergence of a new paradigm called Experiential Banking. Banking services are intangible and often involve an interaction between bank employees and customers that actually enables the service to be

delivered (Zeithaml et.al 2012). The business model of banking intermediaries is therefore necessarily oriented towards creating value within customer relationships (Scannella, 2010 p.719), following a relationship banking approach. The customer's experience at the various touchpoints of the customer journey[1] is therefore subject to evaluation by the customer and will contribute to the formulation of his or her overall judgement of the experience. The customer will make an evaluation of the overall experience by considering all the moments they have come into contact with a given organisation; the customer will increasingly require the organisation to implement service offerings both physically and digitally and to monitor the level of effectiveness and efficiency achieved. The objective is to maximise customer satisfaction and have positive returns on the Net Promoter Score (NPS) indicator (Reichheld F., 2003). Providing customers with a satisfactory experience requires considering the entire service process and adopting appropriate solutions for each stage of this process (Makudza, 2021), with increasing use of technology. The physical-digital combination will be increasingly rewarding in terms of being able to offer customers personalised, secure and valued solutions. In addition, a bank that is oriented towards providing satisfying experiences will be committed to developing systems that integrate existing customer data, with inevitable effects on business processes. For example, the MPS group has long since developed a system to increase commercial and operational efficiency through the provision of four modules customised to the needs of the specific cluster: commercial scheduling, customer file, monitoring and knowledge management (Delprato, 2008). With such a system, the bank can therefore maintain a valuable relationship with its customers as it is based on the deep knowledge it has of their needs.

In the following we will try to understand which specific areas Italian retail banks are addressing to achieve the described objectives through an increasing use of innovative digital solutions.

4. INNOVATION DRIVING DEVELOPMENTS IN THE BUSINESS MODEL

The innovative scope of digitalisation therefore involves multiple aspects that are profoundly transforming the banking system and, in general, the Fintech sector. In the following analysis, also considering the Banca d'Italia's methodological note, we will gather under the name Fintech "those investment initiatives focused on technological-financial innovation and capable of generating new processes, products, services and business models"[2], producing a decisive effect on financial markets, institutions or service offerings. These innovations therefore develop along the entire credit and finance chain: from how credit is created to how it is provided (e.g. crowd-funding, peer-to-peer

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[1] The customer journey has been defined as 'the sequence of events - planned or unplanned - through which customers inform themselves, purchase and interact with the company's offerings, including products, goods, services or experiences' (Norton, Pine II, 2013).

[2] https://www.bancaditalia.it/pubblicazioni/indagine-fintech/2021/2021-FINTECH-INDAGINE.pdf

lending), payment services (instant payment), virtual currencies (cryptocurrencies), advisory services (robo-advisors), decentralised validation technologies, identification, service delivery support (cloud computing and big data). Starting from such a broad perimeter, one can sense the impact that innovation has on all market segments by changing their structure in terms of volumes and values, as well as by enriching the number and type of players along these value chains, particularly with the entry of technology start-ups or technology and social media giants'. Added to this is a receptive market[1] that confirms a structural change on both the supply and demand sides. Against this backdrop, diverging scenarios are opening up in which fintech is both a driver of innovation and a disruptive factor along the supply chain. In our financial system, innovations deriving from fintech technologies are spreading, with an increase over the years in both expenditure in absolute terms and in the number of intermediaries and projects, highlighting a higher rate of technology adoption within the financial system. Faced with this external pressure, traditional banks have intensified their commitment to new technologies to improve their processes and value proposition. This is evidenced by an expenditure on fintech technologies for the two-year period 2021-2022 that amounts to 530 M€, up from the previous two-year period (456 M€) with the number of investing intermediaries rising to 96 (77 in the previous two-year period) and the number of projects rising to 329 (from the previous 267). The above is also confirmed by the data in the CIPA-ABI 2022 survey[2] where an indicator is measured, the TCO (Total Cost of Ownership), which represents the trend of IT spending in the Italian banking sector and which shows a continuous growth phase since 2014. Spending on investments in innovative technologies shows a concentration on a small number of intermediaries, among which, however, there are also small and medium-sized banks, confirming the transversal nature of this type of investment. The openness of the financial system is also evidenced by the high number of partnership agreements with fintech companies and participation in incubators, sandboxes and experimentation spaces. In particular, collaborations are mainly agreements related to initiatives developed by the intermediary that uses them to develop a Fintech business.

More than 4/5 of collaborations are in fact the provision of a service to the intermediary or the sale of services to the intermediary's clients. Investment projects are mainly aimed at the creation of products and services or the achievement of new channels, processes, cost reduction or customer satisfaction, and are predominantly intended to introduce elements of innovation in the relationship between the financial intermediary and the consumer (understood as consumer households or businesses, respectively 56.5% and 24% of the innovations introduced). In order to have an overall picture of the

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[1] 82% of consumers in the 18-24 age group have purchased a financial product from new providers in the last 12 months while this percentage drops to 34% in the >65 age group
https://www.accenture.com/content/dam/accenture/final/industry/banking/document/Accenture-Banking-Consumer-Study.pdf
[2] https://www.cipa.it/rilevazioni/economiche/2022/index.html

recent investment initiatives launched in the banking sector in the digital tranformation sphere, a summary table was constructed by examining data and information acquired from Banca d'Italia and ABI documentation (see table 1).

Table 1 - Primary business area, project area and type of projects recently implemented by Italian retail banks

Primary business area	Project area	Type of projects
Credits, deposits, capital raising	mobile banking digital lending supply chain finance new solutions for guarantees and other applications	The prevailing technology is investment in APIs, Big Data and RPA1. Many projects are aimed at developing services for mobile banking and digital lending.
Payments	solutions to digitise transactions payment deferrals in physical or online shops payment acceptance and management financial situation monitoring and automation of physical processes	Solutions to make transactions smoother and faster, payment deferrals for purchases in physical or online channel, acceptance and management of payments by businesses and freelancers (e.g. smartpos), solutions to reconcile income and expenditure across different intermediaries2
Investment and insurance services	investment services advisory support new products and channels insurance services	Projects aimed at increasing the quality and efficiency of the portfolio, creation of automatisms that support consulting, development of insurance products in line with the demands of niche markets
Governance	compliance credit risk governance Others	These are projects implemented to respond to regulatory developments or to automate internal processes
Business Operations	back office business support customer support	These are projects that aim to automate business processes that the user does not perceive (or, rather, takes for granted) except in the service part

Source: own elaboration on Banca d'Italia and ABI documentation

In the table it is possible to identify the primary business area, the project area and the specific project type of the aforementioned initiatives. From the analysis of the table, a complex picture emerges that

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[1] PIs (Application Programming Interface) and RPA (Robotic Process Automation) are also enabling technologies for the development of vertical products and services that then impact the user experience.

[2] This allows the client a single view of his or her financial situation. The same technology is used in the investment world, allowing customers (especially affluent customers who are usually multi-banked) to have a single view of their investor profile, thus enabling the risk/return ratio of all the wealth invested to be efficient, even if with different operators.

shows how, on the supply side, investment in technology translates into a strong opportunity for the strategic repositioning of the bank, which must innovate in order to continue to offer value products and services to its customers. On the demand side, this pressure creates the preconditions for seeking satisfaction for needs that are more or less latent but spreading rapidly among the target audience, at a pace in fact aligned with that of the development of digital innovations. A framework that is still being defined, even though it is generating consumer experiences closer to user expectations, both for products and services: in 2022, for example, although 23% of banks envisaged the possibility of using an app to open a digital account, this feature was only used by 10% of users. On the other hand, research by Accenture shows that 2/3 of customers say that banking companies are not responding quickly to their expectations. This highlights the fact that as of today we are still in the change phase and the implementation of new solutions will require further and continuous efforts from the supply side in tune with the changes in demand, which will increasingly take advantage of the new opportunities offered by the banking system, benefiting both in terms of user experience (especially in terms of speed, ease of use and security) and costs.

5. THE PRIORITIES FOR ITALIAN BANKS ADOPTING NEW TECHNOLOGIES

The innovative projects recently initiated by traditional banks are driven by several factors that show different levels of importance. High on the list of investment priorities are cyber risk management and mitigation initiatives, identified as a top issue by both larger and smaller Italian banks (Figure 2). The relevance of security safeguards is always significant because of banks' increased exposure to cyber risks and the consequent need to constantly strengthen defense measures. Cybersecurity has become a priority for banks, as protecting their customers' data is critical to maintaining the institution's trust and reputation. However, the banking sector is increasingly subject to cyber threats, which require advanced solutions to ensure data protection. The banking sector is increasingly subject to cyber threats, such as phishing, malware, ransomware, and DDoS attacks. Banks also face the challenge of data management, as customers' personal information is increasingly numerous and complex. In addition, banks must constantly update their security measures to prevent new cyber threats. Cybersecurity is followed by the issue of modernizing core banking systems and upgrading infrastructure: a path that has been underway for a number of years now but remains relevant especially for larger banks. A strong push to invest in Data Governance, Digital Onboarding and Artificial Intelligence initiatives is noted, and the focus on Cloud Computing (especially for larger banks) remains high in line with the need to enable more agile models in service development.

Figure 2 - Main Information Communication Technology (ICT) investment priorities for Italian banks
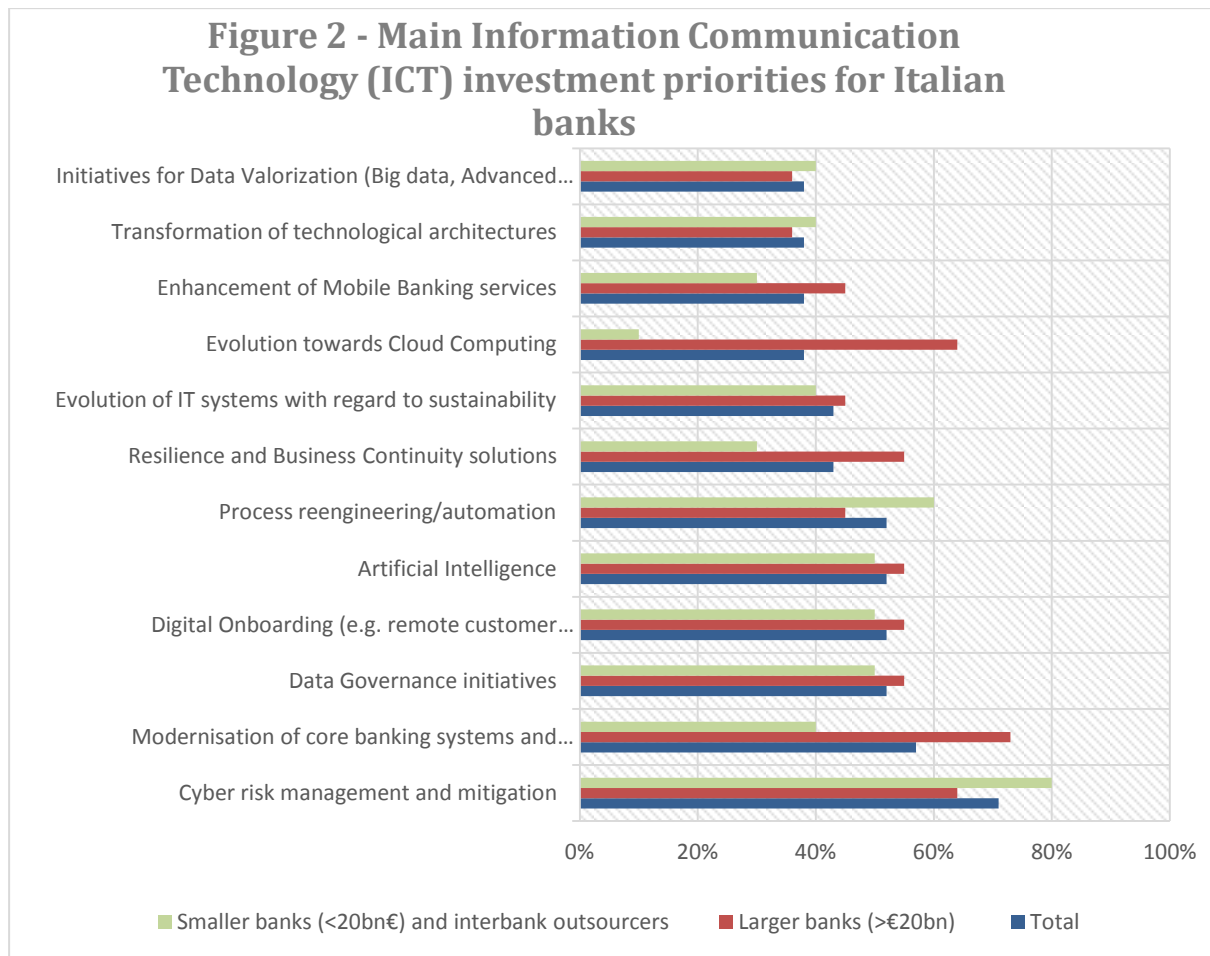
Source: ABILab 2024

The changes taking place in the banking sector, linked to developments in information technology and an increasingly friendly consumer towards digital devices to access financial services as well, are an expression of a proactive approach that retail banks have adopted, and continue to adopt, in order to remain competitive in their markets. These are profound changes that have required a revisiting of business models in the awareness that this is essential to offer their customers innovative solutions both in terms of products/services and access methods, improving customer experience. Today, in fact, but we believe more and more in the near future, remote access will be the preferred solution for many customers, being more practical, economical and faster than the alternative of going in person to the branch. This has also emerged from recent research: convenience, speed of execution, lower costs and electronic documentation are the attractive levers that have induced digital customers to subscribe to products and services via the web (ABI 2023, p.51).

6. MANAGERIAL IMPLICATIONS

On the basis of what has been described, we can state that the range of services that can be accessed remotely and those that can be used in self-service mode should become broader, satisfying the changing and differentiated needs of the various customer clusters that show a growing aptitude to use new technologies to access the services they need, with a consequent increase in demand for services with a higher digital content. Within this evolutionary scenario, a major theme is the cyber risk management and the solutions to mitigatate it. This is a real priority as regards the investments made by Italian banks in the ICT (Figure 2). Moreover, the financial sector is one of the sectors most affected by cyber attacks due to the volumes, nature and frequency of transactions, as well as the size of the customer base (Bajwa et.al, 2023). Large organisations have suffered various such attacks over the years that have jeopardised the security of their customers' data and, in some cases, there have been outright thefts of money, such as the case of the Bank of Russia in which as many as 21 cyber-attacks occurred with a total damage of $50 billion (Chakraborty, 2020). This is why spending on cybersecurity has grown significantly over the years and is now one of the main areas of investment for financial institutions. Digitisation can therefore be a source of value proposition and competitiveness improvements, but it also exposes to potentially very dangerous cyber risks that need to be well identified and minimised through appropriate initiatives. These must be supported by governance within a strategic design at the centre of which is placed the customer and his satisfaction. It is for this reason that alongside security, retail banks are pursuing a complex of projects, belonging to different business areas, aimed at enriching their offerings with an increasing level of digitalisation and optimising the service process also with initiatives that are not directly visible to the customer but that can impact on the level of efficiency and security of the process and the quality of the service provided.

7. CONCLUSIONS, LIMITATIONS AND SUGGESTION FOR FUTURE RESEARCH

The analysis of projects recently implemented by Italian retail banks has provided an overview of the various types of projects on which these institutions are directing their resources in the knowledge that only a proactive approach to innovation is an indispensable factor in succeeding in continuously proposing a value proposition judged to be of value by their customers and at the same time allowing all corporate stakeholders to see their needs satisfied, in line with the fundamentals of stakeholder theory (Freeman, 1994). The analysis conducted provides an overview of the current trend related to digital transformation within retail banks, with a particular focus on Italian ones. This analysis has

some limitations as it is based solely on the analysis of secondary data. We believe that the analysis could be developed by carrying out an empirical analysis, by conducting in-depth interviews with a sample of managers in the banking sector aimed mainly at bringing out the main difficulties in implementing ICT investments, while at the same time describe the effects on the business model, internal organisation (including aspects related to staff management and training) and customer relations. It would also be useful to understand whether performance indicators, including customer satisfaction indicators, correlate with the investments made. Indeed, with such initiatives, banks can improve their ability to intercept customers' needs and be able to satisfy them with an omnichannel proposition perceived as valuable by the customer over time.

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SOCIAL BUSINESS ENTREPRENEUR'S MINDMAP: COGNITIVE ELEMENTS AND THE DEVELOPMENT OF ENTREPRENEURIAL OPPORTUNITIES

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ABSTRACT

This article aims to analyze the mental models of social business entrepreneurs from the perspective of their cognitive elements in decisions related to the development of opportunities.For this purpose, a qualitative and exploratory research approach was developed. The method used in the study was Interactive Qualitative Analysis (IQA), utilized both as a data collection and interpretation procedure. The IQA aims to generate a shared mental map among individuals on the discussed topic, identifying components and relationships between them. This mind map is the main contribution of the study. The results revealed five cognitive elements that influence opportunity development: purpose, awareness, positive socio-environmental impact, market opportunity, and personal opportunity. The procedures allowed a holistic understanding of these elements, indicating that the main driver of the entrepreneurial process is purpose, followed by awareness, both in a causal position in the opportunity development system. As for the affinities positive socio-environmental impact, market opportunity, and personal opportunity, these are the primary results or effects resulting from the model, which are interrelated as part of cycle of continuous influence. From a practical perspective, the results of this study can support public policies favorable to social businesses, promoting social innovation and sustainability. Additionally, the proposed mental model offers valuable insights to entrepreneurs, guiding them in identifying and exploring opportunities, and encouraging the creation of new social businesses.

Keywords: Entrepreneurial opportunities. Mental models. Entrepreneurial cognition. Cognitive elements. Social businesses.

INTRODUCTION

The entrepreneurial capacity of the population drives job creation, develops products and services for the market, and inspires innovative solutions across various sectors (Kuratko et al., 2021; Lobo et al., 2023), fostering sustainable and equitable national development. In this context, social businesses

emerge as an innovative organizational form recognized for their contribution to social entrepreneurship, playing a crucial role in advancing sustainable development (Comini et al., 2012; Petrini et al., 2016; Al-Qudah et al., 2021). Contributing to explore this importance, the article aims to analyze the mental models of social business entrepreneurs from the perspective of their cognitive elements in decisions regarding the development of opportunities. To achieve this, the Interactive Qualitative Analysis, proposed by Northcutt and McCoy (2004), was employed.

Social businesses, as defined by Barki et al. (2020), are mission-driven organizations seeking to address socio-environmental challenges efficiently and financially sustainably, using market mechanisms. This emergence is motivated by the difficulty of the public sector and NGOs in promoting economic development due to a lack of resources and organizational capabilities (Porter and Kramer, 2011).

Despite the growing interest in the subject, there are gaps that require investigation, especially concerning the process of opportunity development in this context. It is crucial to analyze what drives entrepreneurs to identify and explore social opportunities (Nsereko, 2022; Kaushik and Tewari, 2023). Therefore, understanding the process and cognitive factors shaping judgments about opportunities is decisive in determining under which conditions entrepreneurial activity is most likely (Wood et al., 2014). Cognitive elements play a fundamental role, influencing entrepreneurs' capabilities and being beneficial in the discovery and creation of business opportunities (He et al., 2020). These elements organize information stored in memory, acting as "models" that allow some individuals to perceive connections between seemingly unrelated points for others (Baron, 2006), known as mental models (Wood et al., 2014). To discuss the topic, the article is structured into the following sections: theoretical foundation, methodology, presentation of results and discussion, concluding with final considerations.

SOCIAL BUSINESS AND ENTREPRENEURIAL COGNITION

Social businesses, highlighted as an innovative form of organization, represent an alternative seeking to integrate the best of the third and second sectors to generate positive social impact (Barki et al., 2020). These organizations, also called social enterprises, inclusive businesses, and social businesses, are essential for achieving sustainable development, prioritizing the resolution of social demands and financial self-sustainability (Comini et al., 2012; Barki et al., 2020).

In the business models of social enterprises, the prioritization of social value creation over economic value stands out (Littlewood; Holt, 2018). They cannot rely on replicating business models primarily focused on economic profit, requiring the development of a specific model (Yunus et al., 2010), reflecting organizational hybridity that combines different institutional logics (Gupta et al., 2020; Wilson and Post, 2013; Barki et al., 2020). In the context of social businesses, entrepreneurial opportunities are defined as "situations in which new combinations of means-ends in socio-economic

environments can be created or optimized and that maintain value for a limited period" (Zur, 2015, p. 79). Opportunities are thus perceived based on existing needs for social value creation, involving cognitive elements such as prior experience, risk propensity, and social capital (Nsereko et al., 2022; Bezerra-de-Sousa et al., 2022; Zulfiqar, 2019).

As entrepreneurial behavior is influenced by cognitive or mental processes, a research line has emerged in academia that aims to study entrepreneurship from a cognitive perspective to investigate how individuals obtain, process, and use information (Madzikanda et al., 2022). Thus, the theory of entrepreneurial cognition uses cognitive psychology to analyze how entrepreneurs think when launching businesses and exploring opportunities (Chen et al., 2020) and employs mental models to gather information and identify opportunities, seeking to understand why they do what they do (Kuratko et al., 2020).

Entrepreneurial cognition is defined as knowledge structures used in the assessment of opportunities, in the creation of ventures, and in growth (Mitchell et al., 2002). Entrepreneurs perceive opportunities through simultaneous and repetitive cognitive activities, influenced by cognitive factors enhancing their abilities in discovering and creating opportunities (Pryor et al., 2016; He et al., 2020; Wood et al., 2014). Thus, Poblete (2019) suggests that although perceptions are influenced by external factors shaping interpretations, the definition of what constitutes a good opportunity occurs at the individual level.

Cognitive elements play a fundamental role in the entrepreneurial process. In the context of traditional entrepreneurship, notable elements include prior experience (Frederiks et al., 2019; Gamero & Ostos, 2020; Nicolaou et al., 2019; Westhead et al., 2005), knowledge domain (Alomani et al., 2022; Mensah et al., 2021; Milan et al., 2010), previous failure (Klimas et al., 2021; Wood et al., 2014), risk propensity (Alomani et al., 2022; Fillis & Rentschler, 2010; Tabares et al., 2021; Zaleskiewicz et al., 2020), overconfidence (Alomani et al., 2022; De Carolis & Saparito, 2006), optimism (Shepherd et al., 2015; Poblete, 2019), creativity (Gamero & Ostos, 2020; Fillis & Rentschler, 2010; Tabares et al., 2021), social capital (Alomani et al., 2022; De Carolis & Saparito, 2006; Gamero & Ostos, 2020; Huang et al., 2022), moral reflection (Milan et al., 2010; Shepherd et al., 2015), metacognitive thinking (Bastian & Zucchella, 2022; Gilbert-Saad, 2023; Haynie & Shepherd, 2009; Majeed, 2022; De Winnaar & Scholtz, 2020), self-efficacy (Camelo-Ordaz et al., 2020; Doanh, 2021; Tabares et al., 2021), curiosity (Arikan et al., 2020), cognitive flexibility (Lenartowicz, 2019), schema alertness (Mensah et al., 2021), counterfactual thinking (Frederiks et al., 2019; Mensah et al., 2021), prospective thinking (Frederiks et al., 2019), perspective-taking (Frederiks et al., 2019), and desire (Alomani et al., 2022).

In the realm of social entrepreneurship, there is a knowledge gap regarding cognitive reasoning in the search for social opportunities, highlighting the need for further exploration in this area (Hockerts,

2015; Munõz, 2018). Despite this gap, some cognitive elements of social business entrepreneurs are found in studies focused on this context, including self-perception of opportunities (Nicolás et al., 2018), self-perception of capabilities (Nicolás et al., 2018), fear of failure (Nicolás et al., 2018), commitment escalation (Hietschold & Voegtlin, 2021), illusion of control (Hietschold & Voegtlin, 2021), perceived sustainable convenience (Arru, 2020), behavioral control (Arru, 2020), attitude toward sustainability (Arru, 2020), social empathy (Zulfiquar et al., 2019), prior experience (Wanyoike & Maseno, 2021; Ghazali et al., 2021; Nsereko, 2021), risk propensity (Arru, 2020), overconfidence (Hietschold & Voegtlin, 2021), social capital (Zulfiquar et al., 2019), self-efficacy (Arru, 2020; Nicolás et al., 2018), creativity (Lemaire, 2022), and financial security (Ukil et al., 2023).

METHODOLOGY

To achieve the objective, the study employed Interactive Qualitative Analysis (IQA) by Northcutt and McCoy (2004), a methodology that combines the quantitative rigor of Total Quality Management (TQM) with a qualitative project for data collection and analysis. The method aims to create, from a focus group, a shared mental map of individuals on the addressed topic and identify relationships between these components.

Research design

According to Northcutt and McCoy (2004), the research planning encompasses three stages in the design phase: a) problem formulation; b) definition of constituent groups, and c) research question formulation. The research problem accompanying this study is: "How are the mental models of social business entrepreneurs characterized, from the perspective of their cognitive elements, in decisions about the development of opportunities?"

Subsequently, the definition of research participants, called constituents (Northcutt & McCoy, 2004). The research participant group consists of founding entrepreneurs of Brazilian social businesses who identified and explored a social entrepreneurial opportunity at least 2 years ago and are still leading the enterprise. These individuals should be responsible for decisions related to entrepreneurial opportunities. Eight social business entrepreneurs agreed to participate and contribute to the research. The confidentiality of the research participants was ensured by concealing the municipality and the names of the participants and their companies, naming them only as Entrepreneur 1, Entrepreneur 2, and so forth until Entrepreneur 8.

Focus group facilitation and data analysis

The focus group aims to identify the "pieces of the map," referred to as affinities by Northcutt and McCoy (2004). In this study, the focus group was conducted online through a web conferencing tool

and lasted two hours and twenty minutes. In this phase, the "silent brainstorming" occurs, in which participants must write their experiences on cards based on their reflection on the research's guiding question (Northcutt and McCoy, 2004). To assist, the Padlet tool was used to create a collaborative and interactive virtual board. Participants accessed the virtual board link, and the researcher retrieved the key question from the focus group, asking respondents to reflect on their experience with the study's phenomenon and type their thoughts on the board (one per card, preferably using short words or phrases).

Up to this point, each participant could only see their own cards, and only the researcher could see everyone's cards. This was done to avoid external influences during the process. After 15 minutes, the entrepreneurs finished, and the researcher enabled all cards to be visible on the screen for all participants. A total of 74 cards resulted, displayed on the screen without any defined order or identification of who wrote them. Next, the researcher read each card to the group to ensure everyone had the same understanding, and participants were invited to reach a consensus on the meaning of each card, organizing them into categories and placing them in columns by groups of meaning (affinities). This process is called inductive coding because the participants themselves classify the categories, also establishing their respective names (Northcutt & McCoy, 2004).

With the affinities created, the focus group's final objective is to analyze the relationship between affinities, using a form called the Affinity Relationship Table (ART). Each participant filled out this form online through the Google Forms tool. It included questions about the relationship of each pair of affinities, with three possible response options: A > B (A influences B), A < B (B influences A), and A <> B (no relationship). This step is called theoretical coding. This form was sent to the participants by email, and after everyone filled it out, the focus group was concluded.

Then, to create the mental map resulting from the focus group, the researcher initiated the data analysis. Firstly, the count of each relationship between affinities was carried out, considering the ART of each participant and recording the sum of frequencies for each pair of relationships in an Excel spreadsheet. With this data, the Affinity Theoretical Coding Frequency Table was created. In this study, 20 relationships were established between the pairs of affinities pointed out by entrepreneurs and classified in descending order.

As indicated by Northcutt and McCoy (2004), the Pareto principles were used to select the affinity pairs to be considered in building the mental map resulting from the focus group. Thus, when the cumulative percentage of frequencies reaches 80, it should be the selection point for affinities, considering that the greatest variance is included in these relationships. According to the cutoff line in this study, the cumulative percentage of frequencies reaches 82.2% on the twelfth relationship pair between affinities (3 < 5), accumulating 60% of the relationships. Additionally, Northcutt and McCoy

(2004) recommend eliminating ambiguous relationships, i.e., those that receive votes in both directions. Following these recommendations, two relationship pairs were eliminated (1 > 5 and 3 < 5), leaving ten pairs considered for the mental map's construction. These were used to create the Interrelationship Diagram (IRD) of the focus group.

In this diagram, each of the ten pairs of affinity relationships was inserted twice. Each arrow destined from an affinity was counted as an out, and each received arrow was considered an in. Based on the number of ins and outs, the delta value was calculated (delta = outs – ins). So that the diagram could indicate the position of each affinity in the system, it was arranged in descending order of delta. Thus, in this study, the awareness (1) and purpose (5) affinities are the primary drivers of the system, followed by the market opportunity (3) affinity, which is the pivot. The positive socio-environmental impact (2) and personal opportunity (4) affinities are the primary outcomes of the system, i.e., they are the affinities that receive the most influences from others, considered the dependent variables in the system. In this diagram, there were no secondary drivers and secondary outcomes.

Northcutt and McCoy (2004) indicate that the fact that the IRD presents different values from zero in all inputs and outputs does not mean that there is no primary motivator or outcome. Instead, it indicates that the affinity or affinities are a strong relative cause or effect but are still influenced by or influence other affinities. In this case, it is appropriate to name these affinities as primary. After analyzing the information, a mental map called the System Influence Diagram (SID) was generated as the result of the focus group.

Interviews

In this phase, semi-structured individual interviews took place with the focus group participants, aiming for a more detailed description of each affinity highlighted in the previous phase and a better understanding of how the entrepreneur perceives the relationships presented in the mental map. The idea is to obtain the experiential viewpoint of each individual (Northcutt & McCoy, 2004). The eight interviews were also conducted online through the Microsoft Teams web conferencing tool in November 2023. All interviews were recorded and later transcribed, totaling 7 hours and 50 minutes of recording and 220 pages of transcription. A content analysis of the transcribed material was performed using the MAXQDA Analytics Pro software, version 24. The interview results are presented and discussed in the following topic.

PRESENTATION AND DISCUSSION OF RESULTS

In this section, the research results are presented and discussed, starting with the description of each affinity from the entrepreneurs' perspective and then moving on to the identification of perceived

relationships between affinities, combining theoretical coding interviews.

The **purpose** is defined by entrepreneurs as "what makes me wake up every day, working on activities related to my values." Some participants reported that this category connects with all others, as it is what drives and gives meaning to everything. Thus, identified opportunities are connected to the entrepreneurs' purpose, as exemplified in the following excerpt:

> *"This category, I think, stitches everything together because nothing would make sense if it weren't something I strongly believed in, right? Regardless of everything, I need to believe in the process, in the mission. And in the effects too because it's not just financial; we're at a point on the planet that has become unsustainable. So, for me, nothing would make sense if it weren't in harmony with the development of the planet, new ways of acting on the planet, understanding our role as human beings in the world." – Entrepreneur 8*

Entrepreneurs' perception aligns with Wilson and Post (2013), who emphasize social mission as the driving principle for social businesses. Thus, the cognitive element of social empathy (Zulfiquar, 2019) emerges, where social entrepreneurs try to view their business from the perspective of societal aspirations. The cognitive element of compassion also aligns with what entrepreneurs addressed in this category, as the entrepreneur emphasizes others over personal gains (Zur, 2015). Another perceived cognitive element is moral reflection (Shepherd et al., 2015). According to Gupta et al. (2020), social entrepreneurs have a desire to take actions that assist in social changes and addressing social problems, as they are motivated by a sense of commitment and ethical responsibility to help society.

Awareness can be defined as the means of generating impact through awareness. In the development of opportunities, entrepreneurs evaluated this aspect, as through their previous knowledge and their business, they raise awareness and provide socio-environmental education to society, as perceived in Entrepreneur 3's interview:

> *"People also want to receive information, so they need information, whether for their own lives or even for her other businesses. And so, from what we know, from our knowledge, we can use that to pass on to other people, right?" - Entrepreneur 3*

This sense of responsibility to raise awareness among others, identified in these statements, seems to go beyond the possession of knowledge itself, as Milan et al. (2010) and Alomani (2022) describe that knowledge mastery involves technical notions and knowledge about the environment. It is evident that there is also a knowledge socialization movement, stemming from the knowledge acquired by the social entrepreneur. In this sense, entrepreneurs emphasize that through their human capital and knowledge mastery, they bring awareness to society.

This also seems to reinforce the cognitive element of social empathy, presented by Zulfiquar (2019), which relates to this category in the sense that the social entrepreneur desires to contribute to the environment in which they are embedded. This occurs, for example, with the fact that the social entrepreneur not only has knowledge for themselves but also shares it with others. Entrepreneur 6's statement reflects this situation: "So generating this awareness in people, wherever I am, is my mission; I am a evangelist, I am a prophet of nature.", Another cognitive element present is social consciousness (Zur, 2015), which directs the entrepreneur's attention to the social arena and the achievement of social objectives. More recently, Viswanath and Reddy (2024) also indicate that social awareness is crucial for recognizing opportunities, as involvement with communities and interaction with social issues enhance the ability to identify and creatively solve challenges.

The **positive socio-environmental impact** category, considered in the process of opportunity development, was defined by the participants as "positive socio-environmental impacts resulting from involvement in social businesses." Entrepreneurs show great care in this regard, considering it crucial for their business. The statement of Entrepreneur 1 provide an example of a socio-environmental impact report your company:

> *"We always talked about this residue, and people would ask: 'Why do you do that?' So from that, we really started to see that we needed to talk much more about, in addition to awareness, the impact we generate. How much waste we've removed, how much residue we've taken out of an industry and returned to that industry as a reinterpreted material. We also always show on social media everything that remains from our production, where it goes. [...] This environmental impact has always been very important; we always take great care, really take great care. Because it started like this; the company already started certain. So, if we do something different from that, it doesn't make sense. So we always take great care." – Entrepreneur 1*

From the entrepreneurs' statements emerges a connection with the social profit equation of the social business model proposed by Petrini et al. (2016). This component refers to the elements of the business that generate social impact. According to what Arru (2020) pointed out about sustainable self-efficacy, individuals believe in their ability to generate significant social and environmental impact. This belief is briefly evidenced by Entrepreneur 4, who says: "So the impact we cause is very significant, very significant." Thus, there is a concern about impact, its measurement, and the perception that it makes a social and environmental difference.

Market opportunity is another affinity, defined by entrepreneurs as gaps in the market where financial returns and positive impact can be obtained. Entrepreneurs perceived opportunities for various reasons, including previous knowledge of the subject, a pain or need of the target audience, previous

experience with the situation, and participation in entrepreneurship events that made the entrepreneur see such opportunities. The statement of Entrepreneur 2 exemplify some of these situations:

> "The business starts from the pain of the rural producer, which is the distribution of production, productive planning. Another pain of the rural producer is the value paid for the products, so it starts from there. But consequently, on the other end, there is the consumer who is concerned about consuming products closer, products more... well, concerned about all these other points. [...] But the reality, my family, well, the people I know, in different regions, this pain was identified. Of course, then there was all the research, surveys, articles, and so on." – Entrepreneur 2

The results synthesized in the statement of the entrepreneur, but also present among others, align with Da Costa et al. (2007), Yitshaki and Kropp (2015), Arentz (2013), Wood et al. (2014), and Nsereko (2021), assessing that the discovery of opportunities in the social context is based on life experiences, access to information, previous knowledge, causing some individuals to recognize opportunities while others do not. Previous experience with the social problem makes the entrepreneur more familiar with the context and more engaged in creating a social organization (Hockerts et al. 2017, Bezerra-de-Souza et al., 2022; Ghazali, 2021). According to Viswanath and Reddy (2024), life experiences remind social entrepreneurs of the needs and challenges of communities, motivating them to seek innovative and transformative solutions.

In this category, the cognitive element of social capital is also observed, as mentioned by entrepreneur 1, who discussed participation in events, building a network of partners, as well as involvement in an incubator. The creativity (Lemaire, 2022) can also be identified in the entrepreneurs' statements, as they used available resources to solve a situation. The sociological imagination (Zur, 2015), and business idea, risk propensity, and market viability, proposed by Behling (2019), are also present cognitive elements.

When evaluating a market opportunity, entrepreneurs also consider **personal opportunity**. Participants identified in their statements the importance of generating income (short and long term), being able to work with something that fits their reality and that they like and makes sense for their lives, as well as being able to help others with their business. An example of this is mentioned by Entrepreneur 4.

> "When we started earning, I mainly stopped and said: 'Man, a business was born.' Because I've been a public servant, I've been a sales representative. I said: 'Man, I want to have my own business, something I believe in, right.' And since the kids were already supporting themselves, studying, I said: 'Man, it's the time I have now to lead my life, do what I like, right.'" – Entrepreneur 4

The results of this category are related to what Nicolaou et al. (2019) presented, stating that individual circumstances and life changes can make the entrepreneur more aware of a more attractive opportunity. Wanyoike and Maseno (2021) also corroborate in analyzing that motivation has a common trait in which the trigger is intensely personal due to a closer proximity to the problem. Additionally, the cognitive element of self-perception of capabilities is also present. It suggests that the perception of one's own abilities, feeling capable of performing the action, helps the individual decide to undertake (Nicolás et al., 2018). For example, Entrepreneur 3 states: "And so, as I already knew and had gone, I wanted to bring and multiply this knowledge." The desire to establish a new venture is an important cognitive factor, as entrepreneurs who want to start a business are likely to be more persistent in creating new ventures (Alomani et al., 2022). This situation can be observed in Entrepreneur 4's statement:

> *"Now I think I found my path." [...] I really found an opportunity to do what I like. And of course, generate income because it's a startup, it's in a good moment in innovation and everything, so I can grow, build my business. Because I worked my whole life for others, and now I decided to work for myself."*

Another cognitive element related to this affinity is personal motivation, as indicated by Behling (2019), since it points out that motivations for entrepreneurial opportunity development include financial return, recognition, family influences, and freedom of action. Ukil et al. (2023) also analyze that perceived financial security is also an important aspect for the entrepreneur.

After describing the five affinities, we move on to the second part of the interviews, where entrepreneurs were questioned again about the perceived relationships between these affinities, which will be presented next. In the second part of the interview, the researcher accessed a blank Affinity Relationship Table (ART) questionnaire through Google Forms for the participant to classify the influences between affinities again, reflecting and explaining the reason for their decision with examples from their reality. As described in the focus group processing stage, participants had three possible response options: A > B (A influences B), A < B (B influences A), and A <> B (no relationship). It is important to clarify that entrepreneurs did not have access to the ART that was filled out previously in the focus group.

With the analyses conducted, the researcher created a new System Influence Diagram, aiming to triangulate these new data with the diagram generated in the focus group. The construction of this second map followed the same SID protocol developed from the focus group. Thus, in this new map, resulting from the interviews, the purpose affinity is the primary driver of the system, followed by awareness as the secondary driver. The personal opportunity, market opportunity, and positive socio-

environmental impact affinities appeared as primary results, being the ones most influenced by others. In this diagram, there were no pivot and secondary result topological zones. Thus, to bring together the main results of this study, figure 1 presents the five affinities of social business entrepreneurs' mental models in the process of developing entrepreneurial opportunities, the most relevant factors identified in each affinity, as well as their interrelationships that configure the system of influences.
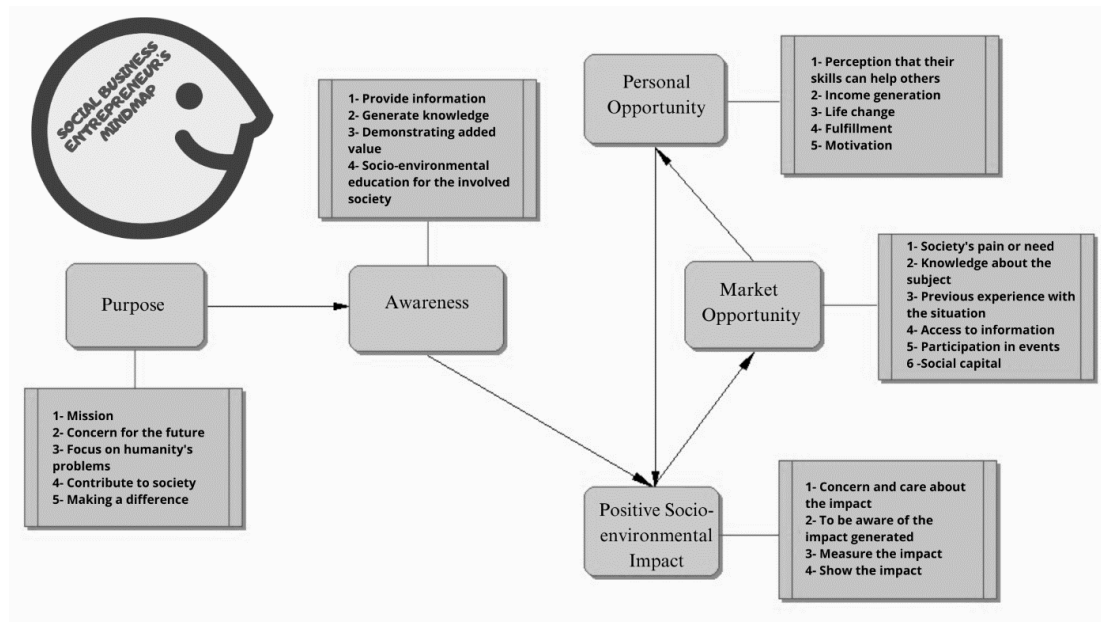
Figure 1 - *Social business entrepreneur's mindmap*

When analyzing the relationships, the exposed mind map demonstrates an influence arrow starting from the primary driver purpose to the secondary driver awareness. Regarding this relationship, entrepreneur 7 mentions: "Because if you have a purpose, you want to raise awareness." Awareness, in turn, generates positive socio-environmental impact, as mentioned by entrepreneur 8: "I think that through awareness, people start to behave differently towards the environment." Positive socio-environmental impact influences the entrepreneur to see a market opportunity, as stated by entrepreneur 3: "But often the market also proves that it needs to be changed, so I see there is an opportunity there." Regarding market opportunity, entrepreneurs believe that it influences personal opportunity, as can be observed in entrepreneur 1's statement: "It was from the opportunity I saw in the market that I began to create opportunities for myself and others."

Personal opportunity, in turn, influences positive socio-environmental impact, as exposed by entrepreneur 7: "It's a personal opportunity that gives an opportunity to talk about the impact." Having established these relationships, it is noted that among the 3 affinities identified as primary outcomes of the system, positive socio-environmental impact, market opportunity, and personal opportunity, there was a continuous cycle of relationships, meaning that each affinity is influencing the other, directly or indirectly. Northcutt and McCoy (2004) refer to this relationship as a Feedback Loop or Cycle of feedbacks, since the variables influence each other mutually.

Based on the results, the resulting mind map from the study may resemble that outlined by Boszczowski and Teixeira (2012), highlighting important requirements in the development of social opportunities. They emphasize that the identified need must be a socio-environmental problem. The social mission, defined as purpose by the research participants and considered a primary driver in both the focus group outcome and individual interviews, is highlighted by Wilson and Post (2013) and Syrja et al. (2019) as the motivating principle of social businesses, driving the persistent pursuit of the enterprise's objectives. Through this purpose, entrepreneurs identify needs to create sustainable social value, aiming to improve social well-being and develop long-term projects (Sastre-Castillo et al., 2015). This affinity is considered an inductor of the other model's affinities, as indicated by Northcutt and McCoy (2004). Sales (2022) illustrates this influence by relating that the goal of a social business is to generate social impact from its main activities, rather than as an unintended effect.

According to Boszczowski and Teixeira (2012), entrepreneurs must recognize how they will address the problem in the opportunity identification process. In the study's mind map, awareness (secondary driver) is seen by the entrepreneur as a way to contribute to society through the application of knowledge. Consequently, the generation of positive socio-environmental impact (primary outcome) also contributes to this. The entrepreneur, in a cognitive manner, must gather this information into something coherent that can be called an opportunity. This relates to the categories of market opportunity and personal opportunity proposed in this study, as they appear as primary outcomes or effects of the system. The entrepreneur identifies market opportunities that have not yet been explored, also having personal opportunities with this process (Boszczowski and Teixeira, 2012).

Finally, as evidenced, opportunities are generated from an existing need for social value creation, meaning the need already existed before social opportunities were implemented which can be considered as exogenous. However, as Sharma et al. (2021) pointed out, in the identification, development, and exploration of opportunities, cognition plays an intrinsic role and involves exploring the individual traits of the entrepreneur. This reflects an endogenous aspect of the social entrepreneur, present in the interviews, such as cognitive elements like self-perception of capabilities (Nicolás et al., 2018), social empathy (Zulfiquar et al., 2019), previous experience (Ghazali et al., 2021; Nsereko, 2021), social capital (Zulfiquar et al., 2019), and self-efficacy (Arru, 2020; Nicolás et al., 2018).

FINAL CONSIDERATIONS

In a scenario filled with social and environmental challenges, social business entrepreneurs, despite still having limited presence, are gradually playing a crucial role in addressing these issues. By exploring socio-environmental opportunities, they generate social value and establish new business models, contributing to solving pressing problems. To understand how these entrepreneurs perceive

opportunity, this research analyzed the mental models of social business entrepreneurs from the perspective of their cognitive elements in decision-making regarding opportunity development. The main theoretical contribution of the study was the construction of the shared mental model of social business entrepreneurs in the domain of opportunity development, formed by cognitive elements that interrelate to determine, in the perception of the entrepreneurs, the attractiveness of an opportunity.

We identified the cognitive elements of mental models of social business entrepreneurs that influence opportunity development: purpose, awareness, positive socio-environmental impact, market opportunity, and personal opportunity. The model configuration presented purpose as the primary driver and awareness as the secondary driver, both considered causes in the opportunity development system. The positive socio-environmental impact, market opportunity, and personal opportunity were identified as primary results of the model. These represent the resulting effect of the system, present in a cycle of influence, called a feedback loop, meaning they affect and are mutually affected.

Regarding entrepreneurial opportunities, it is possible to perceive that they are linked to purpose. Entrepreneurs primarily use their social empathy, compassion, and moral reflection in their actions, as they aim to contribute to the society they are part of. As for awareness, a strong influence of knowledge domain can be observed, along with an additional movement of knowledge socialization, since through it, the entrepreneur generates socio-environmental education. Additionally, the cognitive elements of social empathy and social consciousness are perceived, relating to the definitions of social entrepreneurs found in the literature.

As for positive socio-environmental impact, entrepreneurs seek to measure it, both to recognize the effects of their actions and to promote changes in social perception and behavior, as well as to attract interest in their business model. This reflects the sustainable self-efficacy cognitive element, feeling capable of generating a proposed impact. Regarding market opportunity, the elements of previous experience, knowledge domain, creativity, sociological imagination, business idea, risk propensity, market viability and social capital influence the opportunities identified by entrepreneurs. The empirical findings of this affinity also contribute to the previous literature by noting that the entrepreneur identifies the opportunity based on an existing need in society. Finally, in personal opportunity, the self-perception of capabilities, optimism, personal motivation and a desire to establish a new venture, are noticeable cognitive elements.

Thus, it is highlighted that the cognitive elements that resulted from this study, labeled as purpose, awareness, positive socio-environmental impact, market opportunity, and personal opportunity, and presented together as a mind map, had not been previously found in the literature, but they relate to some aspects of the researched theory. Additionally, this result allowed us to visualize in a holistic way how entrepreneurs think about the opportunity. Furthermore, some of the cognitive elements of social

entrepreneurship that already exist in the literature were not evidenced in the reports of the participating entrepreneurs. Among them are self-perception of opportunities, fear of failure, escalation of commitment, control illusion, perceived sustainable convenience, behavioral control and attitude towards sustainability.

Considering the reflections presented and returning to the research question that guided this study on the characterization of the mental models of social business entrepreneurs, focusing on their cognitive elements in decisions related to opportunity development, it is highlighted that purpose emerges as the main driver of this entrepreneurial process. This cognitive element, based on the motivation to contribute to the improvement of the world, transcends the scope of the entrepreneur's actions. Purpose not only guides them to be a change agent but also guides them in the application of their knowledge, with an emphasis on awareness, positively influencing other individuals and organizations in their sphere of relationships. Purpose, combined with the desire to raise awareness about socio-environmental issues, leads the social entrepreneur to recognize the possibility of generating positive impact, identifying market opportunities not yet explored by other organizations. This process, therefore, not only results in personal opportunities, income, and fulfillment but also contributes to the construction of a broader positive socio-environmental impact, consisting of a constant loop. Thus, the opportunity in social businesses is configured at the intersection of external and internal factors. In summary, the entrepreneur operates in a context with real and objective conditions, allied with their perception, shaping the scenario for the discovery and creation of opportunities.

The empirical results and the confrontation with previous literature significantly contribute to the scientific knowledge in the field. However, considering this as an exploratory study, it still opens possibilities for future research, such as a comparative analysis of social entrepreneurs focusing on businesses exclusively addressing environmental or social demands. Exploring the model for studies in other regions of the country, comparing possible regional differences, is also a fertile path for research. Furthermore, future research can use the identified model and affinities for the construction of evaluation scales, allowing quantitative studies with expanded samples.

From a practical standpoint, the findings of this study have the potential to inform public policies favorable to social businesses, promoting social innovation and sustainability. Additionally, they offer valuable insights applicable to interested entrepreneurs, encouraging the creation of new businesses. By sharing this accessible knowledge, the research contributes to empowering entrepreneurs, encouraging the formation of ventures that not only thrive in the market but also generate positive and sustainable impact in their communities and the environment.

In relation to the methodology, this study also contributes by using Interactive Qualitative Analysis (IQA) in the field of administration, filling a gap in the literature (Behling et al., 2019). Additionally, the

study may have advanced by conducting the focus group and interviews online, as there is no knowledge of online focus groups, only interviews. This approach may facilitate the application of IQA in further research, bringing together groups with similar characteristics but in different regions.

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EXPLORING THE INTERSECTION BETWEEN LUXURY FASHION AND SUSTAINABILITY. A BIBLIOMETRIC ANALYSIS

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ABSTRACT

In a context where governments and institutions are pushing to sustainable development, luxury fashion industry received criticism for its negative social and environmental impact. Although firms are investing in sustainable business practise they are still susceptible to the scrutiny of consumers. The need to explore the intersection of luxury fashion and sustainability is increasingly gain significance as the perception that two issues are opposed is taking hold.

This work undertakes a systematic literature review to identify relevant literature dealing with luxury fashion and sustainability. The review was performed through a bibliometric analysis on 418 primary works, retrieved from Web of Science (WoS) database.

Co-occurrence analysis of keywords identified three main clusters in literature. The first cluster focuses on consumer behaviour and perceptions. The second cluster takes a managerial perspective and explores topics such as corporate social responsibility, strategies and performance of luxury fashion companies. Finally, the third cluster is specific to customer satisfaction, and examines its determinants and moderators.

Implications for theory and practice are provided

Keywords: luxury, sustainability, systematic literature review, bibliometric analysis

INTRODUCTION

Governments and institutions are increasingly advocating for sustainable development, aiming to transform the global economy into a more sustainable model for both business and consumption (OCED, 2011; Campos et al., 2020). This pressure compelling firms to transition towards sustainable business models, is attracting the interest of scholars establishing a growing trend in the literature (Demiler et al., 2019).

In this context, the luxury fashion industry presents an interesting case. Despite the uncertainty in the international arena, the global luxury fashion market was valued at USD 123.05 billion in 2022,

demonstrating remarkable resilience. Projections further suggest that the industry is expected to reach a revenue of USD 198.55 billion by 2031 (McKinsey&Company, 2023; Straitsresearch, 2024)[1].

However, it is important to note that the luxury fashion industry has received criticism for its negative social and environmental impact. Firms within this industry have been called out several times for depleting natural resources (Olšanová, Gook, & Zlatić (2018), generating of pollution (Pohlmann et al. ,2022), exploiting employees, and using animals when testing new materials (Athwal, et al. 2019). As a result, luxury fashion companies are more susceptible to the scrutiny of consumers. These factors have contributed to the perception that sustainability and luxury fashion industry are fundamentally opposed (Campos et al., 2020; Grazzini et al., 2021).

On the other hand, the luxury fashion industry is actively taking steps to embrace sustainability. Many companies within the industry are compelled to communicate their commitment to sustainability as consumers are increasingly becoming more conscious of the environment and social impact of their purchasing choices (Lundbland and Davies, 2015). It is evident that, whether driven by genuine sustainability goals or engaging in potential greenwashing, luxury fashion companies are investing in sustainable business practise, contributing to the growth of sustainable fashion markets (Grazzini et al., 2021).

Within this framework, the intersection of luxury fashion and sustainability gains significance. This has prompted the current research to undertake a systematic literature review aiming to identify and systematize the relevant literature dealing with the investigated issue and ascertain its main patterns and evolutionary dynamics (Fink, 2020; Moher et al., 2009; Petticrew and Roberts, 2006; Snyder, 2019; Tranfield et al., 2003).

METHODOLOGY

We retrieved publications from the Thomson Reuters' Web of Science (WoS) database and identified 418 primary works published by international journals that address the subjects of luxury and sustainability. The identification process was initiated by using the keywords "luxury" and "sustainab*". Initially, the first search resulting in identifying 640 works. Subsequently, we refined our search within the following Web of Science categories: business, management, communication, environmental studies, environmental sciences, materials science multidisciplinary, material science textiles, and economics. By exclusively considering articles and reviews, our refined search resulted in the final selection of 418 primary works. We did not exclude papers from the identified dataset to ensure a comprehensive examination of the current research topic. For conducting the bibliometric analysis, we utilised the open-source bibliometrix software (Aria and Cuccurullo, 2017).

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[1] https://straitsresearch.com/report/luxury-fashion-market

RESULTS

In the following sections, we provide a concise descriptive and interpretative analysis of the relevant literature. Table 1 presents an overview of the literature, comprising 418 scientific articles published across 186 international journals. Notably, there has been a steady annual growth in the number of publications, with an average annual growth rate of 7.25% particularly in recent years. The average age of these documents is approximately 4.22 years, indicating that the research is relatively current. The identified primary studies encompass a broad spectrum of topics, as evidenced by 1,129 keywords and 1,603 authors' keywords. These publications involve the contributions 1,130 researchers, of which only 51 were single-authored producing in total 57 documents. Collaboration was indeed quite developed, with 3.03 co-authors per paper and an international co-authorship of 38.04%.

Timespan	2001:2024
Sources	186
Documents (articles)	418
Annual Growth Rate %	7.25
Document Average Age	4.22
Average citations per doc	18.13
References	24353
DOCUMENT CONTENTS	
Keywords Plus (ID)	1129
Author's Keywords (DE)	1603
AUTHORS	
Authors	1130
Authors of single-authored docs	51
AUTHORS COLLABORATION	
Single-authored docs	57
Co-Authors per Doc	3.03
International co-authorships %	38.04

Table 1. Dataset main information

Figure 1 provides a visual representation of the growth in scientific production since 2017, indicating the increasing attention of luxury and sustainably as a topic. There have been 87 works published by international journals, an upward trend from a mere 19.
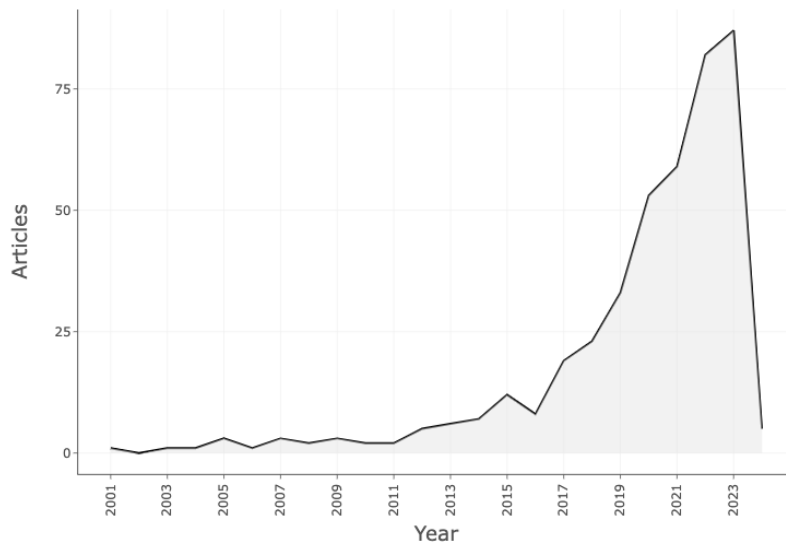
Figure 1. Annual scientific production

Figure 2 highlights the top 5 sources among 186; Sustainability (with 59 papers published in the considered timespan), Journal of Business Research (19), Journal of Cleaner Production (18), Journal of Global Fashion Marketing (13), and Asia Pacific Journal of Marketing and Logistics (9).
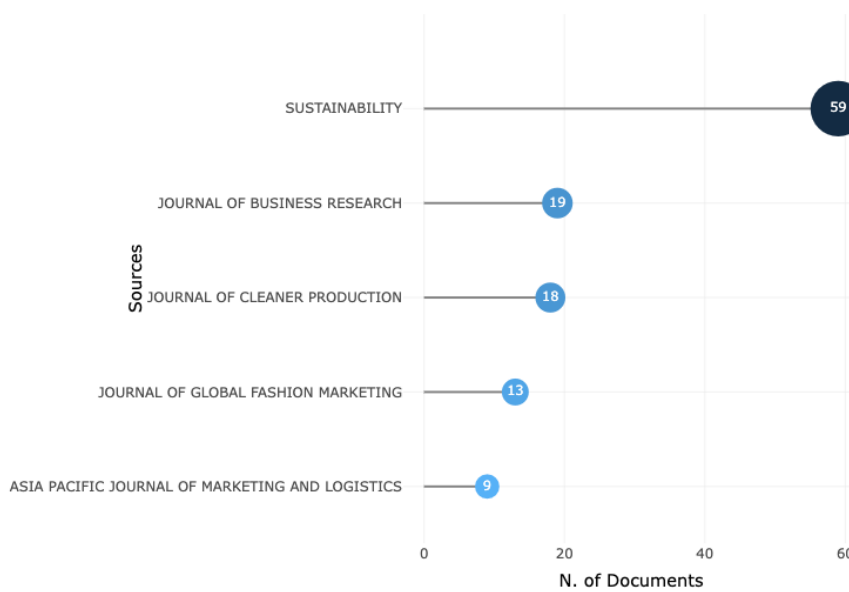
Figure 2. Most Relevant Sources

Focusing on H-index sources, Journal of Cleaner Production leads in rank, followed by Sustainability and Journal of Business Research (Figure 3).
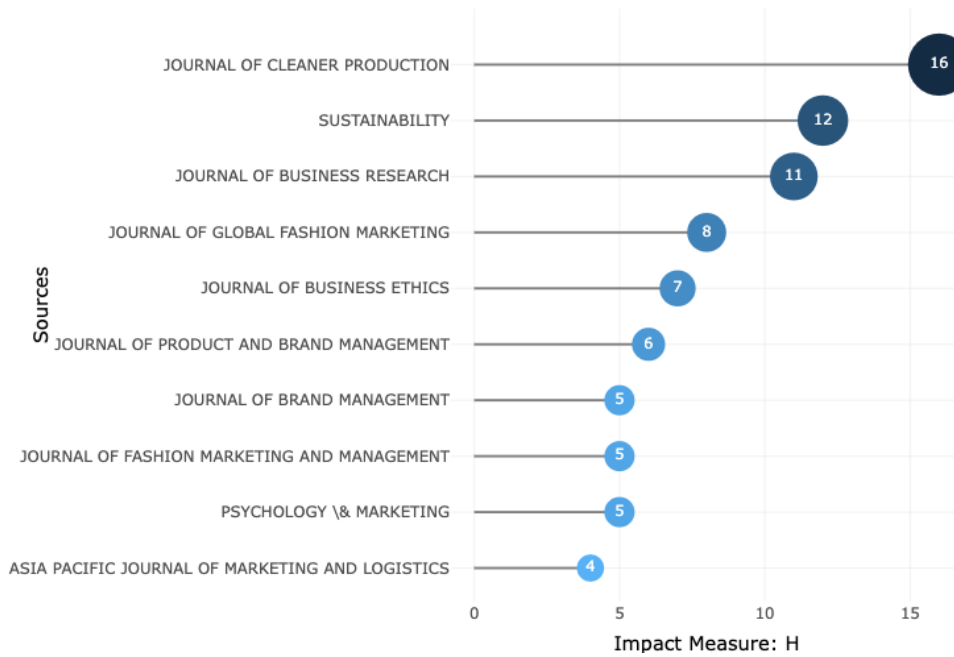
Figure 3. Source Local Impact

Figure 4 provides an overview of the main authors' production over time, in the field of luxury and sustainability. In this visualization, the size of each circle represents the number of published papers by the respective author, with larger circles indicating higher productivity. The darkness of each circle indicates the number of citations received by the author's papers, with darker circles suggesting greater impact and recognition.
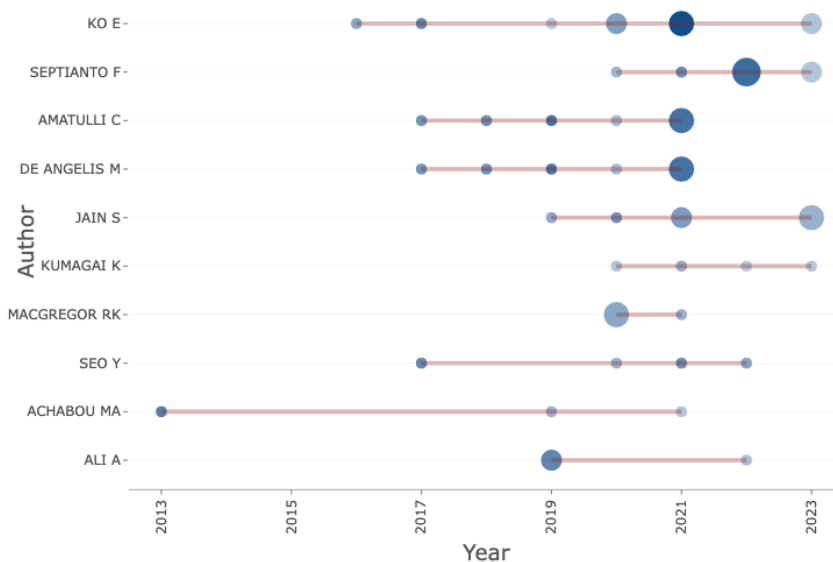
Figure 4. Authors' Production over Time

Figure 5 illustrates the local impact of authors in the field of luxury and sustainability based on their H-index.
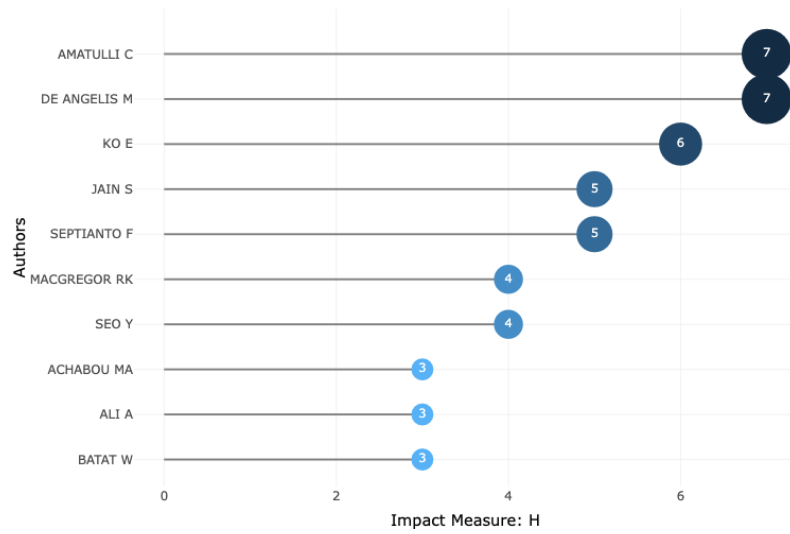
Figure 5. Author Local Impact

Figures 6 and 7 illustrate the most cited authors and the most cited documents in the context of the identified literature.
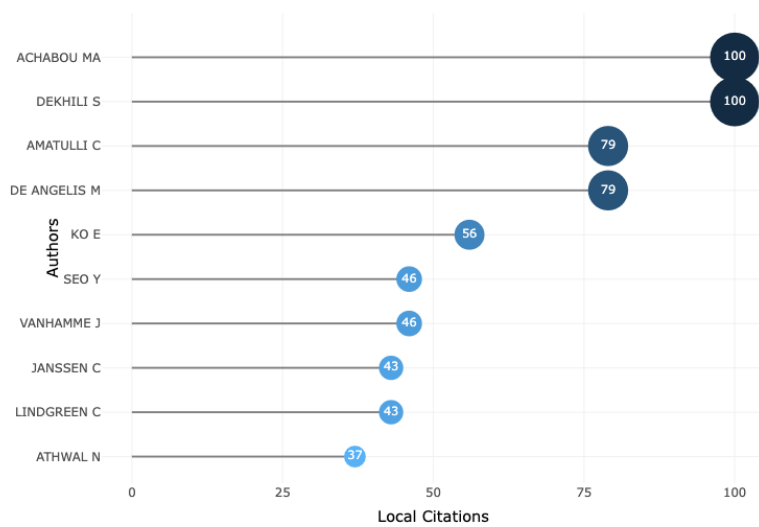
Figure 6. Most Local Cited Authors
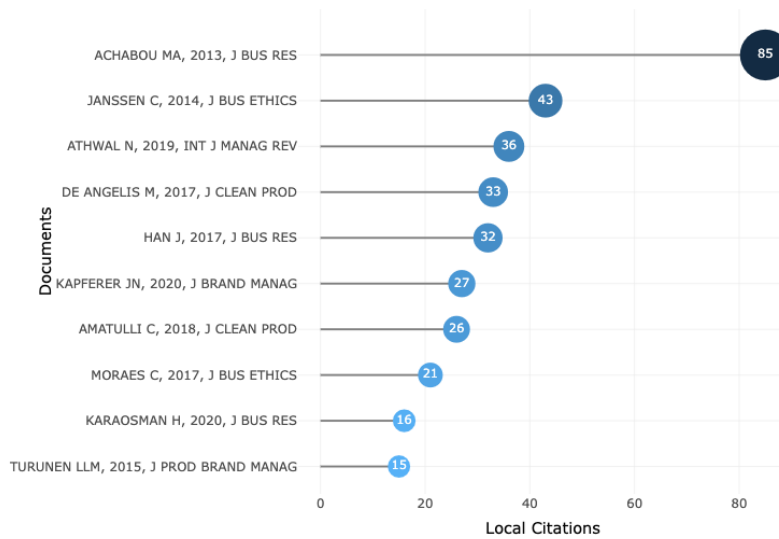
Figure 7. Most Local Cited Documents

Figure 8 provides insights into the geographical distribution of corresponding authors in the identified literate on luxury and sustainability. The data indicates that the majority of corresponding authors were based in the USA, followed by UK, Italy, China and India. Intra-country collaboration (SCP) was more prevalent than inter-country collaboration (MCP).
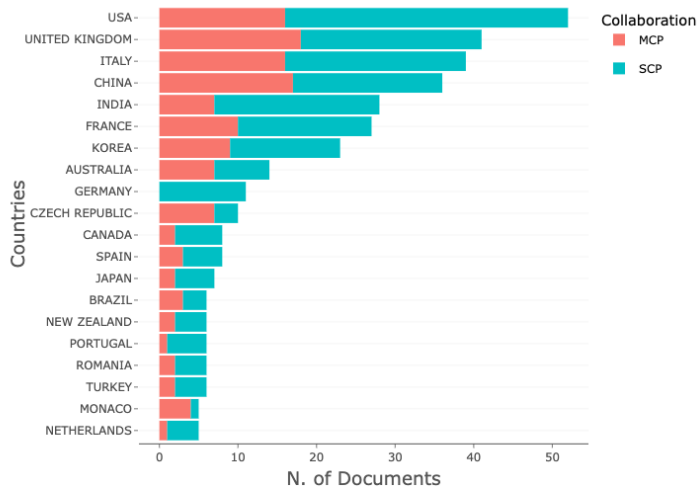
Figure 8. Corresponding Author's Country

Moving to Figure 9, the results of co-occurrence analysis of keywords in the identified literature. This analysis reveals three main clusters of the literature. The first cluster, represented in red, focuses on *consumption*, consumer behaviour and perceptions. The second cluster (blue) takes a *managerial* perspective and explores topics such as corporate social responsibility, strategies and performance of luxury fashion companies in the context of sustainability. Finally, the third cluster (green) is specific to *customer satisfaction*, and examines its determinants and moderators.
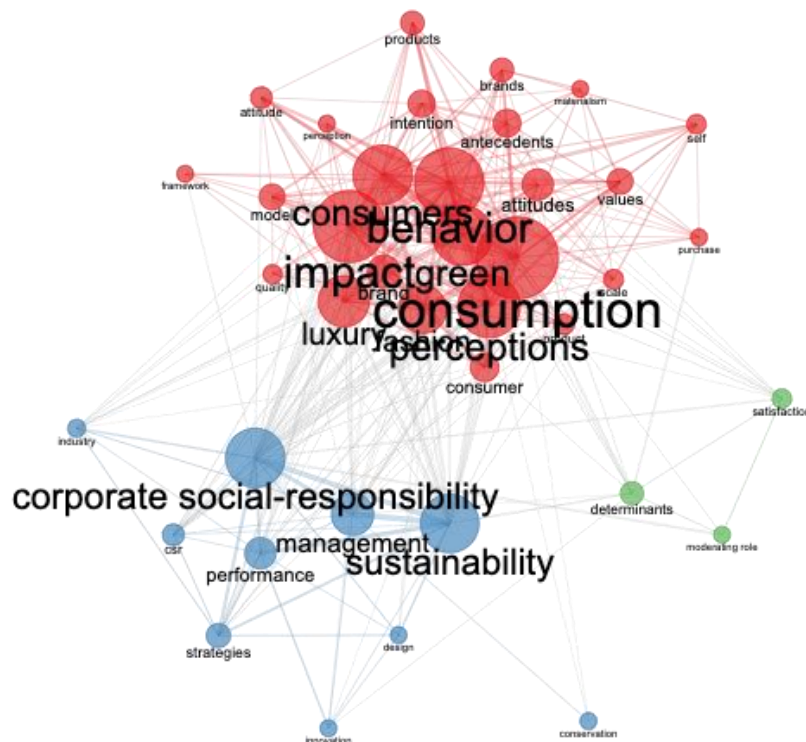
Figure 9. Co-occurrence Network

IMPLICATIONS FOR THEORY AND PRACTICE

This systematic literature review aimed to identify and systematize the relevant literature on luxury fashion and sustainability. The findings from this study highlight the following key points: existing literature focuses on managerial aspects (first perspective) and overall firm performance in the context of sustainability, and on consumer-centric research (2nd perspective) exploring consumer behaviours and perceptions concerning sustainable luxury fashion products.

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THE IMPACT OF FAMILY ENVIRONMENT AND ENTREPRENEURIAL INTENTION THROUGH UNIVERSITY ENVIRONMENT AMONG UNIVERSITY STUDENTS IN SPAIN

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ABSTRACT

Purpose. The purpose of this paper is to investigate the mediator role that three dimensions of the university environment (educational support, concept development support and business development support) plays between the family environment and the entrepreneurial intention of university students in Spain.

Design/methodology/approach. An empirical study was conducted with a sample of 118 participants in the "*Emprende UGR*" project at the University of Granada, Spain. Data were obtained by a survey questionnaire. The impact of the family environment on entrepreneurial intention via three dimensions of university environment was assessed. Structural equation modelling and maximum likelihood estimation are applied to find the direction and strength of the relationships.

Findings. The results confirmed the positive effect of family environment on the entrepreneurial intention of students. Furthermore, this effect was strengthened by the high perception of support from the university environment, mainly support for teaching and conceptual development. The study confirmed that the university is an environment that allows the student to take advantage of the opportunities provided by the family environment, resulting in a greater willingness to engage in entrepreneurial activity.

Originality. The originality of the study was based on considering family and university environments as multidimensional variables. In particular, the family environment was included in the model as a second-order latent variable and the study analyzed the mediator role of three dimensions of the university environment.

INTRODUCTION

In recent decades, European higher education institutions (HEIs) have made significant investments in entrepreneurship education programs, encompassing various activities aimed at fostering entrepreneurial skills, competencies, and attitudes among undergraduate and graduate

students (Arruti et al., 2020; Ferreira et al., 2021). Despite this upward trend, entrepreneurial intentions in Spain and other European countries remain relatively low. In particular, the Global Entrepreneurship Monitor (2022) reported that Spain ranked 42nd out of 47 countries in the Americas, Europe, Africa, and Asia in terms of entrepreneurial intention. In addition to Spain, other European countries such as Germany (43), the United Kingdom (40), and Italy (39) need to continue implementing structural changes and more effective policies to increase entrepreneurial activity, especially among young people (Crecente-Romero et al., 2019). In this sense, further research on the topic represents an opportunity to identify insightful information for practitioners to develop comprehensive strategies aimed at increasing entrepreneurial intention among younger generations.

In this context, empirical evidence on the factors that trigger entrepreneurship among young people can help determine how to strengthen entrepreneurial behavior (Lihua, 2022; Neneh, 2019; Shahab et al., 2019). In recent years, the drivers of entrepreneurial intentions of young people have been the subject of academic debate and attention. In fact, various approaches have covered the entrepreneurial intentions of individuals. Among these approaches, some authors emphasized the influence of personality traits (Şahin et al., 2019; Xu et al., 2016; Espíritu-Olmos & Sastre-Castillo, 2015), gender roles (Rahaman et al., 2020; Yukongdi and Lopa, 2017; Díaz-García and Jiménez-Moreno, 2009), education (Mukhtar et al., 2021; Mei et al., 2020; Ni and Ye, 2018) and social groups (Lingappa et al., 2020; Patuelli et al., 2020; Altinay et al., 2012). In the case of the latter approach, there is extensive empirical evidence on the influence of various social groups, highlighting the importance of family, peers, and close friends.

The family is the most important group in the process of socialization of the individual. From the earliest stages of life, the family environment plays a crucial role in the acquisition of knowledge and skills that are then used to adapt to different social environments (Zhang et al., 2021). Later in life, the family environment influences decisions about education and career choices (Rodríguez et al., 2020; Fouad et al., 2016). For example, if a person is exposed to a restrictive family environment where all members do similar work, his or her first-hand knowledge of career choices is likely to be quite limited (Eriksson et al., 2018). In terms of entrepreneurship, the family environment plays the primary role in the development of entrepreneurial intention of children by influencing personality, behavior and training to face the external environment (Moussa and Kerkeni, 2021). However, Cardella et al. (2020) noted that there is a need to deepen knowledge of this relationship and to identify the channels through which family influences entrepreneurial intention.

Within the family environment, some authors noted the important role of financial capital (Welsh et al., 2018; Aragon-Sanchez et al., 2017) and social capital (Campopiano et al., 2016; Shi et al., 2015). Dyer et al. (2014) found that financial capital provided by family members has several advantages,

especially in the early stages of the entrepreneurial process when access to traditional forms of financing is limited. Among the advantages, the authors highlighted that this type of financing has low transaction costs, can be mobilized quickly, can be transferred across generations, and is difficult to imitate. Unlike financial capital, Chang et al. (2009) indicated that family social capital contributes at different stages of the entrepreneurial process, both directly (e.g., assisting in startup tasks) and indirectly (e.g., assuming a greater share of household duties). On the other hand, a different group of authors highlight the emotional support (Cogan et al., 2022; Shen et al., 2017) and entrepreneurial role models (Chlosta et al., 2010; Van Auken et al., 2006). According to Klyver et al. (2020), emotional support helps entrepreneurs increase optimism and creativity to navigate complex scenarios and persevere through periods of uncertainty in the entrepreneurial process. Karimi et al. (2014) explored the effects of entrepreneurial role models on entrepreneurial intention using the Theory of Planned Behavior (TPB). The authors found that role models have a positive effect on the three variables that describe the TPB, and these variables positively influence the entrepreneurial intention of university students. Although previous studies attempted to treat the family environment as a first-order latent variable, to the best of the authors' knowledge, there is no previous study that treats the family environment as a second-order latent variable. In turn, it integrates financial capital, social capital, emotional support, and entrepreneurial role models as respective first-order variables.

On the other hand, the university environment provides individuals with access to technical training, networking opportunities, and infrastructure. In terms of the relationship between students and entrepreneurial intention, the empirical evidence is mixed. Although most of the literature suggests a positive relationship (Gieure et al., 2019; Gonzalez et al., 2018; Garcia-Rodriguez et al., 2017; Zollo et al., 2017), a group of authors argues that the relationship between both variables is not significant (Martinez et al., 2018; Joensuu-Salo et al., 2015; Varamäki et al., 2013). In fact, Nabi et al. (2016) found that entrepreneurship education taught in universities tends to discourage entrepreneurial intentions. When faced with the complexities and challenges of entrepreneurship, students tend to refocus on organizational careers that seem less risky and challenging. In this sense, Galvão et al. (2018) proposed to deepen the analysis of the role of universities in the entrepreneurial intention of society, based on a systematic literature review on entrepreneurship education and training. Pedagogical solutions should focus on fostering the ability of students to innovate, be more creative, and experience real-world situations (Canever et al., 2017). In this sense, it is important to identify the most relevant channels in the university environment and those that can strengthen a family background that promotes entrepreneurial intention among students. The study seeks to understand whether the relationship between resources channeled through the family environment and entrepreneurial intention could be strengthened if students had access to an appropriate

university environment. In other words, if the university provided the necessary resources for entrepreneurship, students would identify more opportunities from the resources available in the family environment, and the relationship between family environment and entrepreneurial intention would also increase. A study conducted by Kraaijenbrink et al. (2010) identified three dimensions in which universities foster entrepreneurial intention: educational support, concept development support, and business development support. These three dimensions were used in this research to describe the university environment. Most of the literature treats the university environment as a one-dimensional variable (Pinheiro et al., 2022; Gubik, 2021). Even though another group of studies addressed university and family environments independently (Smirat & Shariff, 2021; Shirokova et al., 2015), it is important to know how both environments can complement each other and have a greater impact on entrepreneurial intention.

In this context, the purpose of this study was to increase knowledge about the relationship between the family environment and the three dimensions of the university environment proposed by Kraaijenbrink et al. (2010). But also, to find out how they, as a whole, can strengthen the entrepreneurial intention of university students. The study aimed to answer the following research questions:

RQ1. What is the relationship between family environment and entrepreneurial intention?

RQ2a. Is the relationship between family environment and entrepreneurial intention moderated by educational support?

RQ2b. Is the relationship between family environment and entrepreneurial intention moderated by concept development support?

RQ2c. Is the relationship between family environment and entrepreneurial intention moderated by business development support?

In order to answer the research questions, the statistical technique of structural equation modeling (SEM) was used to estimate the relationship between the previously described variables. To describe a family environment, a higher-order construct, also referred to as a hierarchical construct, was utilized. Hierarchical constructs are particularly useful when the researcher is aware that a group of factors should be considered under the same construct. Unlike one-dimensional constructs, a hierarchical construct contains multiple layered construct structures, allowing to handle multidimensional variables (Schuberth et al., 2020). The family environment was tested using a reflective-reflective second-order construct, which is the most popular model among researchers in the social sciences (Crocetta et al., 2021). Second-order family environment factors included financial capital, social capital, emotional support, and entrepreneurial role models. The estimate was based on the results of a survey of 118 participants in the "Emprende UGR" project at the University of Granada, Spain. In

terms of the scientific novelty of this research, two elements particularly focused on the methodology were identified. First, the study included family and university environments as multidimensional variables. The family environment was included in the model as a second-order latent variable. Second, one of the techniques applied in this study involved analyzing the moderation of the university environment in the relationship between family environment and entrepreneurial intention.

The remainder of this article is divided into the following sections. Section 2 presents the theoretical framework relevant to the development of the research hypotheses that will be tested. Section 3 describes the research methodology. This includes data collection and measures. Section 4 presents the data analysis. The first part of this section describes the measurement model, while the second part details the structural model along with the results of the initially proposed hypotheses. Section 5 presents the discussion and theoretical and practical implications. Finally, Section 6 presents the limitations of the study and alternatives for future research.

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The following theoretical model (see Figure 1) was developed based on the literature supporting the relationship between family environment, university environment, and entrepreneurial intention. The literature review is detailed below.

Figure 1. *Research model*
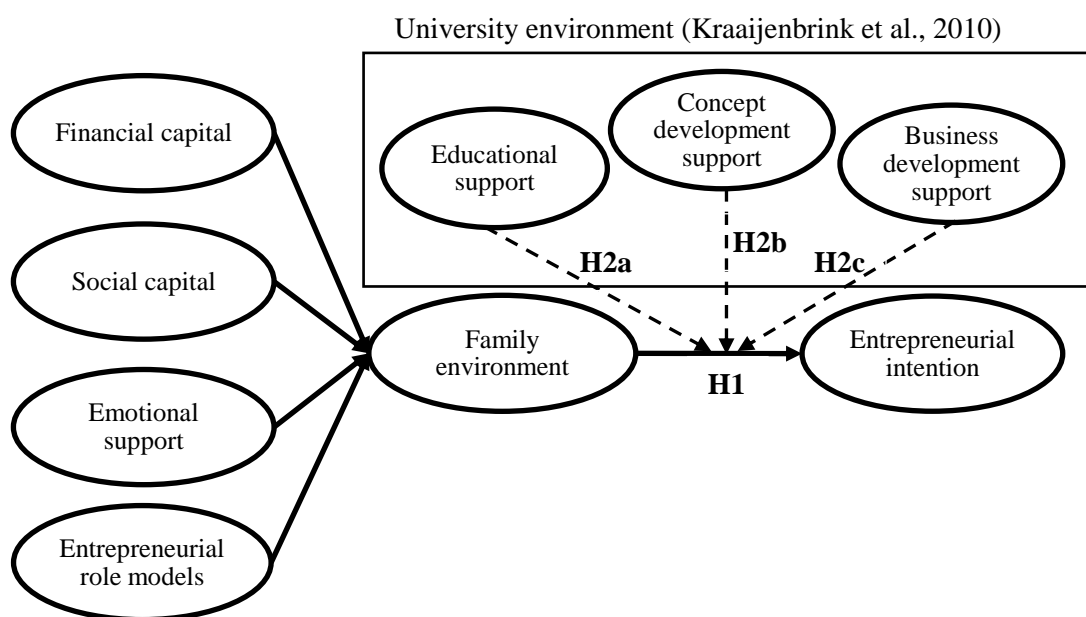
Family Environment and Financial Capital

Access to financial capital is a relevant factor at all stages of the entrepreneurial process (Cetindamar et al., 2012; de Bettignies and Brander, 2007; Marlow and Patton 2005). According to Peña (2002), greater access to financial capital gives entrepreneurs greater flexibility in making business decisions. However, many young entrepreneurs do not have the financial capital to turn an entrepreneurial idea into a product or service (Butkouskaya et al., 2020; Ferreira et al., 2021). In this context, Knatko et al. (2016) highlighted that family financial support is particularly important for young entrepreneurs without sufficient financial capital, which has a positive effect on entrepreneurial intentions (Cetindamar et al., 2012). Unlike other sources of financing such as banks, family financial support implies fewer rigid conditions based on kinship, which increases the entrepreneurial intention as well as the freedom of decision of the entrepreneurs (Colombatto & Melnick, 2008).

Family Environment and Social Capital

Social capital refers to the nature of social relationships and how they can be used for self-benefit (Hu, 2019). Family capital is a special type of social capital, defined as the relationships between parents, children, and other close relatives (Coleman, 1988). Hoffman et al. (2006) indicated that family social capital consists of structural and relational components. The first component refers to network ties, and the relational component refers to obligations and expectations, reputation, identity, and moral infrastructure. Some authors presented empirical evidence of a positive relationship between social capital and the intention to start a new business (Wang et al., 2021; Ali and Yousuf, 2019). For example, Sharma (2014) found that students with larger social capital networks had higher intentions to pursue entrepreneurship as a career option. In the same line, Poon et al. (2012) argued that strong family networks are important social capital for entrepreneurs as they are an important source of information and resources.

Family Environment and Entrepreneurial Role Models

Role models influence the career decision-making process by providing information, guidance, and support to individuals (Buunk et al., 2007). In the first stage of life, children are exposed to parental behavior and learn ways to act based on observation and internalization (Entrialgo & Iglesias, 2018). Later, these members of the entrepreneurial family can become a close example of the entrepreneurial experience, not only by providing an example of the entrepreneurial lifestyle, but also by providing potential opportunities that contribute to the formation of positive attitudes toward entrepreneurship (Lee et al., 2021; Wyrwich et al., 2015; Nowiński and Haddoud, 2019). For example, Entrialgo and Iglesias (2018) used the theory of planned behavior to analyze entrepreneurial intentions among

university students. The authors found that the effect of role models on entrepreneurial intention was positive and significant.

Family Environment and Emotional Support

People who receive emotional support are more likely to experience emotional well-being and to help and support others (Nielsen, 2019; Baker, 2014). In the context of entrepreneurship, emotional support from the family is a fundamental element in the search for strength and perseverance (Cogan et al., 2022). Emotional support from family helps entrepreneurs maintain emotional stability and respond positively to stressors from uncertain environments (Tran & Santarelli, 2014). However, Arregle et al. (2013) found that this positive effect decreases when work-family conflict occurs or when family members do not understand business issues. Based on longitudinal data from different countries, Zhu et al. (2020) found that emotional support from the family strengthens and increases entrepreneurial activity. The authors concluded that a harmonious relationship between parents provides individuals with more emotional and psychological resources that could encourage them to start entrepreneurial activities. Based on this theory, the first hypothesis was proposed:

H1. There is a positive relationship between family environment and entrepreneurial intention

University Environment

The university environment is considered an external factor that influences the attitudes of the individual towards entrepreneurship (Franke and Lüthje, 2004). This type of environment provides various types of resources, such as training and networking. Several authors have found a positive relationship between the university environment and the entrepreneurial intention (Çera et al., 2020; Feola et al., 2019; Gieure et al., 2019). For example, González et al. (2018) concluded that the university environment plays an important role in fostering entrepreneurial culture among students. The authors indicated that specific university courses and options related to entrepreneurship have a significant impact on the entrepreneurial intention of students. According to Wibowo et al. (2019), entrepreneurial intention increases when students believe that the university environment provides adequate preparation for starting a new business.

Kraaijenbrink et al. (2010) proposed three dimensions of the university environment that can help foster entrepreneurship among students. First, the authors emphasized that educational support influences the behavioral intentions of students by providing the knowledge and skills necessary to start a business. Second, the authors noted that universities can provide concept-development support that includes a number of activities carried out in the early stages of the entrepreneurial process and, in turn, these activities can strengthen awareness, motivation and business ideas. Third, it was identified that universities can promote entrepreneurship through the provision of business development support. In contrast to the second dimension, business development support is aimed at

start-up companies rather than individual students. In other words, this help is provided in the later stages of the entrepreneurial process.

The theoretical model proposes the positive influence of the family environment on entrepreneurial intention based on the provision of financial capital, social capital, role models, and emotional support. It also suggests that this relationship can be strengthened if students are exposed to a university environment that provides support for education, concept development, and business development. In this manner, both environments can complement each other and bolster the entrepreneurial spirit of students, contributing to the enhancement of their intention to start an enterprise. These authors led to the formulation of the following research hypotheses:

H2a. Educational support moderates the relationship between family environment and entrepreneurial intention

H2b. Concept development support moderates the relationship between family environment and entrepreneurial intention

H2c. Business development support moderates the relationship between family environment and entrepreneurial intention

METHODOLOGY

Data Collection and Sampling

The study was conducted in the city of Granada, Spain. The sample was made up of students from the University of Granada who participated in the course on entrepreneurship "*Emprende: Convierte tu idea en un modelo de negocio*" (Start your business: turn your idea into a business model). This course lasted six weeks and was developed by the General Coordination Office of Entrepreneurship and the Center for the Production of Resources for the Digital University (CEPRUD). A survey was used for data collection between May and December of 2022. The survey was divided into four sections. The first section included socio-demographic questions such as gender, age and socioeconomic status of the participants. The remaining sections were related to family environment, university environment, and entrepreneurial intention. Each of these last three sections included questions validated and published in indexed journals. The questions required a translation from English into Spanish. This study used the double translation method, involving two translations of the survey and a revision by two research experts to select the most accurate version (Barros and Alcadipani, 2022). Then, to verify the content and the correct presentation of the survey, a pilot test was administered to 10 participants. Following this process, no further modifications were made. The final version of the survey included 34 questions. In the first part, 122 answers were obtained. However, 4 answers were discarded for not

having satisfactorily completed the socio-demographic questions. Table 1 shows a summary of the socio-demographic characteristics of the participants.

Table 1. *Demographic characteristics of the sample*

Characteristic	Frequency	Percentage
Gender		
Female	60	50.8%
Male	58	49.2%
Career		
Natural Sciences	48	40.7%
Social Sciences	59	50%
Humanities	11	9.3%
Previous working experience		
Yes	76	35.6%
No	42	64.4%
Total sample size	118	100%

Measures

The Family Environment dimension consisted of 18 questions divided into four subsections representing each of the second-order factors in the research model. The concepts of financial and social capital were first used by Manolova et al. (2019) in a study on youth entrepreneurship in emerging markets. The authors found that high levels of family support led to a greater number of start-up activities undertaken by young entrepreneurs. In terms of financial capital, the survey included three questions related to the provision of debt and equity capital, as well as the degree of flexibility in loan terms. In the case of social capital, the survey had two questions related to the help of the family in providing contacts that help at different stages of the entrepreneurial process. The answers for both subsections were collected using a 7-point Likert scale. Emotional support included four questions about perceived support from parents, siblings, relatives, and close friends. In this case, a 7-point Likert scale was used. These questions were also used in a study of social and institutional predictors of entrepreneurial career intentions by Abebe (2012). In this study, the author found that perceived social status and perceived social support have strong positive association with entrepreneurial career intentions. The last subsection of the family environment refers to entrepreneurial role models, and in the survey, it had three questions related to the influence of role models on career path, start-up, and passion for entrepreneurship. These questions were first used in a study conducted by Yang (2019). The author evaluated the effect of role models on entrepreneurial self-efficacy and entrepreneurial intention and found a positive effect on both relationships. In this case, a 5-point Likert scale was used.

The dimension of the university environment was composed of 13 questions divided into three subsections. In contrast to the family environment, these three subsections were obtained from the same study by Kraaijenbrink et al. (2010). In this study, the authors identified three mechanisms that

universities have implemented to foster entrepreneurial intentions among students. The three dimensions proposed by the authors related to educational support, concept development support, and business development support. Educational support had six questions related to the availability of electives, project work, internships, conferences/workshops, postgraduate studies, and networking. The concept development support included four questions about the role of the university in increasing awareness, motivation, knowledge, and ideas for starting a new business. Support for business development included three questions related to support for financing and growth, as well as the use of the university's reputation to support new businesses. In the case of the university environment, all answers were collected using a 5-point Likert scale. Unlike the other dimensions, entrepreneurial intention was measured directly through six questions proposed by Liñan and Chen (2009). In this study, the authors used the theory of planned behavior to build and validate a survey of entrepreneurial intention. In the survey, the questions were closely related to the willingness of students to become entrepreneurs and create their own businesses. In this case, the answers were collected using a 5-point Likert scale.

RESULTS

Measurement Model

The PLS-SEM first evaluates the measurement model, which addresses the relationship between constructs and indicators. This first step allows for the assessment of the quality of the measurement instrument and, in turn, whether the model is adequate to represent the observations. In the context of the study, the measurement model only included first-order reflective constructs. Therefore, the evaluation of the measurement model included indicator reliability, internal consistency, convergent and discriminant validity (Hair et al., 2022). The reliability of the indicators consists in evaluating the external loads of each indicator. Outer loadings represent the relationship between indicators and their corresponding construct. A common rule of thumb is that standardized external loadings should be greater than 0.7. Table 2 shows the external loadings for all indicators in the measurement model. According to the results, only indicator ES4 recorded an external load lower than the threshold. However, it was decided to keep the indicator because removing it did not increase the convergent validity of the educational support construct (Hair et al., 2022).

Cronbach's alpha (α) and composite reliability (CR) were calculated to validate the internal consistency of each construct. Cronbach's alpha is a traditional technique for measuring internal consistency. However, the alpha criterion is sensitive to the number of indicators for each construct and generally tends to underestimate internal consistency. In this sense, Cronbach's alpha can be used as a conservative measure of internal consistency. In contrast, composite reliability is often considered

too liberal. Therefore, the true reliability of the construct is typically considered to lie between these two metrics (Hair et al., 2022). The criterion proposed by George and Mallery (2003) was used to interpret the results. More specifically, values greater than 0.9 indicate excellent reliability, values greater than 0.8 indicate good reliability, values greater than 0.7 indicate acceptable reliability, values greater than 0.6 indicate questionable reliability, and values less than 0.5 indicate unacceptable reliability. According to the results, the values of both indicators were found to be above 0.7, indicating that all constructs have acceptable reliability (Table 2).

Convergent validity assesses the degree to which indicators are positively correlated with alternative measures of the same construct. The average variance extracted (AVE) is the most popular technique for determining convergent validity in the PLS-SEM context. The AVE is calculated by summing the squared loadings divided by the number of indicators for a given construct. In particular, AVE values greater than 0.5 indicate that the construct explains more than half of the variance of its indicators. In contrast, AVE values less than 0.5 indicate that more variance remains in the error of the indicators than in the construct itself. According to Table 2, AVE values above the threshold ranged from 0.701 to 0.882. Therefore, the results allowed to verify the convergent validity of the measurement model.

Table 2. Evaluation of reliability, internal consistency, and convergent validity of indicators

Construct/indicators	Outer loadings	α	CR	AVE
Financial capital		0.883	0.929	0.813
FC1	0.948			
FC2	0.934			
FC3	0.818			
Social capital		0.867	0.937	0.881
SC1	0.954			
SC2	0.924			
Emotional support		0.953	0.966	0.877
ET1	0.942			
ET2	0.948			
ET3	0.923			
ET4	0.933			
Entrepreneurial role models		0.933	0.957	0.882
ER1	0.933			
ER2	0.930			
ER3	0.955			
Educational support		0.918	0.933	0.701
ES1	0.850			
ES2	0.918			
ES3	0.842			
ES4	0.656			
ES5	0.858			
ES6	0.876			
Concept development support		0.942	0.956	0.846
CD1	0.934			
CD2	0.955			

CD3	0.910			
CD4	0.878			
Business development support		0.833	0.895	0.740
BD1	0.926			
BD2	0.833			
BD3	0.818			
Entrepreneurial intention		0.955	0.964	0.819
EI1	0.815			
EI2	0.913			
EI3	0.948			
EI4	0.925			
EI5	0.874			
EI6	0.946			

Discriminant validity allows for verifying that each construct is relatively unique with respect to the other constructs included in the measurement model. In this context, the criteria of Fornell & Larcker (1981) and the Heterotrait-Monotrait Ratio (HTMT) were used to assess the discriminant validity of the measurement model. According to the first criterion, the square root of the AVE must exceed the correlation between one construct and the rest in order to test for discriminant validity. Regarding the second criterion, Henseler et al. (2015) argued that HTMT values below 0.85 allow for testing of discriminant validity. Table 3 shows the results for both criteria. The values on the diagonal correspond to the square root of the AVE, the values below the diagonal correspond to the correlation between each pair of constructs, and finally the HTMT values are above the diagonal. In this case, it can be observed that no correlation between constructs exceeds the square root of the AVE. In addition, the HTMT values are above the 0.85 threshold. Therefore, the results allowed to test the discriminant validity of the measurement model.

Table 3. Evaluation of discriminant validity

Construct	FC	SC	ET	ER	ES	CD	BD	EI
FC	0.902	0.470	0.365	0.448	0.276	0.293	0.254	0.527
SC	0.415	0.939	0.538	0.594	0.144	0.274	0.287	0.639
ET	0.336	0.495	0.936	0.557	0.074	0.083	0.241	0.628
ER	0.404	0.542	0.529	0.939	0.247	0.138	0.163	0.783
ES	0.255	0.142	0.059	0.247	0.837	0.681	0.585	0.162
CD	-0.273	-0.253	-0.074	-0.150	-0.635	0.920	0.645	0.162
BD	0.231	0.236	0.213	0.154	0.514	-0.542	0.860	0.154
EI	0.484	0.591	0.605	0.741	0.165	-0.170	0.148	0.905

Notes(s). FC: Financial capital, SC: Social capital, ET: Emotional support, ER: Entrepreneurial role models, ES: Educational support, CD: Concept development support, BD: Business development support, EI: Entrepreneurial intention.

Family environment was represented as a second-order formative construct consisting of financial capital, social capital, emotional support, and entrepreneurial role models. For estimation purposes, a disjoint two-stage approach suitable for higher order constructs was chosen (Agarwal & Karahanna,

2000). In the first step, the latent variable scores are extracted from the measurement model. These scores were then used to measure the formative construct corresponding to family environment, while the remaining constructs were estimated using their corresponding indicators as in stage one. After estimating the second-order formative construct, the collinearity and significance of the indicators were evaluated. To assess the degree of collinearity, the variance inflation factor (VIF) was calculated. VIF values higher than 3 suggest critical collinearity issues (Hair et al., 2017). According to Table 4, all indicators achieved acceptable levels of collinearity. Finally, only the outer weight corresponding to social capital was reported as not significant. However, it was decided to keep this indicator since its outer loading was greater than 0.5 and significant. Therefore, the results showed that family environment can be represented as a second-order formative construct composed of financial capital, social capital, emotional support, and entrepreneurial role models.

Table 4. Assessment of second-order formative construct (family environment)

Indicator	VIF	Outer weights	p-value	95% percentile - CI
Financial capital	1.289	0.187	*	[0.040;0.325]
Social capital	1.627	0.198	0.054	[0.001;0.408]
Emotional support	1.530	0.267	**	[0.113;0.475]
Entrepreneurial role models	1.684	0.588	***	[0.420;0.734]

Note(s). *p<0.05, **p<0.01, ***p<0.001.

Structural Model

Once the reliability and validity of the measurement model was confirmed, the next step was to estimate the structural model. In this case, a bootstrapping procedure with 10000 subsamples was used to test each research hypothesis. When the structural model includes moderating variables, it is important to distinguish between the main effect and the simple effect. In particular, the main effect makes it possible to determine the relationship between two constructs, whereas the simple effect includes interaction effects that can lead to incorrect and misleading conclusions (Henseler & Fassott, 2010). In this sense, it was decided to estimate the main effect between family environment and entrepreneurial intention. According to Table 5, family environment has a positive and significant effect on entrepreneurial intention (β=0.817, t=25.69, p-value<0.001, CI [0.719; 0.855]). Therefore, the results allowed to accept research hypothesis 1.

After addressing research hypothesis 1, the interaction effects corresponding to the moderating effect of educational support, concept development support, and business development support on the relationship between family environment and entrepreneurial intention were added to the structural model. In this case, the two-step approach was used to estimate the moderation effect (Chin et al., 2003). Thus, the first stage provides the latent variable scores, which are then multiplied and included as a single indicator representing the interaction effect in the second stage. Finally, the

results showed that the moderating effect of educational support (β=0.220, t=2.810, p-value<0.01, CI [0.127; 0.435]) and concept development support (β=0.197, t=2.424, p-value<0.01, CI [0.065; 0.417]) were significant. Therefore, the results validated research hypotheses H2a and H2c.

Table 5. Main and interaction effects

Relationship	Path coefficient	t-Statistic	p-value	95% percentile - CI
H1	0.817	25.690	***	[0.719;0.855]
H2a	0.220	2.810	**	[0.127;0.435]
H2b	0.197	2.424	**	[0.065;0.417]
H2c	-0.052	0.591	0.555	[-0.177;0.098]

Note(s). *p<0.05, **p<0.01, ***p<0.001.

After testing the significance of the interaction effects, the next step was to determine the influence of each moderating variable. This is because the moderating effect can strengthen or even reverse the relationship between two constructs. In this context, the slope graphs of the results allow to deepen the previously reported results. Figure 2 shows the slope graph corresponding to the moderating effect of educational support and concept development support on the relationship between family environment (horizontal axis) and entrepreneurial intention (vertical axis), respectively. According to the figure, a high level of educational support is associated with a steeper slope compared to a low level of educational support. In other words, high educational support strengthens the relationship between family environment and entrepreneurial intention. The results also showed that the presence of concept development support strengthens the association between family environment and entrepreneurial intention.

Figure 2. Slope graph – educational support (left), concept development support (right)
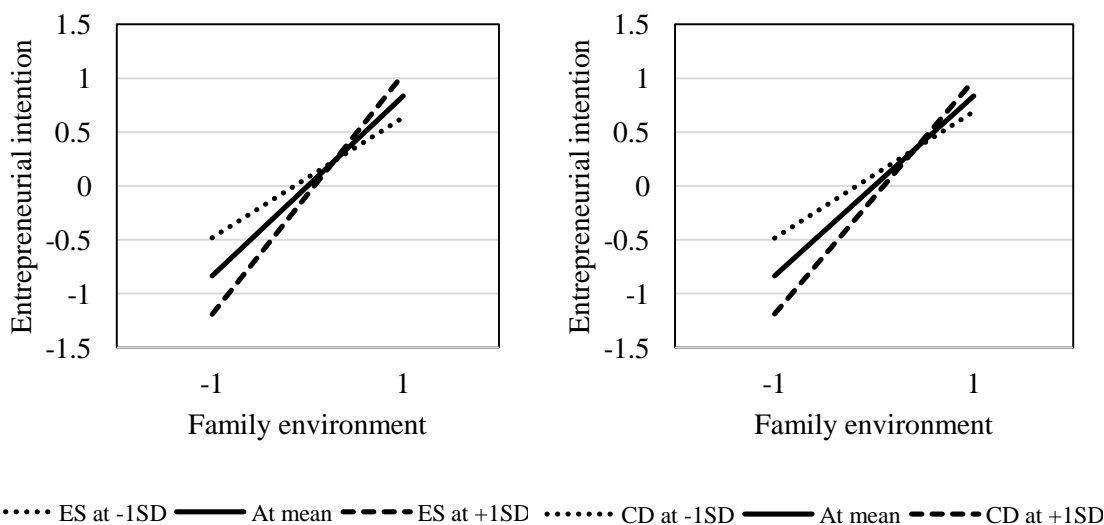
DISCUSSION

Theoretical Implications

The family environment has often been portrayed from a one-dimensional approach by various authors (Chen et al., 2021; Nguyen et al., 2020). However, the present study identified four dimensions of family environment in the academic literature and empirically tested their validity. In particular, financial capital, emotional support, and entrepreneurial role models stood out as dimensions that characterize the family environment. These results imply that the representation of the family from these three dimensions allows to address the complexity and at the same time to obtain a more holistic picture of this environment. In contrast, social capital is not a significant dimension of the family environment. The results in the academic literature on the influence of family social capital on the entrepreneurial intention of university students are still mixed (Ip et al., 2018; Moussa and Kerkeni, 2021; Sahputri et al., 2023; Zhao et al., 2020). Therefore, the present study underscores the need to continue contributing to the empirical evidence on family social capital and its role on entrepreneurial intention among university students.

The results confirmed the positive effect of family environment on the entrepreneurial intention of students (Salami, 2019; Vasileiou et al., 2023). In addition to tangible resources, intangible aspects, such as the transmission of norms and values, are important family support for entrepreneurial activities (Garcia-Rodriguez et al., 2022). However, there is a need to continue to explore best practices in family environments that lead to increased intention to engage in entrepreneurial activities, as this is a key research topic for academics and practitioners. Furthermore, the relationship between family environment and entrepreneurial intention was strengthened by the high perception of support from the university environment. In turn, the study found that support for teaching and conceptual development were the most representative dimensions of the university environment. Thus, the study confirmed that the university is an environment that allows the student to take advantage of the opportunities provided by the family environment, resulting in a greater willingness to engage in entrepreneurial activity.

Practical implications

The estimation results made it possible to identify the relevance of each dimension of the family environment. Thus, entrepreneurial role models emerged as the most representative predictor of family environment. In particular, exposure to successful entrepreneurs is one of the most important indicators of the family environment for fostering entrepreneurial intentions among university students. Several authors have highlighted the importance of role models to foster entrepreneurial activity (Kong et al., 2020). According to Ukil (2022), individuals can learn from their past experiences and role models in shaping the entrepreneurial journey. In addition, the author emphasized that this

relationship is critical in developing countries, where people who want to start a business face a number of challenges. On the other hand, the results revealed that emotional support has the second highest relationship with family environment. More specifically, support from parents, siblings, relatives and close friends is a characteristic of family environments that is associated with high levels of entrepreneurial intention, especially among university students. Third, financial capital was the last positive and significant dimension with respect to the family environment. In light of the results, debt and equity capital provided by family members is the most relevant characteristic of family environments that foster entrepreneurial activity. In this context, Dyer et al. (2014) emphasized that this family capital can be mobilized quickly, has minimal transaction costs, is difficult to imitate, and can be efficiently transferred between generations.

How can higher education institutions strengthen the role of the family environment on the entrepreneurial intention of university students? In light of the results, educational support and concept development support strengthened the role of the family environment on entrepreneurial intention. Regarding the first dimension, the results showed that project work focused on entrepreneurship corresponds to the indicator that best represents the educational support dimension. Several authors pointed out that project work is an effective alternative for the development of entrepreneurial intentions among university students (Chien-Chi et al., 2020; Fernández de Caleya et al., 2023; Ribeiro et al., 2018). Blesia et al. (2021) presented evidence on the outcomes of an entrepreneurship project in which second-year university students participated in a project that provided them with intensive training, seed capital, apprenticeships, monitoring, and supervision. The authors found that the project helped change the way students think about entrepreneurship. In particular, the project strengthened the self-confidence of the students to become entrepreneurs. Concept development support corresponds to the second dimension of the university environment that reinforces the effect of the family environment on entrepreneurial intention. Motivation and awareness of entrepreneurship were the two most relevant indicators of the support dimension of policy development. Similarly, Tomy & Pardede (2020) showed that the role of universities is crucial in strengthening the motivation and ability of university students to engage in entrepreneurial activities. The authors recommended that university entrepreneurship programs promote self-efficacy rather than just the evaluation of entrepreneurial ideas.

The results allowed the design of a two-step strategy to increase entrepreneurial intention, focusing on university students with a strong entrepreneurial family environment. The first step corresponded to the identification of individuals with high levels of entrepreneurial family environment based on the three significant dimensions of the study (i.e., financial capital, emotional support, and entrepreneurial role models). These dimensions were used to design a questionnaire

about the family environment. In addition to the instrument used in this article, several authors proposed more comprehensive questionnaires for the previously identified dimensions (Moussa & Kerkeni 2021; Neneh and Welsh., 2022; Turulja et al., 2020). In this way, the use of the questionnaire allowed to identify those students with a strong family environment. In the second step, high-scoring students are enrolled in a university entrepreneurship program that focuses on educational support and concept development. Based on the results, one would expect to observe higher performance in terms of entrepreneurial activity among students enrolled in the program compared to those students who registered low family environment scores.

CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

The study examined the role of university and family environment on entrepreneurial intention. The results advanced the academic literature on the topic and provided insights for practitioners. First, the results confirmed the influence of family environment on entrepreneurial intention among university students. In particular, entrepreneurial role models were the most relevant dimension of the family environment for entrepreneurial activity. On the other hand, the study found that the university setting represents an important contribution in the entrepreneurial process, since it allows strengthening the role of the family environment on the entrepreneurial intention. These findings provide useful information for university managers and allowed the design of a two-step strategy to strengthen the entrepreneurial intention of university students with a strong entrepreneurial family background. This strategy makes it possible to identify those students with a strong family environment with the aim of addressing specific cognitive needs that will allow them to increase their intention to engage in entrepreneurial activities.

Limitations

The shortcomings of the study provide an opportunity to improve future research on this topic. A limitation of the study is the number of observations used in the statistical analysis. Although the sample size meets the minimum number of observations required for statistical analysis, the generalization of the results to the population remains a limitation of the study. Therefore, it is necessary to further test the relationships proposed in this study in order to provide greater robustness to the research model. On the other hand, family and university are complex environments composed of dimensions that influence the behavior of individuals. In this context, the academic literature identified several constructs in each environment that were not included in the study. For example, Kusumojanto et al. (2021) proposed family education as a relevant dimension that leads to entrepreneurial intention. This is because the background of parents influences the outlook on life and

patterns that will determine the attitudes and behavior of children throughout life (Gronhoj & Thogersen, 2017). Likewise, da Rocha et al. (2022) addressed entrepreneurial characteristic development support as a dimension of the university environment. According to the authors, this dimension influences entrepreneurial intention by providing the necessary skills and abilities to tackle various challenges.

Recommendations for Further Research

Future research may use behavioral interventions to empirically assess the two-step strategy. In particular, it is recommended to use a control group and an intervention group to compare the levels of entrepreneurial intention between the two groups. On the other hand, green entrepreneurship represents an important alternative to mitigate environmental issues and create new employment opportunities, which could further promote sustainable and economic development (Dean & McMullen, 2007). Green entrepreneurs pay attention to environmental issues, use innovative thinking to identify business opportunities, and apply flexible, creative approaches to address environmental challenges (Cai et al., 2022). In this way, future research can consider green entrepreneurial intention to analyze its relationship with family and university environments. Finally, several authors have shown that there are differences in the influence of the environment on individuals' attitudes and behaviors related to entrepreneurship (Molino et al., 2018; Villanueva-Flores et al., 2021). Future research should address the differences between men and women concerning family and university support and their effect on entrepreneurial intention. In turn, this information would allow the design of gender-specific strategies to strengthen the effect of the family environment on entrepreneurial intention among university students.

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APPENDIX

Entrepreneurial intention EI (5-point Likert Scale) – Liñan and Chen (2009)

1. I am ready to do anything to be an entrepreneur.
2. My professional goal is to become an entrepreneur.
3. I will make every effort to start and run my own business.
4. I am determined to create a business in the future.
5. I have very seriously thought of starting a business.
6. I have the firm intention to start a business someday.

Financial capital FC (7-point Likert scale) - Manolova et al. (2019)

1. My parents/family provide me with debt capital.
2. My parents/family provide me with equity capital.
3. The capital provided by my parents/family has favorable and flexible conditions.

Social capital SC (7-point Likert scale) – Manolova et al. (2019)

1. My parents/family provide me with contacts to people who could help me with pursuing an entrepreneurial career.
2. My parents/family introduce me to business networks, providing contacts to potential business partners and/or customers.

Emotional support ES (7-point Likert scale) – Abebe (2012)

How would the following people feel about if you were to start a business?

1. Parents
2. Siblings
3. Relatives
4. Close friends

Entrepreneurial role model ER (5-point Likert scale) – Yang (2019)

1. Whenever I meet successful entrepreneurs, I feel keen to start my own business.
2. I desire to follow the same career path of successful entrepreneurs.
3. Many successful start-up cases arise from my passion towards being an entrepreneur.

Educational support DS (5-point Likert scale) – Kraaijenbrink et al. (2010)

1. My university offers elective courses on entrepreneurship.
2. My university offers project works focused on entrepreneurship.
3. My university offers internship focused on entrepreneurship.
4. My university offers a bachelor's or master's degree on entrepreneurship.
5. My university gives conferences/workshops on entrepreneurship.

6.   My university brings entrepreneurial students into contact with each other.

Concept development support CD (5-point Likert scale) – Kraaijenbrink et al. (2010)

1.   My university raises awareness of entrepreneurship as a possible career choice.

2.   My university motivates students to start a new business.

3.   My university provides students with ideas to start new businesses.

4.   My university provides students with the necessary knowledge to start new businesses.

Business development support BD (5-point Likert scale) – Kraaijenbrink et al. (2010)

1.   My university provides students with the financial means to start a new business.

2.   My university uses its reputation to support students who start a new business.

3.   My university serves as a lead customer of students who start a new business.

BEYOND TRADITIONAL BUDGETING: A CRITICAL ANALYSIS OF CONTEMPORARY PRACTICES IN GERMAN CORPORATIONS

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ABSTRACT

This paper delves into the evolving landscape of budget planning in the context of recent global crises, such as the COVID-19 pandemic, the war in Ukraine, and the semiconductor crisis. Not only these events have compelled organizations to reevaluate traditional budgeting methods, advocating for more flexible and resilient approaches. Notably, traditional budgets have long been criticized for their time-consuming nature, costliness, lack of long-term growth focus, inflexibility, and the promotion of counterproductive budget games. By applying a qualitative semi-structured interview approach our study focuses on filling a critical gap in existing literature, which predominantly comprises quantitative analyses and case studies, by providing detailed insights into the practical advantages and challenges of budgeting from the perspective of practitioners. Particularly, it contributes to the discourse by incorporating practices from German firms and updating the practitioners' viewpoints on budgeting in crisis-prone and uncertain environments.

Keywords: Budgeting, Corporate Planning, Challenges, Advantages, Interviews

INTRODUCTION

Budget planning is widely used to help organizations to allocate their resources in a way that supports their strategic and operational goals and objectives while ensuring financial stability. Effective budget planning helps individuals and organizations manage their finances, make informed financial decisions, and achieve their financial goals. However, recent years have seen many crises having strong impacts on organizations. The pandemic, the war in Ukraine, and the semiconductor crisis brought many challenges to corporations. Amongst them, they started to reevaluate their methods of budget planning to make it more flexible and crisis-proof. However, budgets have been the subject of criticism for a long time. Budgets have been criticized for being time-consuming, costly, not focused on long-term growth, being inflexible, and encouraging budget games (Neely et al., 2003). The present turbulent times sparked renewed interest in alternative forms of budgeting or improvements.

Previous research focused on quantitative studies using the analysis of large surveys (Ekholm & Wallin, 2000; Joshi et al., 2003; Libby & Lindsay, 2010; Neely et al., 2003; Sivabalan et al., 2009; Vaznoniene, 2012). Another focus has been the conduction of case studies of individual companies (Bourmistrov & Kaarbøe, 2013; Khoiriyah & R. Shauki, 2019; Østergren & Stensaker, 2011; Sandalgaard & Nikolaj Bukh, 2014). Previous literature provides a useful overview of budgeting practices and dives deeper into a few companies. However, detailed information on the advantages and challenges of budgeting by practitioners is largely missing. The following study aims to close that gap and adds budgeting practices from German firms to the international discussion. Moreover, this paper serves as an actualization of practitioners' views on budgeting in times of crisis leading to a highly volatile and uncertain environment. The following research questions are addressed in this study:

RQ 1: What are benefits and challenges of budgeting faced by practitioners?

RQ 2: Are budgets still viable in times of crisis and the future?

The next section in this paper aims to give an overview of the literature analyzing different studies with a focus on budget planning. Then the research approach applied in this paper is being presented. The subsequent section shows and discusses the findings, with a specific focus on the limitations of traditional budgeting approaches. This paper ends with a conclusion.

LITERATURE REVIEW

The Concepts of Planning and Budgeting

Planning and budgeting create a simplified model of reality. Additionally, it helps projecting future developments meaning that planning is shaping decisions concerning the future. It is an important coordinating instrument to govern the company. Planning concerns the areas of corporate goals, company structure, and process flows. It is a process where information is obtained, recorded, processed, and passed on (Horváth & Partners, 2019). Speck et al. (2017) add that planning is a process where developments, trends, opportunities, and risks are recognized and made conscious. This enables executives to discover sources that have the potential for profit or cut areas that are being predicted to make losses. This control mechanism enables the company to react proactively to problems detected during the process.

Often budget planning starts by considering historic actual data from the previous period, which is then adjusted to the new objectives derived from their performance. This is why the process of budget planning can be viewed as a cycle. It starts with performance planning for the whole organization and each of the sub-units. As a next step, the management will agree on certain expectations. This plan

serves as a benchmark against the actual results (Rickards, 2007). This described process is often referred to as incremental budgeting or traditional budgeting.

Limitations and Challenges of Budgeting

Many practitioners of budgeting voice their concerns about using the traditional budget for planning and performance evaluation. They claim that "budgets impede the allocation of organizational resources to their best uses and encourage myopic decision making and other dysfunctional budget games" (Hansen et al., 2003). A study conducted by Neely et al. (2003) shows further weaknesses of traditional budgeting perceived by practitioners. They find twelve different fields of weaknesses:

1. budgets are rarely strategically focused and are often contradictory

2. budgets concentrate on cost reduction and not on value creation

3. budgets constrain responsiveness and flexibility, and are often a barrier to change

4. budgets add little value - they tend to be bureaucratic and discourage creative thinking

5. budgets are time-consuming and costly to put together

6. budgets are developed and updated too infrequently - usually annually

7. budgets are based on unsupported assumptions and guesswork

8. budgets encourage gaming and perverse dysfunctional behaviour

9. budgets strengthen vertical command and control

10. budgets do not reflect the emerging network structures that organizations are adopting

11. budgets reinforce departmental barriers rather than encourage knowledge sharing

12. budgets make people feel undervalued.

Ekholm & Wallin (2000) conducted a further study looking at the criticisms of budgeting. They surveyed 168 Finnish companies that had a turnover of more than 16,7 million euros. Their goal was to assess the necessity, functions, and negative aspects of traditional budgeting. 85,7% of the surveyed managers answered that their firm would either like to keep the annual budget as it is or try to develop it to meet new demands. Meanwhile, 6% of the remaining companies were thinking about abandoning the annual budget and the other 8% were in the process of renouncing the annual budget or had it already been renounced. In their conclusion, Ekholm & Wallin (2000) mention that the annual budget still plays an important role. However, companies agree that more flexible methods like rolling forecasts and balanced scorecards are necessary to complement the traditional budgeting process.

The study conducted by Libby & Lindsay (2010) has the objective of investigating budget managers' perceptions of the uses of budgeting. Furthermore, they examined to what extent the practitioners can understand and overcome the criticism of budgets. They used a web-based survey to question 558 managers holding a senior position in a medium to large sized company in the US or Canada. In response to the question of abandoning budgets, an overwhelming majority of companies answered in wanting to improve their practices instead of renouncing their budgets. 46% of the firms answered that they want to make changes in their budgeting processes. Concerning what changes they would like to implement, managers answered with a bottom-up orientation, the use of rolling forecasts and improving the alignment of strategy with budgeting. The probed firms also indicate that budgets add value and are indispensable. Only 15% of the surveyed managers disagreed with indispensability. Libby & Lindsay (2010) additionally looked closer into four main criticisms of traditional budgeting. Looking at the large consumption of time, they found that managers in the study took less time to prepare than indicated in earlier research.

Vaznoniene (2012) launched a study to evaluate budgeting practices and limitations in Lithuanian companies. She used telephone interviews with 80 firms as a basis for her data. The sample size consisted of nearly 90% very small companies. This might explain her finding that about 88% of companies do not use budgeting practices at all. She states that the company size correlates with the likelihood of using a budget. Lidia (2014) conducted a study to examine the disadvantages and advantages of budgeting in Romanian businesses. In the questionnaire, participants could indicate if they think that the listed disadvantages/advantages are valid. Lidia (2014) concluded from the results that the most important perceived advantages of budgeting are the planning and control function (97/119), the assistance in the achievement of effective control (87/119), and the contribution to effective resource management and the improvement of performance (73/119). The most noted disadvantages were the difficulty to prepare budgets (50/119), the communication, coordination, and cooperation necessary for preparing budgets (44/119), and the time consumed for budgets (41/119). The limited flexibility of budgets to adapt to the business environment scored according to the respondents relatively low with 21 of 119 (Lidia, 2014). These results indicate that the benefits outweigh the problems of budgeting in the opinion of the study's respondents.

In summary, these quantitative studies highlight and repeat different challenges of budgeting. The most prominent are high time consumption, inflexibility, missing alignment with strategy, and being outdated. Nonetheless, most companies still feel that the advantages of budgeting outweigh the disadvantages.

Initial Improvements of the Budgeting Procedures

Van Roestel (2016) conducted interviews with 20 operational professionals to assess the benefits of a collaborative approach to budgeting. All interviewed professionals indicated that budget targets are set by the head office. Additionally, they acknowledged that there is little to no interaction between operations and the head office while setting the budget targets. Respondents answered that a more collaborative approach could be reached by incorporating more operational employees into the process. Furthermore, this can help employees take more responsibility for the numbers that are getting set. The professional*s* also thinks that enhanced participation will lead to better and more achievable budgets. Haka & Krishnan (2005) dived deeper into the aspect of rolling budgets and forecasts. They found that rolling forecasts seem to be more effective in high uncertainty areas while traditional budgeting is more consistent in areas with low uncertainty (Haka & Krishnan, 2005).

METHODOLOGY AND RESEARCH DESIGN

This study uses expert interviews as a method for data collection. According to Kaiser (2021), expert interviews are "a systematic and theory-based method of data collection in the form of interviews with people who have exclusive knowledge about a certain field of study". We interviewed multiple experts from different companies to collect data, who provided in-depth and detailed insights into the planning and budgeting procedures of the sample companies. We applied a semi-structured interview approach, since its flexibility is suited to answering "why" questions. (Fylan, 2015). The style allows one to deviate from questions to dive deeper into the reasons behind the answers and understand them better. Furthermore, semi-structured interviews allow the participant to talk more freely in giving insights into their field of expertise. As the goal is to obtain detailed answers concerning the process of budgeting and its challenges, this interview style suits this purpose best.

The process of acquiring participants and the communication before the interview was done via e-mail. Our study focuses mainly on the importance and challenges of budget planning in large companies, as big organizations are more likely to have extensive budget planning (Stevcevska-Srbinoska, 2018). There was no particular choice concerning the industry the corporations operate in, as, due to the position of desired participants, acquiring any interview partners was challenging by itself without putting any more constraints on the sample. Table 1 provides a short overview of the interviewees. For reasons of practicality, the interviews were conducted virtually via Microsoft Teams. Due to the confidentiality and sensitivity of data, no interviewee or company data will be named. Instead, the information will be delivered anonymously.

Number of Interviewee	Job Description	Years of experience in planning	Length of interview (in minutes)
I1	Controller	9 Years	48
I2.1	Director Finance	25 Years	50
I2.2	Controller	10 Years	50
I3	Planning Coordinator	2 Years	45
I4	Director Controlling	3 Years	42
I5	Controller	19 Years	61
I6	Director Finance	25 Years	52
I7	Controller	8 Years	62

Table 1. *Overview of Sample (created by the authors)*

All the interviews were conducted by the first author with one suitable person from the company. There was one exception where there were two interviewees from the same company, both giving insights into the topic. Since the native language of all the interviewees as well as the interviewer was German, the interviews were also held in German language due to reasons of comprehensibility and practicability. To analyse the interviews, all virtual sessions were recorded with a voice recording device. Afterwards, they were transcribed verbatim to make the data more accessible; the transcription also represents the first step in data analysis.

Theme	Codes
Information about Interviewee	Job Description, Experience
Budgeting Process	Data Basis, Flexibility, Procedure, Inclusion of Employees, Indicators, Strategy, Supporting Process, Supporting Software, Targets, Time Horizon, Variable Payment
Advantages of Budgeting	Culture, Detail, External Information, Incentivization, Less recursion, Measures, Pricing, Production Capacities, Reflection, Routine, Short Time Frame, Steering, Synchronization
Challenges of Budgeting	Budget Games, Changes in Organization, Coordination, Data Quality, Degree of Detail, Inflexible, Lacking Technology, Outdated, Shortsighted, Time intensive and costly
Suggested Improvement	Automatization, Less detailed, Rolling Forecast, Scenario Planning, Short Conference, Support of Management, Uniform Process
Budgets during Crisis	Dependence on Industry Sector, Prevention, Viability
Beyond Budgeting	Opinions
Future of Budgeting	Importance
Additional Input	AI-supported planning, Challenges for Controllers, Diverse Companies, Technological Change

Table 2. *Coding Scheme (created by the authors)*

The analysis approach is based on template analysis and thematic coding (King, 2004). An important aspect of the codes is the possibility to put them into hierarchical order. This means that groups of codes can be put together leading to a more general code. This helps in structuring the contents and

allows analysing the text in varying degrees of specificity (King, 2004). The analysis included reading thoroughly through all the transcribed interviews. In the next step, the transcripts were transferred into a supporting program that allowed to create themes and subordinate codes. Additionally, this supported in providing the option to color-code the different text segments that were identified as codes in the text. Table 2 provides an overview of the structure of themes and codes.

RESULTS AND DISCUSSION

Advantages of Budgeting

The interviewees mentioned many merits of budgeting. Some of them are backed by the literature, some are specific to the company, and some are new insights into the positives of budget planning. Interviewee I7 describes that their bottom-up view allows them to understand their figures in detail.

> *"I can go into the system and look up any revenue or expense in detail to see how it comes about."* (I7)

An important benefit of budget planning that was brought up by several interviewees was the provision of information to external parties. Several participants have mentioned that they provide information in a more condensed manner for the interested parties. Interviewee I2.1 insists on the necessity to provide forecasts to analysts on the stock market. It is important to be able to communicate targets as a stock exchange-listed company.

> *"As a listed company, if you fail to meet your targets, you will be punished directly."* (I2.1)

Interviewee I4 adds that one of the main advantages of the provision of information lies in the transparency it provides. Participant I5 reiterates the importance by stating the need to satisfy their creditors and get good grades from rating agencies. While the provision of information to external parties was ranked low in importance in the study of Sivabalan et al., p. (2009) the answers provided by the interviewees indicate a great interest in this merit of budgeting. Various participants commented on this topic, pointing out the great importance it has, especially for a stock-listed company.

All participants of the study mentioned the importance of budget planning to incentivize employees and adjust their payment according to the achievement of targets. Lorain et al., p. (2015) further back this point as they found the motivation to be a main aspect in the management control function of budgeting. Interviewee I3 explains that their new budgeting process is advantageous in comparison to the old one because there are fewer recursions.

> *"When I started at Company 3, they started bottom-up and planned things with a high degree of granularity that they had revised X times. I think it's certainly advantageous if you simply know what the goal is, and that's what I must orient myself to."* (I3)

Participant I6 points out the advantage of deriving measures from comparing the budget plan with the actual data.

> *"If there is a negative deviation from the plan, the divisions must then show with which measures they counteract. The reference is usually the planning."* (I6)

The control component also got rated as the most important advantage of budgeting by the study from Stevcevska-Srbinoska (2018) further showing the importance of this component. It is imperative to be able to control the budget to find appropriate measures to make changes. Some interviewees describe the importance of planning in reference to the determination of pricing and production capacities (Sivabalan et al., 2009).

> *"One would like to manage the limited resources optimally and allocate them through planning."* (I3)

Another critical benefit of budgeting revealed by the participants is the reflection on the current state of the finances of the company, the strategic goals they are trying to reach, and their position in the market.

> *"Where am I today, is the market successful? Do I leave the market now? Which customers do I want to actually address?"* (I2.1)

This is also reflected by (Rickards, 2006) who also acknowledges this aspect as a key component and outcome of budgeting. Interviewee I6 mentions the interesting perspective that the budget process helps to establish a routine for thinking ahead, which is important if one wants to project the future as accurately as possible. Participant I7 states that their planning process is happening in a shorter time frame compared to their earlier applied process. Here the interviewee would be tangent with the planning over six to nine months of the year. Whereas now the planning takes place in a condensed but more intensive time corridor. This method is preferred by the respondent. One other major advantage of planning acknowledged by several interviewees is the element of steering which is also noticed by Lorain et al., p. (2015).

> *"A clear goal, a decision-making scope that everyone has for themselves because they know how much revenue they have to generate, how many costs they can spend, and what the contribution margin is."* (I4)

> *"A company without planning is lost. After all, the point is to control where which funds flow."* (I5)

> *"I think that's an advantage in planning, anticipating, and then also getting everyone on the same page to be running in the same direction."* (I6)

Interviewee I6 recognizes the importance of synchronizing the action of the whole company. Through the process of budget planning the employees get a chance to coordinate themselves, which can be seen as an important function of the planning process.

> *"That everyone is really pulling in the same direction"* (I6)

Many advantages we identified in data are also discussed in the literature. Certain benefits are specific to their firm or their specific planning processes. A new aspect added by the practitioners was the establishment of a routine to think ahead through the yearly budgeting process. However, the respondents realized that not everything in the budget planning process can be seen as positive. They described several challenges in their processes.

Challenges of Budgeting

Budget games are frequently mentioned in literature as a disadvantage to budgeting (Neely et al., 2003; Vaznoniene, 2012). The respondents in our study also notice this problem and have found different ways to deal with it. Interviewee I2.1 indicates that this problem is especially present in sales. The participant explains that they often put buffers in their planning while saying that the market is tough, indicating that this is a classic problem in sales. However, interviewee I2.2 adds that this is not only a practice in sales but can also be found in other functional areas.

> *"They are up to all kinds of tricks. The classic game of cat and mouse."* (I2.1)

> *"I think that is standard. We are not worse than other companies."* (I2.2)

Interviewee I2.1 elaborates that this problem can be kept in check through the extensive knowledge of management.

> *"We ask very critical questions and put them through their paces."* (I2.1)

Their management will realize if there is something unrealistic in the planning and correct the affected planning position. Interviewee I3 avoids this problem entirely by setting targets in relation to companies' best competitors. Their incentivization is directly related to the competitors' benchmark and not the plan that the business unit submits.

> *"From my point of view that (Budget games) are cured."* (I3)

Interviewee I5 figures that budget games are not only a problem caused by the payment that is dependent on the budget. Through their careful planning business units try to be better than the

actual to avoid measure reporting in case of being worse than planned. This would lead to additional efforts and the need to explain the reasons for the deviations in comparison to the plan.

> *"Everyone first tries to plan carefully, regardless of incentives, in order to be better afterwards."* (I5)

> *"There is a lot of friction in the planning process."* (I5)

Interviewee I6 likewise acknowledges the problem but indicates that their process is fit to deal with this challenge. First, they set demanding targets top down for their business units. Furthermore, the participant points out that some buffer in planning is not that bad because things often do not turn out exactly as planned. Another important mark by the interviewee is that the incentives should be based on the "big target" and not targeted towards their small sub-companies.

> *"You have to set the bar high enough at the beginning that there is also tension in it."* (I6)

> *"I think that you should always try to set a good proportion of the bonus at the level above so that everyone is committed to the same goal."* (I6)

Participant I7 is dealing with this challenge by making a part of their bonus dependent on the preview quality. If there are big deviations in their plan this will lead to a lower variable payment.

> *"This should encourage them to be as realistic as possible in their planning, but everyone has developed a bit of leeway over the years and knows where to hide some things."* (I7)

The last quote vividly shows that the problem did not get entirely eradicated and there is still the possibility for some buffer in planning. However, the different interviewees recognize the challenge and have come up with solutions to dealing with such dysfunctional behavior. Another huge challenge in budgeting was emphasized by interviewee I2.1. A change in organization form leads to a new structure that needs to be considered in their budget plans. The example given is a transition from a line organization into a matrix organization. The manager of a single business unit could become the manager of a business area spanning several units. The biggest challenge is to transfer their old structure into the new one.

> *"This transformation from an old world to a new one is quite a challenge and has caused us some headaches."* (I2.1)

However, this challenge must not occur yearly since businesses normally stick with their organizational form for longer periods. Interviewee I5 mentions a challenge concerning the coordination between the different hierarchical levels. Respondent I6 agrees with that point and elaborates that everybody needs to know the same thing.

> *"That everyone has the same exchange rate and the same material assumptions. It is important to stick to it and to get the discipline into the organization."* (I6)

A further problem was introduced by interviewee I2.2. It is an issue with the data quality of their historic data. It does not exist in a manner that would be needed to have their plan laid out as desired without any doubts and added figures that need to be calculated with gut feeling. Some of their data does not yet exist in the desired way.

> *"That is one of our big downsides."* (I2.2)

Interviewees I5 mentions that their planning is too detailed in comparison to the constantly changing framework. An example provided was the guideline for material pricing. This guideline has a big lever as a change in this premise will lead to a huge change in planning. Meanwhile, other minor positions in planning barely have any impact.

> *"That is always a difficulty how detailed do I have to plan and what makes sense at all?"* (I5)

Respondent I6 points out the high complexity when planning is really detailed. The difficulty in finding the right level to plan on gets iterated. There is no need to fit every "last screw perfectly". However, the planning still needs to be comprehensible and traceable. The interviewee describes it as *"finding the right altitude"*. Coming up often was the inflexibility of the budgeting process as also indicated in the literature (Libby & Lindsay, 2010; Lidia, 2014; Neely et al., 2003). Interviewee I2.1 expands on the point explaining that they are looking into the next year in the fall. The last years have shown that circumstances can change quickly, which leads to inaccurate budget plans. This fast-paced environment is not yet sufficiently considered in their budgeting process. According to the participant, this needs to be considered in the future since everything is getting short-lived and there exists a need to act more flexibly.

> *"The planning setup as we have it right now is very rigid."* (I1)

Interviewee I3 explains that normally the data basis for their planning is set in early summer. Nevertheless, as an answer to the recent crisis, their possibility of having another review meeting in November to adjust premises or framework helped them to be more flexible. After the plan is adopted in December it is fixed. However, their process of forecasting will be adjusted, helping them to see how the year is developing and if their targets can be met. Interviewee I3 says when questioned about the flexibility of their planning:

> *"The planning process is still relatively rigid for an agile company."* (I3)

Some participants also indicated that they need a higher degree of automatization by having access to better technology. Additionally, nearly all respondents agree that the budget plan is outdated too fast due to the fast-changing environment.

> *"Often, the information is already outdated by the time we reach a decision. Many then find it correspondingly difficult to stick to a milestone."* (I4)

> *"Currently, the world is changing. If you think about the last few years. There is one crisis after the other. ... It's crazy how fast the environment is changing right now."* (I5)

> *"The point is that once you're done, you can start all over again because the world has turned around three times."* (I6)

Another issue brought up by interviewee I1 is the shortsightedness of planning as also identified in the literature (Libby & Lindsay, 2010; Neely et al., 2003; Vaznoniene, 2012). Looking only at the targets of this year without thinking about sustainable, long-term development could dampen growth in the future. However, all the respondents state the importance of the implementation of strategy into their short-term budget plan. Concerning time intensiveness and costs all interviewees see the potential for optimization, which is echoed in the literature   (Libby & Lindsay, 2010; Lidia, 2014; Neely et al., 2003; Vaznoniene, 2012). Interviewees I3 and I4 describe that a lot of resources and effort are invested into the process of planning. Respondent I6 sees the cause of the long planning process in the difficult coordination between the hierarchy levels. One participant finds clear words to the issue and reiterates the need to achieve results quicker.

> *"Since time is money, I sign this (Time intensiveness and costliness) for you"* (I6)

Advantages of Budgeting	Challenges of Budgeting
A high level of detail helps to understand the figures	Dysfunctional Behavior/Budget Games
Provision of information to external parties	Adjusting the budget plan to changes in the organization
Transparency	Coordination and Communication between different hierarchical levels and inside the organization
Incentivization of employees	Lack of data quality
Derivation of measures through plan-actual comparison	Finding the right degree of detail
Setting prices	Inflexibility in a fast-paced environment
Adjustment of production capacities	Shortsightedness of the budget plan
Reflection on the current state of the company	Time intensive and costly
Establishment of a routine in thinking ahead	
Aligning everybody, steering the company in the right direction	
Coordination	

Table 3. *Advantages and Challenges of Budget Planning (created by the authors)*

The literature gives an useful overview of the different challenges that occur during the planning and budgeting process. Many of those are getting emphasized by the interviewees in our field study like budget games, coordination, communication, and inflexibility. The unique insights provided by the experts help us to understand those different challenges better, shedding new light on the problems. Additionally, some new aspects got named the challenge of having a change in the organization, the problem of data quality, and the difficulty in finding the right degree of detail. It needs to be stated that the challenges are being recognized by the practitioners and different paths to improve them are being found. This willingness to work on the problems shows that budgeting is considered important and as such continuous improvement is necessary. Changing the environment leads to adjustments and evolutions in budgeting processes. However, the question remains whether budgeting can survive a severe crisis and is still useful. Table 3 shows the advantages and challenges identified in data concerning budgeting in a condensed manner.

Budgets during Crises

The last years have seen many crises, partially existing contemporaneously and being mutually dependent. Interviewee I5 expresses these prevailing conditions bluntly:

> *"Semiconductor crisis, the value chains, COVID-19 and Ukraine. It's crazy what's happening at the moment."* (I5)

In this regard, the interviewees were questioned about the resilience and viability of their budgets in the face of such large obstacles and changes. Generally, every participant agrees that budgets are still viable even when faced with crises; however, the approaches to deal with them vary between the companies. Interviewee I4 refers to their forecasting process as a means to adjust to drastic changes during the year. Another participant reports on an unprecedented measure to deal with the crisis. Their plan already stood in the desired degree of detail, but the fast-changing environment had rendered the budget plan obsolete. The solution for them was to take their actual rolling forecast as the plan. The result is that many sub-plans and details that come up in their bottom-up process did not exist. This resulted in a plan only covering a higher level of the company to consider the substantial changes that happened. As they had to adjust their process interviewee I5 states that:

> *"At least in the current situation, our process was not expedient."* (I5)

Participant I7 dealt with the rapidly changing situation by updating their premises, which are the basis for planning later in the year. Respondent I6 was satisfied considering the flexibility in reacting to the changes but says that there was a lot of effort put into it. Interviewee I3 opines that:

> *"The importance of a self-contained, consistent planning system which takes many months to develop will decrease."* (I3)

However, if there are no significant indications of the desire to alter the budget process by the management nothing will change for now. Interviewee I1 describes their budget as:

> *"A very useful instrument that needs to be made more flexible."* (I1)

A further point was brought up that even such drastic situations can be considered. Meaning that the company is not getting caught unaware. Interviewee I2.1 mentions the tool of scenario planning in dealing with such crises. Another important matter that was described by interviewee I2.1 is that the degree to which companies are affected by different crises relies on their industry. As they are a software company working in digitalization, they are not losing out in the corona crisis.

> *"We felt that the travel expense item was the one that fluctuated the most because you didn't know if you could travel."* (I2.2)

All interviewees acknowledge the different crises and problems that originate from them. Some companies are getting hit harder depending on the sector that they are working in. Nobody mentioned abolishing their budgets in the face of such drastic changes. Instead, temporary solutions to cope with such a crisis are being looked at and implemented. Additionally, the need to change their budgets to make them more flexible is getting noticed. These further cements the importance that the interviewees see in budget planning.

Potentials to Improve the Planning and Budgeting Process

After analyzing all the challenges and problems the budget can bring with it, the participants in the study got asked about improvements to their processes or ideas to the solution of the problems they stated earlier. Interviewees I4 and I6 suggest optimizing their planning through a higher degree of automatization. Participant I4 specifies that they will be switching their controlling software to achieve better automatization. Respondent I5 sees a solution in the application of driver models. These will help establish a useful model through simulations.

> *"If this is worked out well and a model is established then I have the chance to react more quickly and know immediately, if there are lower sales it means that I have to adjust those three positions, and this will be the new result."* (I6)

The key aspect here is to gain time through the linkage of data and tools and become more efficient. Furthermore, several interviewees mention dispensing some levels of detail in their planning process.

> *"As a controlling department, we have to consider whether we should take the whole budgeting process to a higher level and allow much more flexibility underneath."* (I4)

However, this interviewee points out that with this higher level, a classic target/actual comparison is less meaningful. The more aggregated the data is the more inaccurate the statements become, and detailed analyses become more complicated. Both Interviewee I3 and I4 can imagine that a rolling forecast could be able to improve their current planning. Interviewee I7 suggests a shorter timeframe to improve their planning accuracy. The idea is a short planning conference of about 2-3 days where everyone comes in with their plans and after this conference, they will have a finished budget plan. Interestingly, a variant of this concept is already implemented in the process and reported by interviewee I4, where the conference lasts for a week. Participant I3 iterates the importance of continuous improvement in the support of management during the process of planning bottom-up.

> *"This means that we provide more data and stand out more as a sparring partner."* (I3)

Another advocated improvement by the respondents I 2 is the standardization of their process.

> *"For example, we have already started to use a new system where we maintain data and introduce a uniform process across the entire sub-companies."* (I2.2)

The following table 4 summarizes approaches to improve the planning and budgeting process in relation to the identified challenges.

Challenges	Approaches to Improve the Planning Process
Dysfunctional Behavior/Budget Games	Extensive Knowledge of the management Incentivization based on benchmarks from competitors Setting of demanding targets Basing the incentivization on a higher hierarchical level Basing the incentivization on the preview quality
Inflexibility of planning in a fast-paced environment Budgets during the crises	Forecasting process Another review meeting late in the year Update of premises later in the year Scenario planning Rolling Forecasts
Time intensive and costly	Higher degree of automatization Establishing models through simulations Linking data with tools Dispense level of detail Shorter timeframe

Table 4. *Budget Planning Improvement Potentials (created by the author)*

CONCLUSIONS

Budget planning can be considered a stable and important tool for decades by corporations. Steering, control, incentivization, provision of information to externals, implementation of strategy, and better coordination have all been discussed by the literature as benefits and reasons for budgeting. However, researchers are also harshly criticizing budgeting for being time-consuming, costly, inflexible, an encouragement for budget games, and shortsighted. This research shed light into the planning and budgeting processes of different German companies by conducting semi-structured interviews with financial officers, showing in detail their view on benefits, challenges, and potentials to improve the budgeting process.

Several of the identified advantages are echoed in the literature. For example, the steering, coordination, price setting, resource allocation, and transparency components. Nevertheless, our study added new themes to the discussion. The importance for everyone to reflect on the state of the company and establish a routine in thinking ahead were identified in the data as a further important benefit of budget planning. Moreover, the interviewees confirm and as well acknowledge several of the challenges discussed in literature. Especially, the long period, high cost, budget games, and the right degree of detail are of concern. However, our participants have found various ways to face these challenges. One has stopped their monthly planning process to cut costs and focused their planning period on a smaller timeline. Another based their incentives for their managers not on the targets in their plans but instead on the benchmarks that are provided by competitors. A method to fight budget games is also to base variable payment on the accuracy of the plan rewarding accuracy rather than overachievement.

All the participants recognize the challenges for budget planning occurring through the pandemic and the war in Ukraine. However, it was brought up that the impact of such a crisis is highly dependent on the specific industry. Others dealt with the crises by having a one-time adjustment in their planning process. It was emphasized that current rolling forecasts can serve as a substitute to budget plan losing out on a lot of detail but still making it work. The participants have agreed that their budgets are still viable and valuable even when faced with a dire crisis. Furthermore, they stated that budgets will continue to be of importance in the foreseeable future. However, they agree that new and innovative approaches will help in bettering and supplementing their budgeting process.

The nature of our research led to different limitations and by that to avenues for further research. The study was comprised of seven companies in a specific region in Germany, this means that evidence in this study needs to be confirmed by conducting further studies to gain insights from more experts. Further studies could investigate the matter of budgeting from the perspective of non-finance

departments using qualitative approaches. Further research is suggested into the field of how exactly companies can integrate their strategy into their budget plan, as this is getting acknowledged widely as a key challenge but was not covered sufficiently in this paper and the conducted interviews. Other areas of interest as suggested by the interviewees are the implementation of automatization processes through AI planning into budget planning.

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TITLE: "EXPLORING THE TECHNOLOGICAL TRANSFORMATION OF HALAL CERTIFICATION: ENHANCING TRANSPARENCY, RELIABILITY, AND SUSTAINABILITY IN THE INDUSTRY"

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ABSTRACT

This study explores the intersection of technology and Halal certification in the muslim industry, focusing on the opportunities and challenges presented by the integration of innovative solutions such as blockchain and the Internet of Things (IoT). The goal is to research innovative tools to improve the dissemination of halal products. Drawing insights from both professional perspectives and academic literature, highlights the growing importance of technology in ensuring the authenticity and compliance of Halal products on a global scale. Professionals emphasize the practical implications of technology adoption, advocating for transparency, traceability, and partnerships to drive economic growth within the industry. In contrast, academic sources delve into the theoretical foundations of technology integration, discussing the impact of emerging technologies, cross-cultural perspectives, sustainability considerations, and consumer behavior on Halal certification processes. To understand gaps in the field and future challenges, the following research compared studies from the professions and literature to understand points of contact and points of disagreement. Synthesizing these perspectives, underscores the need for future studies to explore emerging technologies, cross-cultural implications, sustainability considerations, and consumer behavior to advance our understanding of technology integration in Halal certification and its potential to enhance transparency, reliability, and sustainability in the Halal industry.

Keywords: Halal, Halal Certification, Halal Food and Beverage, Halal Market, Technology, Artificial Intelligence, Blockchain

INTRODUCTION

Technological development is also revolutionizing the halal industry market. The market for Islamic products is expanding rapidly, which must observe the rules dictated by Shariah (Yuspin, 2023). The term 'halal' means lawful and refers to all those products and services that comply with Islamic law (Sumarliah, 2021). A product to be called 'halal' must be certified by a specific body, which is

responsible for checking that the entire production chain complies with Islamic law (Sumarliah, 2021). Halal certification is essential for a Muslim consumer because it turns out to be a safety tool for observing Islamic principles (Yuspin, 2023) The integration of innovative technologies such as blockchain, Internet of Things (IoT), and artificial intelligence (AI) has revolutionized traditional Halal certification processes, offering new opportunities to enhance transparency, reliability, and sustainability throughout the Halal supply chain (Herren, 2001). This paradigm shift underscores the critical importance of leveraging technology to meet the evolving needs of consumers, regulatory bodies, and industry stakeholders in ensuring the authenticity and compliance of Halal products (Cole et al., 2022). The purpose of our research is to understand how technology can help create a single certification tool to standardize the authenticity of halal products (Papadopoulos, 2017). The goal is to provide a single tool for both producers and consumers, where the latter can understand all the necessary information before making a purchase and suppliers can enter information about the origin of the products and the processes performed (Sari N., 2023). To understand how technology can provide innovative tools for halal certification, the studies of professionals on the subject and academic studies were compared. Professionals in the field emphasize the practical implications of technology adoption, highlighting the role of blockchain in providing immutable records of Halal transactions, IoT in enabling real-time monitoring of supply chain processes, and AI in streamlining certification procedures (Cole et al., 2022). These technological advancements not only enhance the efficiency and accuracy of Halal certification but also address key challenges such as traceability, counterfeiting, and sustainability within the industry (Fosso W., 2016). On the academic front, researchers delve into the theoretical underpinnings of technology integration in Halal certification, exploring concepts such as cross-cultural perspectives, sustainability considerations, and consumer behavior (Misra, 2018). Theoretical frameworks provide insights into the impact of emerging technologies on Halal certification practices, the implications of technology adoption in diverse cultural contexts, and the potential of technology to promote environmentally sustainable practices in the Halal industry (Casey et Wong, 2017). By synthesizing these perspectives, a comprehensive understanding of the opportunities and challenges of technology integration in Halal certification emerges, paving the way for future studies to explore innovative solutions that enhance trust, transparency, and sustainability in the global Halal market (Sari N., 2023). The research was divided into the following paragraphs: in the first part we find a review of the literature, followed by the definition of the methodology, the collection of data, the analysis of the results and the final discussion. As the Halal industry continues to expand and evolve in response to changing consumer preferences and regulatory requirements, the integration of technology stands poised to reshape the landscape of Halal certification practices (Ab Rashid, 2019). By embracing digital innovations,

industry stakeholders can not only meet the growing demand for authentic Halal products but also foster a culture of transparency, integrity, and innovation that resonates with consumers worldwide (Misra, 2018).   Our research question is: How can new technologies support the development of products in the halal market from a sustainable perspective? Section 2 delves into the literature of the relevant field. Section 3 outlines the methodology used in this research. In section 4 we find the results obtained, comparing the data obtained from the analysis of the practitioners' study with the results obtained from the literature. Finally, in sections 5 and 6 we find the discussion and conclusion.

LITERATURE REVIEW

The growing demand for Halal products has focused on the technologies used to ensure Halal authenticity and compliance throughout the supply chain (Ab Rashid, 2019) .In the Muslim world, halal practices are the basis of daily principles and activities (Ab Rashid, 2019). When it comes to food and drink (Poniman, 2015), Muslims follow the guidelines of Sharia law, which mandates the consumption of halal (permissible) foods. Similarly, this principle is also applied to clothing and other aspects of life (Sumarliah, 2021). "Halal," an Arabic term signifying "legal" or "lawful," is a sacred duty that must be observed by every Muslim irrespective of their Islamic teachings or groups (Sumarliah, 2021). However, ensuring compliance with Halal principles has become increasingly complex due to the globalisation of food supply chains and industry practices. As pointed out by Abdullah et al. (2019) Halal certification is essential to instill confidence in Muslim consumers concerning the provenance and quality of products (Ismail, 2019). Halal certification not only ensures religious compliance of food products, but also plays a key role in opening and expanding global markets for companies in the industry. Obtaining the following certification enables companies to diversify their product offerings and specifically address the needs of Muslim consumers in different global contexts (Ismail, 2019). Allowing companies to develop a strategic approach and expand their presence in international markets, overcoming cultural and religious barriers (Miles et al., 2014). Firms have adopted blockchain technology because of competitive pressure (Ratih Hendayani, Yudi Fernando, 2022). A study conducted by Rahman et al. (2018) highlighted the importance of Halal certification bodies in ensuring the trust of Muslim consumers. There is no single international body responsible for halal certification (R. A. Rahman, 2018). However, each organisation follows the general guidelines set by Sharia law. The application of these principles may differ depending on the geographical area, country-specific legislation, and cultural norms (R. A. Rahman, 2018). The use of new technologies in the Halal product sector is rapidly emerging as a key factor in improving transparency, traceability, and compliance with Halal standards, thereby meeting the growing needs of consumers (El Beltagi, 2021). In particular, the main used technologies are blockchain and the

Internet of Things (IoT) (El Beltagi, 2021). Implementing blockchain technology in Halal product traceability provides a secure and transparent system to monitor the entire supply chain, enabling consumers to access detailed information about the origin and production of Halal products (El Beltagi, 2021). The decentralised and immutable nature of blockchain reduces the risk of fraud and counterfeiting. The use of this technology can reduce costs for companies and improve operational efficiency, eliminate the need for intermediaries, and reduce verification and transaction times along the supply chain, leading to significant savings in time and money (El Beltagi, 2021). Some scholars believe that the adoption of blockchain technology positively influences the supply chain of halal products, because it increases consumer trust (Ratih Hendayani, Yudi Fernando, 2022). Despite blockchain technology's advantages in the context of Halal products, some limitations and challenges may affect its complete application in this area (Uddin S., 2020). For example, the use of this technology requires the development of advanced skills and resources that small businesses often do not possess; in addition, there is not yet complete standardisation for the use of blockchain in halal products, and as a result, there may be limitations in sharing information throughout the chain (Uddin S., 2020). In contrast, the Internet of Things is used more for warehouse management, storing halal products, and interacting with consumers (Sari N., 2023). Instead, for consumer interaction, IoT is implemented in mobile devices and smart labels, providing real-time product information (M. A. Rahman et al., 2021). Innovative technology solutions offer numerous benefits beyond mere compliance with Halal standards, promoting consumer confidence and supporting the sustainable growth of the Halal industry.

METHODOLOGY

The section aims to describe the rigorous qualitative methodology applied to the presented study to meet the purposes of professional source-based research. Content analysis (CA) represents a research technique for conducting replicable and valid inferences from different meaningful materials to usage content (Krippendorff, 2018). Although scholars initially used it only for text, nowadays, it is applied to analysing different media sources, such as audio and video content (Krippendorff, 2018). Therefore, this method allows for research using multiple sources and computational tools to perform scientific comparisons. The literature presents CA with three different declinations: conventional, direct and summativem(Hsieh H.F. & Shannon, 2005). Our study used a direct declination. The possibility of using computerized data analysis tools has enabled a critical evolution of the method. CA is widely implemented in different research streams to highlight specific literary and thematic trends (Amini M., Bienstock C.C., Narcum J.A., 2018). Conventional CA means that coding categories are derived directly by researchers from the text. In the direct approach, researchers use a relevant theory or

findings to guide the initial coding task. Finally, in summative CA, the keywords investigated are counted and compared based on the interpretation of the underlying context. Therefore, based on the review of relevant literature on Halal and technology (Ab Rashid, 2019), our paper implements a direct CA investigation. Therefore, considering the previous elements, the content and thematic analysis can adequately meet the purpose of our research.

DATA COLLECTION

To answer our research question, we utilized two databases. For academic research, we employed the widely adopted Scopus database that analyzes academic articles. For the analysis of expert studies, we utilized the Nexis Uni database (Kim N. et al, 2015) which considers news containing company information as public information. To conduct content analysis, we used Leximancer software (Massaro et al., 2018) which automatically identifies key concepts and reference citations associated with a catalytic theme in the text. The query used for the scientific search using Scopus was as follows:: "halal" OR "Islamic*" OR "Halal certification" OR "Halal food" OR "Halal Food and Beverage" OR "Halal Cosmetic*" OR "Halal market*" AND "technology*" OR "Artificial intelligence" OR "Blockchain". In order to collect practitioner papers, through the Nexis Uni database, it was not possible to use the exact word string used in the Scopus database because it returned a high number of results. Therefore, we decided to limit the survey to only those sources where the term "Halal" and "Technology" were within five terms of each other to ensure better relevance. The time period analyzed was from 2020 to 2023. There were 351 results obtained from the Scopus database. The results obtained from the Nexis Uni database amounted to 300 results.

RESULTS

PRACTITIONERS RESULTS

This section aims to explore the themes discussed by practitioners when investigating companies' research on the use of new technologies to produce halal products. We have identified key concepts discussed in practitioner sources and examined how they relate to each other. As shown in Figure 1, the main topic related to halal products is "Food." The first term - "Food", is linked to various concepts, such as 'halal', 'production', 'technology', 'economic', 'digital', and 'blockchain'. Within the first theme, practitioners seek out technologies that can certify the authenticity of halal food products. The second topic concerns the definition of 'Halal,' which Islamic products must observe Sharia principles. Over the last few years, the demand for halal-certified products has extended beyond the Muslim community and is gaining increasing acceptance among non-Muslim consumers who relate halal with

ethical consumerism and high-quality products. Therefore, the increasing demand for halal products worldwide is driving the need for halal logistics. The third, fourth, and fifth topics refer to the challenges that digital innovation brings to the halal industry, and related economic growth. In reference to the terms 'blockchain' and 'technologies,' blockchain is the most popular technology used in the Islamic industry. Professionals are currently occupied in solving two major issues.

Figure 1: Key themes and their relationship in practitioners' sources
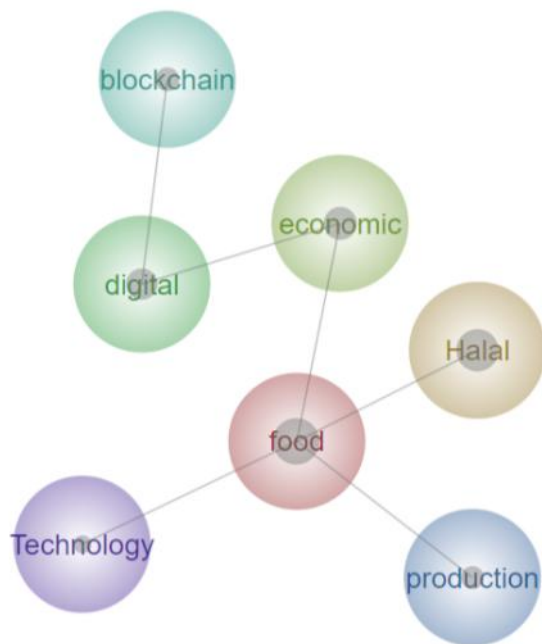
The first one pertains to finding tools that conform to the principles of Sharia while also considering environmental protection and waste reduction. The second issue relates to ensuring transparency and dependability of the tools used at every stage of the supply chain. Consequently, the 'halal' industry is looking to incorporate new technologies, specifically blockchain, to enhance the dependability of these products and aid in the economic expansion of the 'halal' market. Infact, Dr Habib said: "*There is a huge gap between the Muslin world – consisting of mosly underdeveloped countries – and blockchain innovations. Shariah Expert is bridging this gap throught halal compliance advisory, so that those project, on the one hand, can find new markets; and on the other hand, Muslim can benefit from without compromising their faith-based values.*" Indeed, Neha Anna Thomas - Senior Economist at Frost & Sullivan, has written: "*Transparency and traceability along the halal product value chain are crucial. Due to this, governments should encourage the adoption of advanced technologies such as blockchain and the Internet of Things (IoT) when developing halal economy masterplans, while businesses can partner with tech start-ups*". Currently, implementing innovative tools is an opportunity for all market sectors. To support this, Fook Yen Chong – ADB's Senior Social Sector Specialist for Southeast Asia, said: "*Limited tecnological mastery in*

the industry and a lack of capacity to absord new technologies can reduce productivity and hider economic growth". It sounds like the main objective is to boost the Halal production sector by forming partnerships with key local and international players. The focus seems to be on supporting small and medium-sized enterprises in this sector. In support of what has been said, from the data analyzed it emerged that Public Investment Fund PIF announced the launch of halal Products Development Company (HPDC or Company) which will invest in localizing the Halal production industry in Saudi Arabia by increasing the efficiency of the ecosystem locally, while supporting the development of knowledge and innovation in this key industry with plans to export to different markets globally. Building on Saudi Arabias position in the Islamic world HPDC will aim to unify global efforts and promote Saudi Arabia as a global Halal hub.

Table 1: summarises the key topics, the companies discussed and the text sources used.

Topics	Examples	Original quotes
Halal	Sherry James Corporate Sale Specialist	Over the last few years, the demand for halal-certified products has extended beyond the Muslim community and is gaining increasing acceptance among non Muslim consumers who relate halal with ethical consumerism and high-quality products. Therefore, the increasing demand for halal products worldwide is driving the need for halal logistics. Halal logistics providers are rigorously ensuring that the people involved in the supply chain understand the technical requirements and regulatory aspects to deliver halal products to the markets safely. The growing issues over the absence of proper regulatory framework to assure the authenticity of these products might be a restraint to the commerciallt produced halala food (Sherry James Corporate Sale Specialist, 2022).
Economic	Fook Yen Chong	Limited technological mastery in the industry and a lack of capacity to absorb new technologies can reduce productivity and hinder economic growth. The project will also strengthen public-private partnerships, increase the competitiveness and productivity of the workforce as new technologies are developed and adopted, and strengthen entrepreneurship and job creation for young people. The significant growth in Muslim populations across the globe is expected to offer immense opportunities to Halal Food market. In addition, the rapidly accelerating economic power of Islamic countries is anticipated to largely influence them to spend additional money on the branded products. (Fook Yen Chong, 2022).
Technology	Neha Anna Thomas	Transparency and traceability along the halal product value chain are crucial. Due to this, governments should encourage the adoption of advanced technologies such as blockchain and the Internet of Things (IoT) when developing halal economy masterplans, while businesses can partner with tech start-ups." To tap into growth opportunities of the halal market: Global governments must seek to unify halal standards and accreditation processes to help reduce the number of certification requirements and promote halal commerce (Neha Anna Thomas, 2020).
	Dr Habib	There is a huge gap between the Muslim world consisting of mostly underdeveloped countries and blockchain innovations and crypto verse. Shariah Experts is bridging this gap through

halal compliance advisory, so that those projects, on the one hand, can find new markets; and on the other hand, Muslims can benefit from such projects without compromising their faith-based values. The complete transparency of blockchain also means that anybody can easily cross-check a certificate with Shariah Experts public key to verify beyond a shadow of a doubt that it was this specific Shariah advisory firm that minted and issued the certificate. (Dr Habib, 2022).

ACADEMIC SOURCES

The analysis of scientific journals obtained from the Scopus database show results in line with professional sources. In the literature, the authors have questioned issues related to improving the certification of halal products through the use of new technologies. As shown in Figure 2, key are related to macroconcepts such as "food", "business", "blockchain", "halal", "digital", "innovation", "finthech", "technologies", "Shriah", "technology". One element discussed in the literature refers to the concept of traceability of halal products. The market for halal products is growing, and product traceability is a key element. It depends on a number of factors, such as legislation, which may differ depending on the country observed. For example, the International Organization for Standardization (ISO) defines traceability as "the ability to follow the movement of a product through certain stages of production, processing, and distribution". According to Olsen and Borit, traceability is "the ability to access any or all information relating to what is being considered, throughout its life cycle, using recorded identification". The implementation of traceability systems has been remarkable in the industry to provide brand-protection guarantees from counterfeiting and ensure that the deliveries are safe and secure. This traceability system requires all supply chain participants to know who will supply to the company and to whom the product will be delivered so that every participant can access information about upstream and downstream products. Over time this process is being improved by implementing the use of new technologies. Literature indicates that recent digital innovations, such as blockchain, have great potential to change today's business mechanism and an entire economy. The results reveal that blockchain-enabled technologies improve transparency and reliability which will only be realized when there is a supportive law framework. With blockchain technology, halal certification bodies can improve the trust and authenticity of halal brands (*Tieman* and *Williams*, 2019). This is because the blockchain stores copies of all transactions permanently, which cannot be modified (*Khan* et al., 2020; *Tian*, 2017). In other words, the blockchain sees transactions in real time (*Calvão* and *Archer*, 2021) and all product information is stored in a shared and transparent system, establishing a trusted source of information for all (*Galvez* et al., 2018; *Mao* et al., 2019). As suggested by (*Tieman* and *Darun*, 2017), with accurate data, supply chain players' performances can be assessed accurately. *Additionally*, the blockchain can improve efficiency, which lowers operational costs (*Lim*,

2021). This is accomplished by eliminating the need for multiple verifications, as well as labor/administrative and physical costs (*Mansfield-Devine*, 2017). The digital documentation and high-speed data flow make the supply chain more efficient (*Barnard*, 2017). A distinctive feature that has emerged from the literature compared to professionals is the use of technology in the world of finance. Islamic Fintech, recently termed as i-FinTech (Chong, 2021), is a newly devised term, and researchers found no deviation from Fintech, provided that Fintech technologies were adopted following Shariah (Islamic Law) principles (Usman et al., Moreover, Alaa and Mirakhor (2017) asserted that Fintech is more connected to the spirit of Sharia as it eliminates two major risks, uneven maturity and leverage. Since 2010, the Islamic Finance Industry has grown rapidly, reflecting the evolution of the vast global Fintech Ecosystem with the aim of designing Islamic-faith-based products and services (Yuspin, 2023). Both practitioners and academics acknowledge the potential of new technologies to enhance the appeal of the halal products market. To produce specific products that are shariah-compliant, it's vital for practitioners to closely collaborate with engineers. The summary of the academic findings is shown in Table 2.

Figure 2: Key themes and their relationship in academics' sources
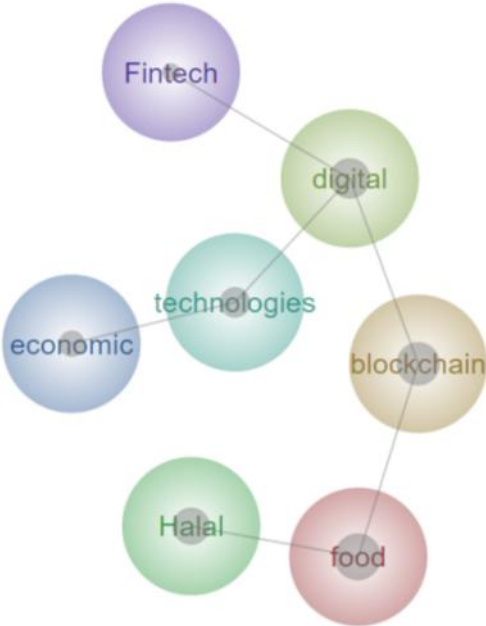
Table 2: summarises the key topics, the companies discussed and the text sources used.

Topics	Examples	Original quotes
Technology Innovation	Hoque & Liu, Salvatore	Technology is a key factor in business success in this era, especially for the Islamic banking sector, which was established in an era of technological innovation. According to some empirical findings, there are some arguments concerning the significance of technology investment for banking performance, as indicated by a higher rate of return (Hoque & Liu, 2021; Salvatore, 2005).
Digital Blockchain	Sheth & Subramanian	The blockchain is characteristic of end-to-end transactions where it has data distribution and it functions as automatic gatekeeper access to data, especially when using the smart contract method. The smart contract that is attached to the zakat transaction will be able to guarantee effectiveness, transparency and trust in zakat transactions and as a result, will lead to an increase in the total zakat collection at the state and country level (Sheth & Subramanian, 2020).
Food	Ilyas Masudin et al.	The demand for food, beverages, and cosmetics is growing, but consumers are also more careful about the halalnes of products. The role of cosmetics for women is important as they can affect their daily appearance. On the other hand, halal food production requires a very scrupulous understanding throughout the supply chain, especially if a product has a complex set of ingredients and processing aids. For an unsullied halal food supply, chain integrity and monitoring are necessary to apply to each partner in the supply chain, from suppliers to end-users, so that users can be satisfied with the authenticity of the halal products. Therefore, a traceability system is necessary to ensure that the handling process of halal food conforms with Islamic Sharia (Ilyas Masudin et al., 2022).

DISCUSSION

The analysis of the challenges related to technological integration in Halal certification highlights both similarities and differences between the opinions of professionals and those of the academic literature. Industry professionals highlight the practical applications of technologies such as blockchain and IoT to increase the reliability of Halal products and stimulate economic growth in the sector. They emphasize the importance of transparency and traceability in the Halal supply chain, arguing that the adoption of advanced technologies is essential to respond to consumer demands and regulatory requirements. Furthermore, professionals highlight the need for collaborations with technology start-ups and the development of local and international partnerships to reinvigorate the sector. On the other hand, academic literature focuses on the theoretical basis of technological integration in Halal certification (Tan et al., 2018). Scholars discuss the benefits of blockchain in improving transparency and trustworthiness, highlighting the crucial role of supporting legal frameworks to realize these benefits (Tan et al., 2018). They also analyze the concept of traceability of Halal products and the importance of accurate data to evaluate supply chain performance (Tan et al., 2018). Academic sources also examine the emergence of Islamic fintech and its alignment with Sharia principles, showing how the technology can make Halal products more attractive in the market (Yuspin, 2023). Although both

practitioners and academics recognize the importance of technology in advancing Halal certification, their perspectives differ. Professionals focus on practical applications and industry trends, highlighting the need for technological innovations to meet consumer needs and stimulate economic growth. In contrast, academic sources delve into the theoretical foundations of technology integration, exploring concepts such as traceability, transparency, and the intersection of technology with Islamic principles (Cole et al., 2022). By combining the insights of practitioners and academics, a comprehensive view of the challenges and opportunities in technology integration for Halal certification emerges. Collaboration between industry professionals and academic researchers could lead to innovative solutions that not only comply with regulatory requirements, but also increase consumer confidence and promote sustainable growth in the Halal sector.

CONCLUSION

The convergence of technology and Halal certification presents a transformative opportunity for companies in the halal industry to meet the escalating demand for authentic Halal products on a global scale (Sumarliah, 2021). By embracing innovative solutions such as blockchain and the Internet of Things (IoT), businesses can elevate transparency, ensure food safety, and enhance operational efficiency throughout the Halal supply chain (M. A. Rahman et al., 2021). These technological advancements not only facilitate adherence to Halal standards but also cultivate consumer trust and bolster sustainable growth within the Halal sector (Khan et al., 2018). As the market for Halal goods extends beyond the Muslim community, organizations that prioritize Halal certification and technological integration are poised to capitalize on this burgeoning trend and cater to the diverse needs of an expanding consumer base. The literature underscores the critical role of technology in advancing Halal certification practices and underscores the importance of traceability and authenticity in Halal products (Cole et al., 2022). While blockchain technology offers significant benefits in enhancing transparency and reliability in the Halal industry, challenges such as skill development and standardization remain (Tan et al., 2018). The thematic and content analysis employed in this study reveals the multifaceted impact of technology on Halal certification and emphasizes the need for continuous innovation to meet evolving consumer expectations. Furthermore, insights from practitioners highlight the growing significance of incorporating new technologies, particularly blockchain, to fortify the dependability of Halal products and drive economic growth within the industry. By leveraging cutting-edge technologies, companies can navigate the complexities of the global market, instill consumer confidence, and propel the Halal industry towards a future defined by transparency, sustainability, and innovation. Future studies in the realm of technology integration for Halal certification could explore several intriguing scenarios to deepen our understanding of this

evolving field. Impact of Emerging Technologies: Investigating the potential impact of emerging technologies such as artificial intelligence (AI) and machine learning on Halal certification processes could provide valuable insights into enhancing efficiency and accuracy in certification procedures. Cross-Cultural Perspectives: Exploring the cross-cultural implications of technology integration in Halal certification, particularly in regions with diverse regulatory frameworks and consumer preferences, could shed light on the challenges and opportunities of implementing standardized certification practices. Sustainability and Environmental Considerations: Examining how technology integration in Halal certification can contribute to sustainability goals, waste reduction, and environmental protection within the Halal industry would be a pertinent area of study, aligning with the increasing focus on ethical and eco-friendly practices. By exploring these future study scenarios, researchers can further advance our knowledge of the intersection between technology and Halal certification, paving the way for innovative solutions that enhance transparency, reliability, and sustainability in the global Halal industry.

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FROM CLASSROOM TO WORKPLACE: ASSESSING EMPLOYMENT OUTCOMES FOR GRADUATES WITH ICT AND DIGITAL SKILLS FROM EUROPEAN UNIVERSITIES

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ABSTRACT

Purpose- This study aims to examine how individuals' ICT and digital skills, along with the demand for ICT-knowledgeable candidates in the labour market, predict employment in positions requiring ICT skills.

Methodology- The study uses a multiple linear stepwise regression. The data is collected from publicly available sources, such as Eurostat (2024), the official online statistical platform of the European Union (EU).

Findings - The findings suggest that digital skills and the demand for ICT-skilled graduates in the labour market positively influence employment rates in positions requiring ICT skills. Conversely, graduates' possession of ICT skills has a negative impact on employment.

Implications - This study underscores the importance of collaboration among policymakers, higher education institutions, and industry partners to ensure alignment between the demand and supply of digital skills among tertiary education graduates. By addressing this alignment, stakeholders can enhance graduates' employability and better meet industry needs. These findings contribute significantly to the ongoing dialogue surrounding improving higher education to foster graduates' readiness for the workforce.

Keywords: Please provide up to Keywords: Digital skills, Tertiary education graduates, Employability, stepwise regression, EU27

INTRODUCTION

Technological advancements have rapidly transformed industries in the past 2 decades (Alenezi et al., 2023; Ikhtiyorovna, 2023). The advent of technologies such as artificial intelligence (AI), the Internet of Things (IoT), augmented reality (AR), and virtual reality (VR) has led to a significant shift in industries and thus impacting Higher education. This transformation has created the urgency to equip

graduates with digital skills to fill the needs of the labour market. Aligning with the current need, higher education institutions are crucial in preparing graduates with the digital competencies required by today's competitive job market (Chemli et al., 2023; Jiang et al., 2023; Zhang et al., 2023). Digital skills encompass various abilities, including information literacy, digital communication, and proficient use of various technologies. As technology permeates every aspect of industries, graduates must possess the requisite digital acumen to remain adaptable and competitive. Extensive research consistently demonstrates a positive correlation between digital competencies and employability across various sectors (Aljohani et al., 2022; Avram et al., 2019). Individuals with advanced digital skills not only enjoy better job prospects but also demonstrate greater adaptability to technological shifts. Specific skills such as programming and data analysis are particularly required, reflecting the evolving nature of job roles in the digital era.

Despite the growing demand for digital skills, a gap persists between graduates' skill sets and employers' requirements ((Alhloul & Kiss, 2022; Galve-Górriz & Gargallo Castel, 2010). This gap underlines the importance of targeted reviews by HEIs to bridge the digital skills divide and ensure graduates are well-prepared for employment.

Moreover, policymakers are crucial in shaping educational policies prioritising digital literacy and skills development. By investing in digital education initiatives and fostering collaboration between Higher Education Institutions (HEI) and industries, policymakers can empower graduates with the relevant digital skills needed to succeed in today's job market (Camilleri, 2020; Chemli et al., 2023; OECD 2017).

In light of these considerations, this study investigates the impact of individual ICT and digital skills and labour market demand for digital talent on the employment outcomes of graduates from European higher education institutions. By examining the intersection of technology, education, and employability, this research seeks to provide valuable insights into the factors influencing employment outcomes in the digital age.

LITERATURE REVIEW

Tertiary Education and Digital Skills

Several studies have demonstrated the gap between the current skills of employees and the future skills required by the labour market and destination management organisations (Baum, 2018; Carlisle et al., 2023), some of which focused specifically on digital skill mismatch (Chemli et al., 2023). Digital skills encompass a broad range of competencies, including information literacy, digital communication, and proficiency in utilising various technologies.

As artificial intelligence (AI), internet of things (IoT), augmented reality (AR), and virtual reality (VR) increasingly permeate various industries, including tourism and hospitality, the demand for tertiary graduates equipped with relevant digital skills has surged. This shift underscores the importance of preparedness among graduates to secure fitting roles in the evolving job market. The literature highlights the dynamic nature of digital skills, with constant evolution necessitating a continuous commitment to reskilling (Chaudhuri et al., 2023) and upskilling to improve their technical skills to adapt to digital innovations in the future (Huang et al., 2021). In the contemporary workforce, individuals possessing advanced digital skills are not only better positioned to secure employment but also demonstrate increased adaptability in the face of technological advancements.

As the primary source of digital competencies, tertiary education institutions play a pivotal role in shaping individuals' digital competencies (Haleem et al., 2022). Integrating digital skills into higher education curricula has gained prominence, reflecting a recognition of the evolving demands of the job market. Studies highlight diverse models and strategies universities employ to impart digital skills, from dedicated courses to infusing technology across disciplines ((Pažur et al., 2023).

A pertinent curriculum should cater to the rising need for digital skills by empowering students to proficiently navigate networked information sharing, devise potential solutions, and effectively implement them (Yu & Duchin, 2024).

Employability and Digital Competencies

Consistent research findings underscore a positive link between digital competencies and employability. Individuals with advanced digital skills not only have better job prospects but also demonstrate increased adaptability to technological changes. Specific skills like programming and data analysis are particularly sought in various industries, as evidenced by case studies and empirical data.

Given the diverse demands across economic sectors, targeted studies involving various employers are necessary. Such research can shed light on the specific digital competencies valued by different sectors (Baah-Acheamfuor et al., 2023). Policymakers responsible for education should prioritise equipping youth with digital skills to enhance their success in today's job market (Kee et al., 2023).

In line with this, De Villiers Scheepers et al. (2024) analyse digital career competencies (DCC) metrics, offering insights into how these metrics can aid universities, students, and stakeholders in understanding competency development. These metrics serve as a concise framework for evaluating and fostering DCC growth in higher education. Additionally, studies emphasise the importance of boosting students' confidence in their skills and career paths for success in the digital workplace.

Confidence is linked to essential competencies like business acumen and social and digital adaptability, which are crucial for navigating the evolving work landscape (Potgieter et al., 2023).

Moreover, Berniak-Woźny et al. (2023) identify a gap between students' perceived and actual competencies and propose recommendations for enhancing competency development among university students. This ensures their readiness for the changing workplace environment (Chemli et al., 2024; Suarta et al., 2023). Through these integrated efforts, from targeted research to policy emphasis and practical application, stakeholders can better prepare students for success in the dynamic digital workplace.

Therefore, the interconnectedness between digital competencies, employability, and higher educational policies emphasises the importance of a multifaceted approach to preparing students for the modern workforce. Targeted studies illuminating sector-specific digital skill demands, coupled with policy initiatives aimed at fostering digital literacy among youth, can significantly enhance their employability prospects. Additionally, frameworks such as those proposed by De Villiers Scheepers et al. (2024) provide valuable tools for understanding and cultivating digital career competencies within higher education. Addressing the gap highlighted by Berniak-Woźny et al. (2023) is essential for empowering students to overcome the complexities of digital advancements and usage at the workplace with proficiency and resilience. By integrating these insights and initiatives, higher education institutions and other stakeholders can better equip students to thrive in the ever-evolving digital economy.

While existing studies have investigated the relationship between digital skills and tertiary education, as well as tertiary education and employability, a notable gap still needs to be in the literature regarding cross-country comparative analyses within the EU27 concerning the intersection of technology, education, and employability. Our research endeavours to address this gap by examining potential disparities across EU27 countries in this context.

Moreover, the literature review identifies a considerable gap regarding the insufficient emphasis on individual ICT and digital skills and their correlation with integration into the labour market. Therefore, this study primarily investigates whether individuals proficient in advanced computer skills, such as creating integrated files, utilising advanced spreadsheet features, and editing multimedia files, demonstrate higher probabilities of securing employment in roles requiring ICT skills acquired through education. Consequently, the research proposes two main hypotheses:

H1: There is a direct correlation between individuals' proficiency in ICT and Digital skills and their ability to secure employment in positions requiring ICT-related skills.

H2: The demand for candidates possessing expertise in ICT within the labour market positively influences the employment of individuals equipped with ICT skills acquired through education.

METHODOLOGY

This study aims to investigate the correlation between labour market demand for ICT skilled graduates, employment rates for recent graduates, individual levels of digital skills for tertiary education graduates and Tertiary educational attainment as time-varying predictors on the employment rates with ICT skills over time, of young graduates of tertiary education across 28 countries in Europe and EU 27.

Thus, the research question is as follows: What is the intricate relationship between labour market demand for ICT specialists, employment rates of recent graduates, tertiary educational attainment, and individual level of digital skills, and their combined impact on the employment status of individuals with ICT education for a diverse set of 27 countries?

A quantitative research methodology was adopted to address this research's primary objective. Data was gathered from publicly available source Eurostat (2024), the European Union (EU) official statistical online platform. The use of multiple linear regression was appropriate in this study to assess the collective impact of multiple independent variables (refer to Table 1). A primary test was conducted using a multilevel regression to assess the impact of the independent variables (IVs) on the dependent variable (DV) across different countries. This regression included two blocks for the independent variables: Block 1 represented the countries, and Block 2 comprised the actual independent variables. The change in R-squared value was utilised to measure the impact of adding the IVs block.

However, the primary analysis results indicated a very low R-squared change of 0.04 between the two models. This suggests minimal variation across countries when considering the selected variables. Consequently, it was decided to perform a multiple regression analysis to further investigate the relationships between the independent and dependent variables without considering the country as a separate block. This decision was made based on the evidence suggesting insufficient across-country variation in our variables to permit separate consideration within the analysis.

Data collection and cleaning

The study uses secondary data from the primary source Eurostat (2024) (European Commission, 2024). The variables collected are (1) Individuals' level of ICT skills, (2) Individuals' level of digital skills, (3) Labour market demand for ICT specialists, (4) Employment rates of recent graduates and (5) tertiary educational attainment, (6) enterprises using software solutions such as CRM. The authors

used filters aligned with the study scope, mainly to keep data related to tertiary education and the service industry. In addition, data marked as unreliable or incomplete has been excluded, resulting in removing certain countries from the dataset.

Data analysis

This study uses a multiple linear regression analysis to test the two previously mentioned hypotheses. The dependent variable is the employed persons with ITC education (DV). Our research involved studying various independent variables, all of which are continuous, as detailed in Table .

Table 1. *Model description*

Variables			
Dependent variable - DV			
DV		Employed persons with ICT education (2022)	Continuous
Predictors			
IV1	IV1L1	Individuals' level of computer skills - Individuals who have created files integrating elements such as text, pictures, tables, charts, animations or sound (3 months)	Continuous
	IV1L2	Individuals' level of computer skills - Individuals who used advanced features of spreadsheet software to organise, analyse, structure or modify data (3 months)	
	IV1L3	Individuals' level of computer skills - Individuals who edited photos, video or audio files (3 months)	
IV2	IV2L1	Individuals' level of digital skills - Individuals with basic or above basic information and data literacy skills	Continuous
	IV2L2	Individuals' level of digital skills - Individuals with basic or above basic information and data literacy skills	Continuous
IV3		Labour market demand for ICT specialists	Continuous
IV4		Employment rates of recent graduates	Continuous
IV5		Tertiary educational attainment	Continuous
IV6		Enterprises using software solutions	Continuous

The authors employed a stepwise multiple linear regression approach to systematically select the most influential independent variables for predicting the number of employed individuals with ICT education. Stepwise regression offers a structured method to sift through a large pool of potential predictors and identify those with the strongest associations with the dependent variable. By

iteratively adding and removing variables based on statistical criteria, such as significance levels, we aimed to construct a parsimonious model that captures the essential factors driving employment outcomes for graduates with ICT skills from higher education. This approach helps streamline the analysis process, focusing our attention on the most relevant variables while minimising the risk of overfitting the model to the data. Ultimately, the use of stepwise regression enhances the interpretability and robustness of our findings, providing valuable insights into the factors influencing employment for graduates with ICT and digital skills.

To ensure the validity of the multiple linear regression results, several assumptions were tested using SPSS, including the absence of multicollinearity, homoscedasticity, normal distribution, and non-significance.

RESULTS AND DISCUSSION

This study examined the multicollinearity assumption through the correlation table, using the tolerance and variance inflation factors (VIF) (Aguinis et al., 2013; Mansfield & Helms, 1982; Thayer, 2002). The results revealed three main predictor variables for DV.

It was noted that 100% of the variance of the independent variable in Model 1 IV2L2 was not accounted for by other independent variables. In Model 2, the tolerance values (Table 3) were found to be greater than 0.1 accounting for 0.603, and the VIF values less than 10, both equal to 1.658. In Model 3, the tolerance values are 3 of them greater than 0.1, successively 0.591 for IV2L2 and IV3, and 0.976 for IV1L2, and VIF less than 10 (ranging from 1.025 to 1.692), indicating that there were no multicollinearity concerns in the 3 models (Mansfield & Helms, 1982). Furthermore, the cook's distance (the measure of the residual statistics) was found to be less than 1 for the 3 models, with a maximum value of 0.18, indicating that no outliers were disrupting the models (Aguinis et al., 2013). The main predictors for the DV are IV2L2, IV3, and IV1L2. Thus, the individual's level of digital skills, the labour market demand for ICT specialists, and the individual's level of computer skills using advanced features. However, the use of software solutions in enterprises, tertiary education attainment and employment rates of recent graduates were excluded from the model due to non-statistical significance.

Table 2. *Multiple Linear Regressions - Variables in the Equations*

Models		Unstandardised Coefficients		t	Sig.	Correlations	Collinearity Statistics	
		B	Std. Error			Part	Tolerance	VIF
1	(Constant)	61,550	3,396	18,122	<,001			
	IV2L2	0,502	0,103	4,859	<,001	0,	1,000	1,000
2	(Constant)	31,747	10,365	3,063	0,005			
	IV2L2	0,721	0,116	6,226	<,001	0,777	0,603	1,658
	IV3	0,532	0,177	3,000	0,006	0,374	0,603	1,658
3	(Constant)	35,020	9,656	3,627	0,001			
	IV2L2	0,686	0,108	6,361	<,001	0,732	0,591	1,692
	IV3	0,479	0,165	2,905	0,008	0,334	0,591	1,691
	IV1L2	-0,916	0,399	-2,296	0,031	-0,264	0,976	1,025
Ajusted R Square F N P<0.05		0,465 (b); 0,595 (c) and 0,656 (d) 23,613 (b); 20,084 (c) and 17,529 (d) 27						
a Dependent Variable: DV								

In the ANOVA analysis (Table 3), the null hypotheses were tested and found to be statistically significant (P<0.05). The F value was determined to be 23.613 with degrees of freedom of 1 and 25 for Model 1, F_c=20.084 with degrees of freedom of 2 and 24 for Model 2, and finally, F_d=17.529 with degrees of freedom of 3 and 23 for Model 3. These results led to rejecting the null hypotheses and the slope, implying that the models are statistically significant.

The unstandardised coefficients outlined in Table 2 signify the predicted change in the dependent variable (DV). For example, based on Model 3, a one-point increase in IV2L2, IV3, and IV1L2 corresponds to an expected change in the DV by 0.686, 0.479, and -0.916, respectively. Beta values, however, reflect the relative impact of independent variables (IVs) while considering the influence of other predictor variables. Notably, IV2L2 and IV1L2 demonstrate more substantial effects and stronger associations with the changes observed in the DV. The unstandardised coefficient, when squared, represents the variance explained on the dependent variable (DV) by the respective predictor. Therefore, eliminating the predictor IV2L2 would result in a reduction of 73.2% in the variance of the DV. This reduction would be more substantial than removing any other predictors in Model 3, a conclusion consistent with the analysis of beta values. Likewise, removing IV3 would lead to a decrease in the variance of the dependent variable (DV) by 51.8%, while eliminating IV1L2 would result in a reduction of 26.4% in the DV's variance. This hypothesis suggests that a rising demand for ICT specialists in the labour market, combined with individuals acquiring digital skills, is associated with increased employment rates among graduates proficient in ICT skills. However, proficiency in

computer skills seems to affect the employment prospects of these graduates adversely. Recent research suggests a changing landscape regarding the importance of ICT skills in determining graduate employability.

Contrary to previous studies such as Koppi et al. (2009) suggesting that enhanced ICT skills improve graduates' access to the labour market, recent technological advancements have altered this landscape. While past studies underscored the importance of ICT skills, the evolving nature of technology has transformed these skills from being advantageous to becoming essential prerequisites for employment. As a result, digital competencies have eclipsed traditional ICT skills as a fundamental requirement in today's job market.

Table 3. *ANOVA*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,635,948	1	3,635,948	23,613	<,001b
	Residual	3,849,506	25	153,980		
	Total	7,485,454	26			
2	Regression	4,685,755	2	2,342,877	20,084	<,001c
	Residual	2,799,699	24	116,654		
	Total	7,485,454	26			
3	Regression	5,207,715	3	1,735,905	17,529	<,001d
	Residual	2,277,740	23	99,032		
	Total	7,485,454	26			
a Dependent Variable: DV						
b Predictors: (Constant), IV2L2						
c Predictors: (Constant), IV2L2, IV3						
d Predictors: (Constant), IV2L2, IV3, IV1L2						

Analysis of the probability plots (P-P plots) reveals a strong alignment between the distribution of data points and the reference line for both dependent variables. Additionally, the residuals demonstrate a normal distribution pattern, as shown in Figure 1. Moreover, the scatterplot presented in Figure 2 confirms the absence of outliers near either axis, contributing to a desirable distribution shape. Notably, points are evenly dispersed, both above and below zero, on the X-axis and to the left and right on the Y-axis. These observations collectively suggest homoscedasticity in the dataset, as depicted in Figure 2.

Figure 1. *Normal P-P Plot of Regression Standardised Residual*
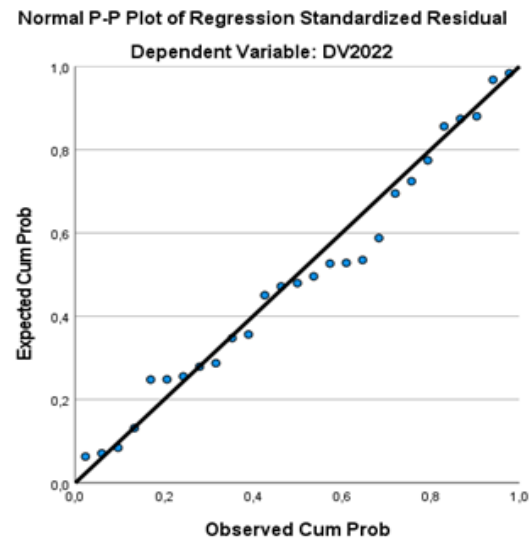
The results suggest that individuals with ICT skills tend to access the labour market more easily; however, holding ICT skills negatively impacts the job market, supporting H1. Additionally, it is found that firms requiring ICT skills for graduates looking for jobs, enhance the employment of individuals equipped with ICT skills acquired through education, supporting H2.

Figure 2. *Figure 2. Scatterplot Z-Residual/ Z-Predicted*
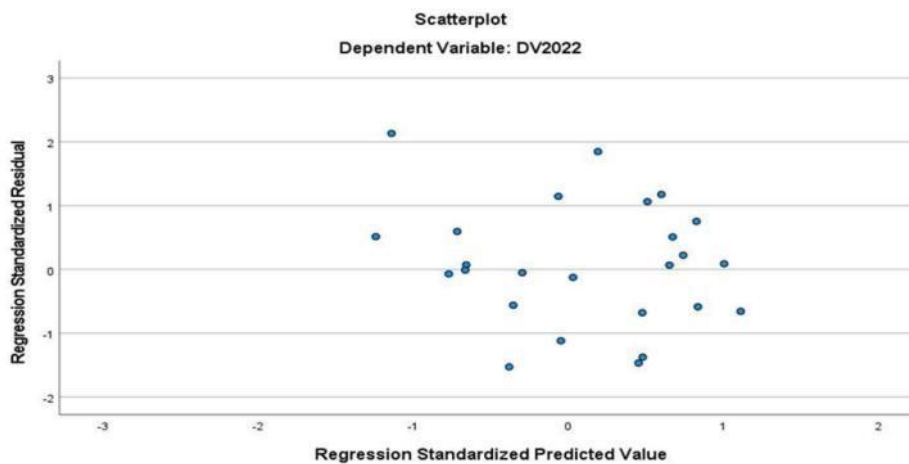
CONCLUSIONS AND IMPLICATIONS

The study concludes that digital skills represent one of the most important competencies allowing graduates to access employment. With the changing needs and requirements for new entrants, companies, whether using or not software and technologies, require certain skills, including digital ones.

The academic debate about the skills necessary for employment opportunities is constantly evolving. While previous studies have yielded valuable insights, it is imperative to acknowledge the changing landscape driven by technological advancements and ongoing societal shifts. Consequently, while acknowledging the contributions of past research, notably by Hecker & Loprest (2019) and Pirzada & Khan (2013), it's essential to interpret their findings within the contemporary context shaped by rapid technological progress.

This study aligns with recent scholarship, exemplified by the work of Zhang et al. (2023), which emphasises the importance of digital skills in facilitating access to employment. Building upon the groundwork laid by these prior studies, our research further underscores the critical role of digital competencies in navigating today's dynamic job market. By exploring the intricate relationship between digital skills and employability, our study enriches the ongoing discourse on workforce preparedness in an era characterised by digital transformation and innovation.

In today's professional arena, attaining digital skills has evolved beyond merely offering an edge for graduates; it has become an indispensable requirement. Higher education institutions must embed digital literacy within their academic programs and customise these proficiencies to address the unique needs of diverse industries.

Our study challenges the traditional notion that individual-level ICT skills provide a competitive edge, as Koppi et al. (2009) posited previously. Instead, we assert that in today's post-COVID era, characterised by remote work and the proliferation of online employment opportunities, proficiency in ICT is no longer a distinguishing feature but a fundamental requirement for all individuals. This shift in perspective underscores the urgency for graduates to possess a baseline level of digital competency rather than viewing it as a unique selling point.

Highlighting ICT skills as a competitive advantage may unintentionally give employers a false impression, considering their widespread prevalence rather than unique value. Hence, educational institutions and policymakers must acknowledge and respond to this paradigm shift. By emphasising fostering digital skills within the educational framework, graduates can effectively address the evolving requirements of the modern job market, bolstering their competitiveness in an increasingly digitalised environment.

Furthermore, the study's findings indicate a lack of significant variation in the employment of graduates with ICT skills across the 28 countries examined. This observation underscores the effectiveness of collective efforts at the European level to address employment challenges and promote the integration of ICT skills into tertiary education. Another significant conclusion drawn from the study pertains to the increasing demand for ICT skills in job offerings, which has contributed

to the heightened employment prospects for graduates possessing such skills. Consequently, while mentioning basic computer skills may not sway companies seeking candidates with ICT proficiency, they are likely to show greater interest in candidates with advanced knowledge or familiarity with software applications. These findings are consistent with the findings of Chemli et al. (2024).

Managerial implications

The research findings reveal a fundamental shift in employment dynamics: digital skills have become indispensable across sectors. Recognising technology's transformative impact, employers prioritise candidates with solid digital competencies. This paradigm shift stresses the urgent need for Higher Educational Institutions to adapt curricula to the current needs. Students must be equipped with the relevant digital skills that align with the industry's evolving demands. This adaptation includes fostering information literacy and software applications and improving data analysis capabilities.

Given these insights, policymakers are called to take proactive steps in leading initiatives to upskill the workforce and facilitate continuous and lifelong learning opportunities. Policymakers should prioritise integrating digital literacy programs into higher education institution (HEI) curricula and incentivise businesses to offer ongoing training to enhance digital skills among their employees. Additionally, HEIs should foster collaboration with industry partners to tailor curricula to meet both current and anticipated future demands of the labour market, thereby ensuring that graduates are adequately prepared to thrive in an ever-evolving digital landscape. By bridging the digital gap, policymakers can easily enhance employment prospects for recent graduates from tertiary education. The research findings clearly indicate the necessity of embracing digital competencies to navigate the ever-changing landscape of today's job market.

Furthermore, the study clarifies the dynamic nature of ICT skills and their pivotal role in shaping graduate employability. While traditional ICT skills retain relevance, digital competencies have emerged as decisive factors for success. With the rapid evolution of technology reshaping various industries, individuals must actively engage in continuous learning and adaptability to stay competitive. Lifelong learning and professional development initiatives are not merely advantageous but essential for navigating the shifting landscape of job requirements and career opportunities.

This research goes beyond offering insights; it provides practical recommendations for stakeholders. Policymakers and educators can make informed decisions by grasping the interaction between ICT skills, labour market dynamics, and graduate employability. This comprehensive approach, which empowers individuals with the necessary skills for the digital economy, is crucial for promoting sustainable economic growth and individual success in our constantly evolving society.

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EUROPEANS' INTENTIONS TO BUY COSMETICS AND DETERGENTS CONTAINING RECYCLED CO2: AN EXPANDED TPB APPROACH

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ABSTRACT

This study aimed to examine consumption intentions to buy cosmetics and detergents containing recycled CO_2 in four European countries (France, Germany, Greece and Spain). The Theory of Planned Behaviour was employed, expanded by Personal Norms and the model was found powerful to explain 72.8% of the variance in consumption intentions. Perceived Behavioural Control was found to be the stronger predictor of Consumption Intentions followed by Personal Norms. Subjective Norms and Attitudes indicated lower evidence of impact. To the best of our knowledge this is the first marketing research study, the focus of which was placed on cosmetics and detergents containing innovative green ingredients made from recycled CO_2. The combination of TPB rational predictors with the ethical view of Personal Norms offered the ability to provide both theoretical and managerial implications, drawn from the interpretation of the results.

Keywords: Recycled CO_2, Cosmetics and Detergents, Theory of Planned Behaviour, Personal Norms

INTRODUCTION

The aim of this study was to examine European's intentions to purchase innovative, green packaged goods (i.e., cosmetics and detergents) that are going to contain recycled CO_2 by adopting a TPB model extended by personal norms. Among other theoretical models that have been used to examine consumers' pro-environmental decision-making process, Ajzen's (1991) well-known Theory of Planned Behaviour/TPB has probably indicated the strongest explanatory power, so far (Gkargkavouzi et al., 2019; Chen, 2020; Zhang et al., 2020; Nascimento and Loureiro, 2022). Several modifications and extensions of TPB have been proposed in order to reveal additional aspects that may be found capable of contributing to a deeper and broader understanding of intentions (Hassan et al., 2016; Ding et al., 2018). A very interesting route seems to be Ajzen's (2011) proposal to add a morally oriented aspect to the TPB predictors, in order to enrich the practical view of self-interest with

a broader, moral view, especially when the behaviour in question is socially desirable. It is argued that one of the main topics of conversation in the relevant contemporary research is the combination of personal norms and social influence in the prediction of sustainable consumer behaviours (Nascimento and Loureiro, 2022).

It is well accepted that Climate Change (CC) mitigation demands a multidisciplinary approach and cooperation (UNCC, 2021). The global effort involves mainly reduction of carbon gases, among which CO_2 counts for 75%. There has been significant evolution in technological innovations concerning carbon capture, utilisation, and storage / CCUS (van Heek *et al.*, 2017; Linzenich *et al.*, 2019), targeting to minimise CO_2 emissions (Huisingh et al., 2015; Arning et al., 2020). This study is mainly related to CCU, also known as CO_2 recycling (Perathoner and Centi, 2014). There is an ending Horizon 2020 project, in which a reactor was developed that captures CO_2, recycles it and produces chemical by-products (https://suncochem.eu/). These oxo-products are used to produce fast-moving consumer packaged goods (CPGs), such as cosmetics and detergents.

Although there has been a considerable number of studies relevant to technological innovations and CO_2 utilisation (Arning *et al.*, 2018), there has been scant research regarding consumers' attitudes and intentions regarding CPGs that are going to contain chemical ingredients made from recycled CO_2 (van Heek *et al.*, 2017; Jones *et al.*, 2017). It is to be underlined though that market response is quite crucial for any business initiative, particularly those that concern environmental protection and have been always found to be costly (Linzenich *et al.*, 2019). Specifically, with relevance to cosmetics and detergents, academic research has focused on organics, so far (Bui *et al.*, 2021; Hsu *et al.*, 2017; Shimul *et al.*, 2022), although they represent just 5% of the market (CBI, 2023).

Pro-environmental consumer research, during the last four decades, has indicated that different factors affect different product categories as the review papers have revealed (Michaelidou and Hassan, 2014; Liobikienė and Bernatonienė, 2017; Ding et al., 2018). There is no doubt that academic research on green CPGs remains scant and inconclusive (Bom et al., 2019; Linzenich et al., 2019; Kronthal-Sacco et al., 2020). Therefore, marketing research is absolutely necessary to address the impressively large gaps in the relevant area. To the best of our knowledge, this is probably the first effort, particularly focusing on cosmetics and detergents that are going to contain green, chemical ingredients, made from recycled CO_2.

THEORETICAL FRAMEWORK

TPB is an extension of the Theory of Reasoned Action/TRA (Fishbein and Ajzen, 1975), which had suggested that attitudes towards a behaviour and subjective norms determine an individual's intentions. Intentions, in turn, are considered to be the main predisposition of the actual behaviour performance. In TPB, Ajzen (1991) added a third determinant, the situational variable of perceived behavioural control, as a non-volitional factor, which can obstruct or facilitate intentions and behaviour.

TPB has been very popular in ethical behaviour, which includes pro-environmental consumer behaviour (Sun, 2020; Nascimento and Loureiro, 2022). Particularly with regards to cosmetics, TPB was applied in the examination of consumers' intentions to buy natural or organic personal care products (Kim and Chung, 2011, US; Hsu et al., 2017, Taiwan; Chin et al., 2018, Indonesia; Shimul et al., 2022, South Africa). Relevant research concerning detergents has been extremely rare. Arli et al. (2018) employed an expanded TPB model to examine environmentally friendly household products in Indonesia.

Of course, it is to be noted that TPB has been always viewed as a rational theory that faces consumers as mostly self-interested individuals (Ding et al., 2018). Nonetheless, Ajzen (1991 and onwards), staying in the view that consumers behave in accordance to their attitudes, acknowledges, too, that people's moral norms or ethical obligations should be incorporated into the model, when the behaviour under examination is morally oriented, such as any type of pro-environmental behaviours (Ajzen, 2011). Therefore, a number of TPB extensions have incorporated personal norms, mostly proposed in the Values-Beliefs-Norms / VBN theory by Stern et al. (1999) and Stern (2000), who were inspired and built upon Schwartz's Norm Activation Theory (NAM) about altruism (Schwartz, 1977). Following this direction, personal norms were added in the theoretical framework of this study (Figure 1).

With relevance to attitudes in TPB, they are conceptualised as consumers' positive or negative feelings generated by the specific context in examination. There have been previous studies in which attitudes were found to be the stronger predictor of behavioural intentions (Kim and Chung, 2011; Hsu et al., 2017; Chin et al., 2018; Shimul et al., 2022). In this study, it is hypothesised that the higher the consumers agree that buying CPGs with green chemical ingredients is good, desirable etc., the higher their intentions to buy them will be. Therefore, the following hypothesis was set:

H_1: Attitudes impact Consumption Intentions significantly and positively.

Subjective norms refer to an individual's perceptions regarding what his influencers, either close or important persons, would like him to do (injunctive norms) or do themselves (descriptive norms), with regards to the behaviour under examination. There have been previous studies, in which subjective norms were found to affect intentions (Kim and Chung, 2011; Hsu et al., 2017; Chin et al., 2018; Shimul et al., 2022). In this study, it is hypothesised that the higher the social pressure a person feels the higher his intentions to buy CPGs containing green chemical ingredients will be. Therefore, the following hypothesis was set:

H2: Subjective Norms impact Consumption Intentions significantly and positively.

Perceived behavioural control refers to an individual's perceptions about the ease or, in the opposite, the obstacles regarding the behaviour under examination. There have been previous studies, in which perceived behavioural control was found able to influence the behavioural intentions under examination (Kim and Chung, 2011; Hsu et al., 2017). In this study, it is hypothesized that the higher a person's perceived control the higher his intentions to buy CPGs containing green, chemical ingredients will be. Therefore, the following hypothesis was set:

H3: Perceived Behavioural Control impacts Consumption Intentions significantly and positively

Personal norms refer to a person's feelings of moral obligation to contribute by their actions to the behaviour in question. There have been some previous studies in which personal norms (Nguyen et al., 2017; Li et al., 2021; Zhao et al., 2022) or moral norms (Razali et al., 2020; Oehman et al., 2022) were incorporated in a TPB model. In this study, it was hypothesized that the higher the personal obligation a person feels, due to moral reason to contribute to climate change mitigation, the higher his intentions to buy CPGs containing green, chemical ingredients will be. Therefore, the following hypothesis was set:

H4: Personal Norms impact Consumption Intentions significantly and positively.

METHODOLOGY

The survey was carried out in four European countries (France, Germany, Greece, and Spain) with the employment of the stratified sampling method. Strata were designed according to the Gender and Age population distribution (Eurostat, 2021), in each country. The final sample came to 1846.

An electronic survey was conducted with structured questionnaires containing the following variables: Attitudes with four items measured on a 6-point semantic differential scale; Subjective Norms, Perceived Behavioural Control, and Consumption Intentions with four items each and Personal Norms with seven, all measured on 6-point Likert scales, from 0=Absolutely Disagree to 5=Absolutely Agree. The questionnaire also included five demographic variables, namely Gender, Age, Education, Income, and Occupation.

RESULTS

Structural Equation Modelling was used to analyse the data via AMOS v.20. Data screening excluded nine outliers; hence, the final sample came to 1837 cases (FR=510, DE=569, GR=307, ES=451). The t-tests did not indicate any statistically significant differences between the demographic characteristics of the sample and the population parameters in each country.

In the final Measurement Model (Table 1), unidimensionality was reached after the exclusion of two items due to cross-loadings (Att1 from Attitudes) and error covariances (CI1 from Consumption Intentions). Convergent validity was assessed with factor loadings above 0.60, construct reliabilities greater than 0.80 and average variances extracted (AVE) values higher than 0.50 for all constructs (Hair *et al.*, 2010). Discriminant validity was also assessed as the AVE values of all constructs were greater than the squared correlations of each one with the other constructs in the model (Table 1).

The structural model resulted in well-accepted GOF values (χ^2=937.209, df=195, χ^2/df=4.806, TLI=0.971, CFI=0.976, RMSEA=0.046) indicating that the model fits the data well. The standardized regression weights indicated that there are statistically significant (p<0.001) and positive structural relationships between Consumption Intentions and PBC, PN, SN, and Att (Figure 1).

The squared multiple correlation (R^2=0.728) indicated that the expanded TPB of this study can explain 72.8% of the variance in European consumers' intentions to buy cosmetics and detergents containing ingredients with recycled CO_2.

Goodness of Fit	χ^2	df	Sig.	χ^2/df	TLI	CFI	RMSEA
	937.209	195	p<0.001	4.806	0.971	0.976	0.046

Variables/items		Factor Loadings
Attitudes (Att)		
At2	Undesirable-Desirable	0.918***
At3	Unwise (Foolish) / Wise	0.697***
At4	Negative / Positive	0.716***
Subjective Norms (SN)		
SN1	My family members think I should buy CPGs containing green chemical ingredients	0.880***
SN2	My friends think I should buy CPGs containing green chemical ingredients	0.904***
SN3	Important people who influence my behaviour think I should buy CPGs containing green chemical ingredients	0.850***
SN4	Persons, who are significant to me, do buy CPGs containing green chemical ingredients for themselves	0.855***
Perceived Behavioural Control (CI)		
PBC1	Selecting a CPG containing green chemical ingredients is completely up to me.	0.718***
PBC2	I am confident that, if I want to buy a CPG containing green chemical ingredients, I can buy it.	0.881***
PBC3	There are no obstacles for me if I want to select a CPG with green, chemical ingredients	0.832***
PBC4	I am confident that I can easily find a CPG containing green chemical ingredients if I want to buy it	0.774***
Personal Norms (PN)		
PN1	I feel personally obliged to buy CPGs containing green chemical ingredients	0.808***
PN2	Regardless of what others do, I feel morally obliged to buy CPGs containing green chemical ingredients	0.800***
PN3	I feel guilty when I do not buy CPGs containing green chemical ingredients	0.759***
PN4	I feel morally obliged to use ecological products instead of regular products	0.828***

PN 5	When I buy a new CPG, I feel a moral obligation to prefer one that contains green chemical ingredients	0.880***
PN 6	People like me should do everything they can to buy CPGs containing green chemical ingredients	0.843***
PN 7	I would be a better person if I consumed CPGs containing green chemical ingredients	0.750***
PN 8	I feel obliged to take the environment and nature into account, in my daily behaviour	0.630***
Consumption Intentions (CI)		
CI2	I will buy CPGs containing green chemical ingredients if they are of similar price to the regular products	0.720***
CI3	I am seriously thinking to buy CPGs containing environmentally friendlier ingredients, as soon as I run out of the products I am currently using	0.830***
CI4	I will definitely switch to a brand of a CPG that contains green chemical ingredients	0.867***

	Att	SN	PBC	PN	CI
Construct Reliability	0.824	0.927	0.879	0.930	0.849
Average Variance Extracted	0.614	0.761	0.646	0.625	0.653

	Correlations (Squared correlations)				
Subjective Norms (SN)	0.543*** (0.295)				
Perceived Beh. Control (PBC)	0.481*** (0.231)	0.635*** (0.403)			
Personal Norms (PN)	0.553*** (0.306)	0.739*** (0.546)	0.616*** (0.379)		
Consumption Intentions (CI)	0.602*** (0.362)	0.725*** (0.526)	0.753*** (0.567)	0.740*** (0.548)	

*** $p < 0.001$

Table 1. Measurement Model
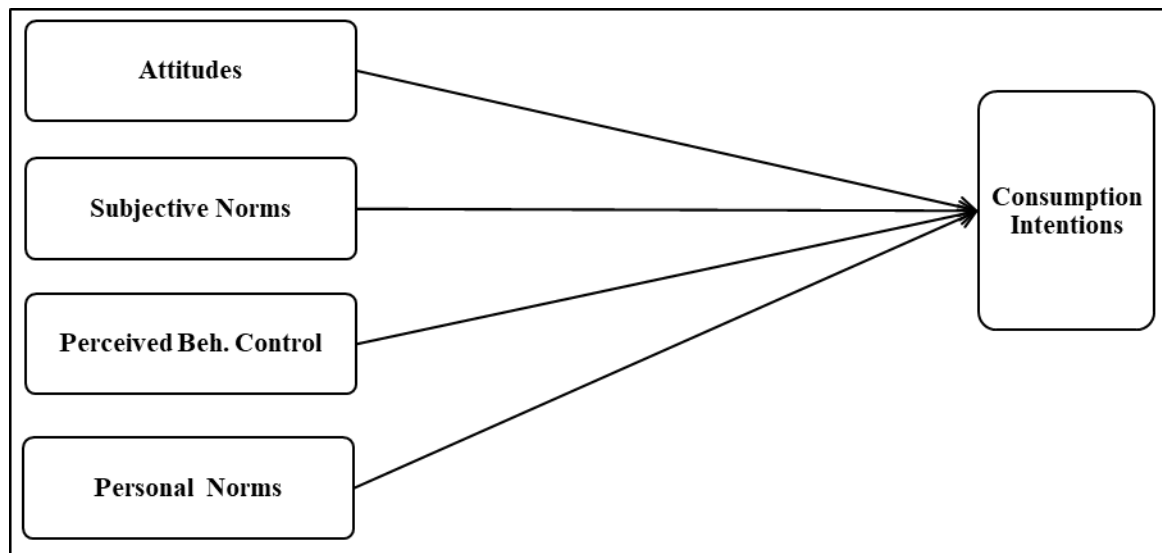
Figure 1. Structural model and hypotheses testing

LIMITATIONS AND FURTHER RESEARCH SUGGESTIONS

There must be a social desirability effect in the results of this study, possibly in those of Personal Norms. This is always the case in the examination of pro-environmental consumer behavioural intentions. However, findings concerning Personal Norms did enrich our view and therefore, probably highlight a suggestion to combine rational and moral motivations and models, in future research designs. Improvements in phrasing and wording of some items could be also found useful in measurement accuracy and deeper understanding of some concepts.

As this study does not include an elaboration of the differences in the results of the four countries, future duplications, in other European and non-European countries, may focus on such discrepancies by also incorporating other aspects, for example, culture variables.

DISCUSSION AND CONCLUSIONS

This study revealed that PBC is the most influential factor in contrast to previous results found in the literature, in which Att (Nguyen et al., 2017; Li et al., 2021; Zhao et al., 2022) or PN (Razali et al., 2020) were found to provide higher impact on behaviours or intentions. However, in line with some previous results (Nguyen et al., 2017; Li et al., 2021; Zhao et al., 2022) PN was found to be the second most influential factor.

The extended by Personal Norms TPB model of this study successfully explained almost ¾ (72.8%) of the variance in European Consumers' intentions to buy packaged goods containing recycled CO_2 and, by this behavioural choice, to contribute to climate change mitigation. These intentions are mainly influenced by people's perceptions of their own control followed by their feelings of moral obligation to prefer the new, green cosmetics and detergents. To a lesser extent, the relevant intentions are affected by consumers' perceptions of thoughts and actions of important to them other people as well as by their attitudes.

IMPLICATIONS

The results of this study lead to the theoretical suggestion that practical and moral criteria, when combined, offer a significant view to better understand consumers' intentions to contribute to climate change mitigation by their own consumption choices. More specifically the combination of perceptions of control over the behaviour (i.e. absence of barriers, easiness) and the sense of personal obligation (norms) that consumers feel seems a quite fruitful research path. Overall, it can be theoretically suggested that when consumers are more likely to intend to choose a green CPG when they think that there are no obstacles to find it, when they believe it is their personal, moral duty to contribute to climate change mitigation, while significant to them others would like them to do so and in addition when themselves find it good and desirable to prefer CPGs with recycled CO_2.

In terms of practical implications, marketers should design their communication mix with the aim of establishing consumer perceptions of ease and lack of barriers to purchase the new, green cosmetics and detergents containing ingredients with recycled CO_2. In combination, advertising messages should aim to enhance consumers' positive feelings about themselves, when they prefer an ecological product over a conventional one, feelings that eventually lead them to the moral obligation to prefer any new CPGs that are going to contain ingredients from recycled CO_2. It has been previously suggested that communication about climate change engagement should exploit consumers' self-interest, emotional attachment (Peattie et al., 2009) and moral personal obligation to protect the natural environment in everyday choices that can contribute to climate change mitigation.

As for policy makers, when designing interventions towards carbon neutrality, all stakeholders (public authorities, either national or European, as well as ecological groups and organizations) should reassure people that just one easy and obstacle-free step, no matter how small, will have enormous positive effects on the reduction of carbon emissions. Above all, any public communication

should focus on enhancing everyone's ethical obligation to contribute to climate change mitigation, primarily via making more environmentally-friendly every-day choices.

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LEADERSHIP DYNAMICS IN SILENCE MANAGEMENT: UNVEILING THE MECHANISM OF ORGANIZATIONAL CITIZENSHIP BEHAVIOR

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ABSTRACT

As organizations continue to expand globally, the demand for leaders who can effectively navigate employees through diverse business environments is high. One successful strategy to accomplish this goal is to facilitate effective leader-member exchange (LMX) to promote organizational citizenship behaviour (OCB) and mitigate organizational silence. Especially organizations in the Information and Technology (IT) business must devise prompt and enduring solutions to encounter challenges to thrive in the swiftly evolving IT landscape. Therefore, drawing on the tenets of social exchange theory, the present study attempts to elucidate the unique link between LMX, OCB, and organizational silence by utilizing PLS-SEM (Partial Least Square-Structural Equation Modelling). The study adopted a cross-sectional design and collected data from 320 IT employees through survey questionnaires. The SEM results revealed a negative association between LMX and organizational silence, indicating that limited leader-member interaction correlates with reduced emotional attachment, trust, and employee support, contributing to increased silence. Whereas LMX perceptions facilitated OCB in IT business environment. The findings also observed that the association between LMX and organizational silence is partially mediated by OCB. By nurturing OCB, organizations can cultivate improved social interactions among employees, consequently amplifying their collective voice and engagement. The study findings are crucial for developing effective leadership programs in the corporate business environment, steering towards a future where innovation and talent development thrive in the evolving digital era.

Keywords: Leader-Member Exchange (LMX), Organisational Silence, Organizational Citizenship Behaviour (OCB), PLS-SEM, IT Business.

INTRODUCTION

The present study aims to explore the intricate dynamics between leader-member exchange (LMX), organizational citizenship behavior (OCB), and organizational silence within the Indian IT Business Sector. The primary objective is to understand how employees' perceptions of their relationship with their leaders (LMX) influence their propensity to engage in extra-role behaviors (OCB) and their

tendency to withhold information or opinions (organizational silence). By examining these relationships, the study aims to provide insights into how effective leadership strategies can enhance employee engagement and reduce silent behaviors, thereby improving organizational performance. Additionally, the study investigates the mediating role of OCB in the relationship between LMX and organizational silence, aiming to fill the gap in the existing literature and provide a comprehensive understanding of these constructs' interplay.

In the era of the Industry 4.0 revolution, the dynamic and competitive global market necessitates a comprehensive understanding of all factors critical to the survival and profitability of organizations. Information technology (IT) is pivotal in the industry 4.0 revolution, driving innovation in products, services, and solutions. However, it faces challenges in managing the ever-growing speed, variety, and volume of data. To thrive in the swiftly evolving IT landscape, organizations in the IT sector must devise prompt and enduring solutions to encounter challenges and sustain perpetual development. Achieving these objectives necessitates the presence of robust leadership. A novel approach to this leadership is Leader-Member Exchange (LMX), which focuses on how the interactive bond between leaders and followers can help navigate the IT sector's challenges. Therefore, organizations must grasp the significance of LMX in driving profitability (Truckenbrodt, 2000).

LMX is characterized by the unique quality of exchanges, such as mutual trust, respect, and reciprocity, which go beyond formal role expectations. LMX research, as explored by various scholars (Muhammad Waqas Maharvi *et al.*, 2023; Henderson and Jeong, 2023), investigates the quality of relationships between managers and subordinates, linking them to employee behavioural outcomes. With trustworthy LMX relationships, employees are more and more incited to participate in organizational activities and meetings and contribute to the organization's success (Maamari *et al.*, 2021). Drawing from LMX theory (Graen and Uhl-Bien, 1995) rooted in Social Exchange Theory (SET) (Blau, 1964), the present study posits that the quality of the relationship between leader and member influences mutual obligations. According to SET, when followers see a leader as caring and concerned for their well-being, they feel compelled to reciprocate the support. Conversely, if a leader is arrogant, hypersensitive, angry, or lacks empathy, employees perceive the relationship as imbalanced or exploitative (Erkutlu and Chafra 2017). Additionally, the norm of reciprocity (Gouldner, 1960) suggests that favourable treatment prompts positive responses in attitudes and behaviors among employees, while unfavourable treatment often results in silence and a lack of engagement in extra-role behaviors such as OCB.

According to LMX theory, leaders, when lacking time and energy, prioritize building high-quality relationships with select trusted members, forming an inner circle. This creates a distance between leaders and other members, who may be seen as outsiders or mere employees (López, 2021). This

negative perceptions from supervisors can lead to organizational silence, where employees feel unable to voice their thoughts on managerial decisions (Adel *et al.,* 2020). Organizational silence, the concept introduced by Morrison and Milliken (2000), can lead to negative employee attitudes and behaviors Rayan *et al.,* (2020).

Various studies indicate that LMX is also a predictor of Organizational Citizenship Behaviors (OCBs), as employees who develop high-quality relationships with their leaders tend to demonstrate an inclination to exhibit behaviors that support their colleagues in an organization. The concept of OCB was initially introduced by Organ and defined it as *"individual behaviour that is discretionary not explicitly recognized by the formal reward system and that in the aggregate promotes the effective functioning of the organization"* (1988: pp. 1-43). OCB plays a vital role in fostering productivity within an organization, ensuring employee satisfaction, and nurturing a positive organizational culture in Indian organizations (Deshmukh and Sadhana Natu, 2023).

It is evident that LMX's effects on organizational silence and OCB hold significant importance for organizations striving to achieve their desired objectives. Organizational silence can hinder effective communication, decision-making, and problem-solving (Allan Herison Ferreira, 2023). At the same time, OCB contributes to the overall effectiveness and success of the organization by promoting cooperation, innovation, and a positive workplace culture (Mitchell *et al.,* 2024). Recognizing the significance of addressing both phenomena through LMX, organizations may create environments where employees feel empowered to voice concerns, contribute actively, and align their behaviors with organizational goals.

In contemporary literature, there is a visible gap in understanding the influence of LMX on organizational silence, particularly within diverse cultural contexts like India. Moreover, further investigation is required to explore how OCB mediates the relationship between LMX and organizational silence. Exploring these dynamics enhances comprehension of leadership in diverse cultures and provides strategies for nurturing an inclusive environment. Hence, the present study aims to address this critical gap by employing advanced statistical techniques to unravel the intricate interplay between LMX, organizational silence, and OCB. The study findings hold the potential to inform leadership practices and organizational policies conducive to fostering a culture of openness, trust, and proactive engagement among employees, thereby enhancing employee voice and engagement.

REVIEW OF LITERATURE

LMX and Organizational Citizenship Behaviour

The IT industry faces rapid technological changes, requiring it to adapt quickly (Alawadhi and Mendonca 2017). In India, according to NASSCOM (2024), improvements in process efficiency and automation are pivotal in shaping the industry. To stay competitive, IT companies need effective leadership strategies to motivate employees to go the extra mile, enhancing overall performance (Gibbs and Ashill, 2013).

LMX can be understood as the level and quality of interaction between a leader and a subordinate, which can influence the subordinate's level of OCB (Ürek *et al.,* 2019). LMX theory indicates that employees who maintain high-quality relationships with their supervisors are more inclined to increase their task engagement levels in the presence of superiors than low-quality exchanges within the leader-member relationship (Atatsi *et al.,* 2020). The social exchange theory forms the basis for understanding the relationship between HRM practices including LMX and organizational citizenship behavior (OCB). This theory focuses on employees' social interactions, emphasizing the benefits they gain in return for their contributions (Taamneh *et al.,* 2018). Subsequently, a leader's relational approach and attentive consideration towards a subordinate's social and professional life are imperative in comprehending these behavioral patterns. Kapil and Rastogi (2020) discovered that organizations fostering strong LMX relationships in the IT sector experience higher employee engagement and dedication to company objectives. Conversely, in low-quality exchanges, interactions follow rigid patterns, leading to negative impacts.

Novitasari (2020) and Nugroho *et al.,* (2022) highlight that effective leadership can drive organizational profitability, with OCB playing a crucial role. LMX strongly influences employee behavior, as it motivates employees to go beyond their formal roles, even without official recognition from the organization. While some research found no substantial impact of LMX on OCB (Mogi *et al.,* 2022), most literature emphasizes a positive association between employees' perceptions of LMX and their OCB. Given the contradictory perspectives within existing literature, the hypothesis has been formulated.

H1: Employees' LMX perception is positively related to OCB.

LMX and Organizational Silence

LMX also shapes employees' silent behaviour, reflecting its broader influence within the workplace dynamics. When a substantial proportion of individuals within an organization choose to remain quiet about organizational affairs, silence emerges as a prevalent behaviour (Liu *et al.,* 2009). When leaders exhibit negative emotions, employees may interpret it as dissatisfaction with their performance, creating apprehension about potential negative repercussions (Chi and Ho, 2014),

resulting in organizational silence. Studies indicate that such negative emotions or limited interactions with leaders can reduce employees' willingness to share ideas (Liu *et al.,* 2017).

The research conducted by Zhao *et al.,* (2022) unveiled a positive correlation between LMX and promotive team voice. In contrast, LMX differentiation showed a negative association with prohibitive team voice, potentially contributing to organizational silence. Chen *et al.,* (2022) emphasized that employees characterized by low exchange with leaders demonstrate diminished levels of emotional attachment, trust, and support towards their leader. Research indicates that those with low LMX may face obstacles in expressing their opinions, receive less support, and encounter negative remarks from their superiors. This could potentially lead employees to adopt a stance of silence (Wang *et al.,* 2023). Consequently, the hypothesis has been proposed as follows:

H2: Employees LMX perception is negatively related to Organizational Silence

OCB and Organisational Silence

In the realm of organizational behavior research, two key concepts have gained prominence: OCB and organizational silence. Few studies have suggested a negative correlation between organizational silence and OCB (Çınar *et al.,* 2013), indicating the importance of further exploration in this area. For instance, Kılıçlar and Harbalıoğlu (2014) found an adverse relationship between organizational silence and OCB. It is observed that the employees' engagement in citizenship behavior decreases when they find it challenging to convey work-related ideas. As a result, the organization may miss out employees' contributions in the form of their valuable ideas, innovative solutions, and efforts beyond their regular job responsibilities. Hawass (2016) found that employees who participate in networking and extra-role behaviours, such as OCB, often engage in prosocial silence to shield their colleagues from embarrassment. Rayan *et al.,* (2020) observed that employees who committed themselves to engage in OCB's are less likely to remain silent. Few studies, in contrast to the study's proposed direction, tried to understand the impact of silent behaviours on OCB.   A study conducted by Acaray *et al.,* (2015) examined how organizational silence dimensions influence OCBs. They found that employees who engage in acquiescent or defensive silence are less likely to exhibit OCB, whereas those displaying prosocial silence behavior are more inclined to do so. In view of the above literature, the following hypothesis has been formulated for the study.

H3: OCB is negatively related to Organizational Silence

OCB as a Mediator

Upon reviewing the literature, very few studies have been found on the mediating role of OCB in the relationship between LMX and organizational silence. Some studies also highlight the mediating role of OCB between LMX and job performance (Bozdogan 2021). Research conducted by Bolino *et al.,* (2013) and Lam *et al.,* (2015) support the idea that OCB acts as a mediator between leadership styles

and organizational outcomes. However, a thorough analysis of the unique mediating effect of OCB between LMX and organizational silence remains an unexplored topic in the available literature. Wang and Zhang (2020) found that leaders must recognize the pivotal role of effective communication and trust in the efficacy of change leadership methodologies. It's crucial for leaders to empower and trust their team members while fostering open communication across the entire team. This approach helps leaders positively influence their employees' behavior, indirectly reducing organizational silence. (Landry, 2020). Thus, the following hypothesis is formulated:

H4: OCB mediates the negative relationship between employees' perception of LMX and Organizational Silence.

Following the formulated hypotheses, Figure 1 illustrates the conceptual model, demonstrating the interrelationships among LMX, OCB, and organizational silence.

Figure 1: Proposed Research Model
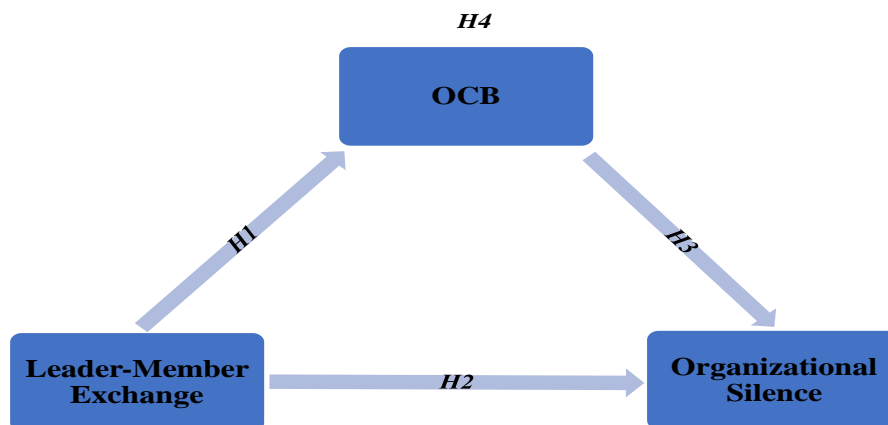
Source: *Authors own proposed model*

METHODOLOGY

Sample and Procedure

The data collection process for this cross-sectional study involved a non-probability 'purposive and snowballing sampling' technique due to feasibility constraints. To allow the employees to participate in the study, a consent letter was handed over. However, the survey form ensured their responses were anonymous to protect their identity and personal information. The survey reached out to 550 employees in the IT companies in Bangalore, known as the Silicon Valley of India. Among these 320 respondents participated, resulting in a 58.18% response rate. These respondents include entry-level and mid-level IT employees working under a manager or supervisor. The online survey ensured completeness with mandatory fields for all items.

The sample consisted of 66.3% males and 33.8% females. Considering the study's focus on measuring employees' perception of LMX, the gender of their immediate supervisor was taken into account. It was found that 70.9% of the supervisors were male, and 29.1% were female. This is evident in statistics such as those reported in Mogha (2022) and Skillsoft's 2022 Women in Tech Report for the India Region, which indicates that only a small percentage of women in the tech industry hold executive or managing director-level positions.

Measures

Leader-Member Exchange Multidimensional Measure (LMX-MDM)

The employees' perception of the relationship with their immediate supervisor was measured using the Leader-Member Exchange Multidimensional Measure (LMX-MDM) developed by Liden and Maslyn (1998). It is a 12-item measure (reliability coefficient α =.92) containing four subscales that are affect, loyalty, contribution and professional respect. It is measured on a seven-point scale ranging from 1 = strongly disagree to 7 = strongly agree, where the total score leads to the overall perception of leader-member exchange by the employees.

The Organisational Citizenship Behaviour (OCB) Scale

 A 15-item OCB questionnaire (OCBQ), developed by Podsakoff and MacKenzie (1989), was used to measure OCB. All 15 items will be rated on a seven-point scale, with the total score ranging from 1 = strongly disagree, to 7 = strongly agree. There are five dimensions: altruism, courtesy, sportsmanship, civic virtue, and conscientiousness. Reliability coefficient of the scale is 0.91.

Organizational Silence Scale

The organizational silence scale developed by Dyne *et al.,* (2003) is a multidimensional measure used to determine the organizational silence perceptions of employees. The reliability coefficient of the organizational silence scale is 0.77. The scale is a 5-point Likert-type scale which is graded as "strongly disagree to "strongly agree". It has three sub-dimensions: acquiescent silence, defensive silence, and prosocial silence, with a total of 15 items.

Data Analysis

The study employed SPSS version 27.0 to conduct descriptive statistics and analyzed the relationships among variables. Additionally, Smart PLS version 4.0.9.8 software was utilized for hypothesis testing. Partial least square based- structural equation modeling (PLS-SEM) was employed to evaluate the measurement and structural models. The measurement model aimed to examine the relationship between observed items and latent variables, while the structural model focused on assessing the

hypothesized mediating relationships between latent variables. This analysis was facilitated by employing a 5000-retest bootstrapping system, as Ramayah *et al.,* (2018) outlined.

RESULTS

Descriptive statistics and correlation

Table 1 presents the mean, standard deviation, and correlations among the model variables.

Table 1. Descriptive statistics (means, standard deviations, and correlation)

SL	Latent variables	Mean	S. D	1	2	3
1.	Leader-Member Exchange (LMX)	52.78	13.92	1		
2.	Organizational Citizenship Behaviour	66.34	16.37	.36**	1	
3.	Organizational Silence	41.72	11.52	-.30**	-.54**	1

*Notes: **-Correlation is significant at the 0.01 level (2-tailed); N = 320; **Source:** Authors own study*

Confirmatory factor analysis (CFA)

The scales utilized in the study underwent CFA using SmartPLS v.4.0.9.8 to validate their factorial structure. SmartPLS provides several fit indices and diagnostics, including the χ^2 statistic, Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Normed Fit Index (NFI), and Root Mean Square Error of Approximation (RMSEA). The study results yielded significant results, which is presented in Table 2.

Table 2. *The goodness of fit statistics for the confirmatory factor analysis (CFA) of Leder-Member Exchange, OCB and Organisational Silence scale used in this study*

Models	$\chi 2$	df	$\chi 2/df$	GFI	CFI	RMSEA	SRMR
Leader-Member Exchange	73.21	48	1.52	0.96	0.98	0.04	0.02
OCB	120.34	80	1.50	0.95	0.98	0.04	0.03
Organizational Silence	174.11	87	2.00	0.93	0.95	0.05	0.03

Source: *Authors own study*

Notes: *n = 320, *** $p < 0.001$*

Based on the CFA conducted using Smart-PLS software, the indices of the LMX, OCB, and Silence scale demonstrate a satisfactory fit to the data, supporting its validity and reliability in measuring the intended constructs.

Measurement model

The measurement model plays a vital role in calculating the extent to which the construct was explained by indicators given in the study (Figure 2).

Figure 2. *Reflective Measurement Model*
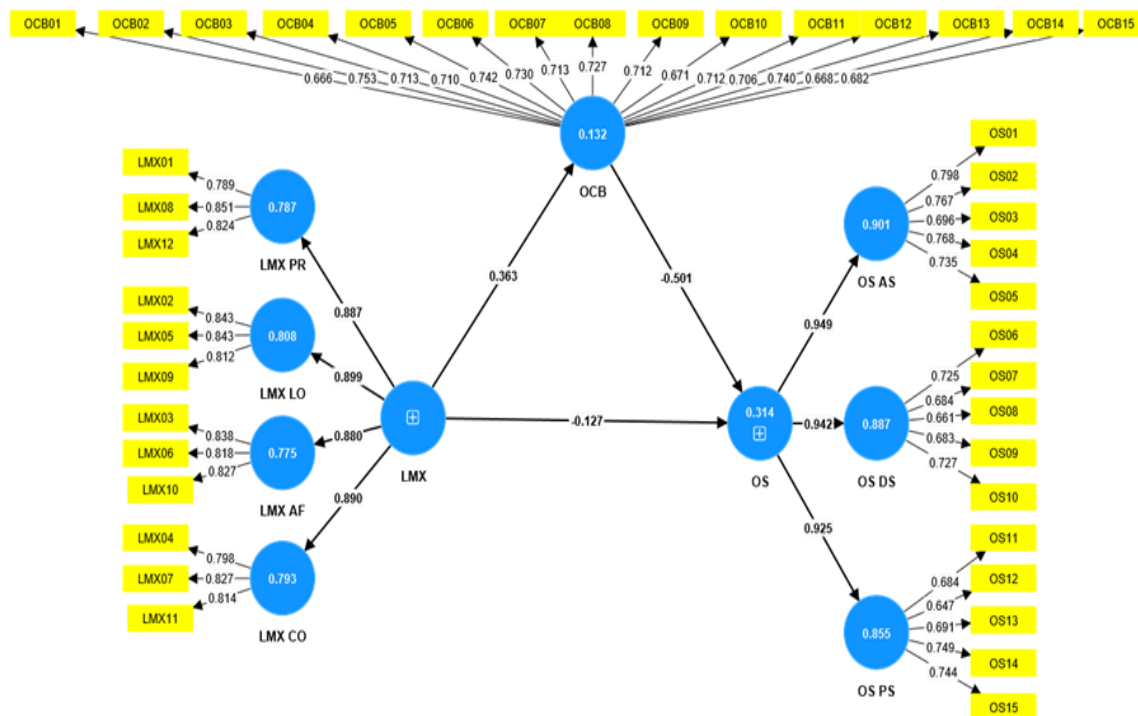
Source: *Authors own study; Extracted from SmartPLS v.4.0.9.8*

The discriminant validity of the measurement models was evaluated utilizing HTMT criteria. Table 3 presents the results affirming discriminant validity through the HTMT criterion, as proposed by Henseler *et al.,* (2017). Any value surpassing this threshold (0.90) would indicate a potential lack of discriminant validity in the model. The model meets the criteria for HTMT, confirming discriminant validity.

Table 3. *Discriminant validity (HTMT 0.85 criterion)*

	LMX	LMX AF	LMX CO	LMX LO	LMX PR	OCB	OS	OS AS	OS DS	OS PS
LMX										
LMX AF	0.803									
LMX CO	0.638	0.859								
LMX LO	0.878	0.858	0.889							
LMX PR	0.899	0.899	0.895	0.898						
OCB	0.376	0.420	0.400	0.351	0.367					
OS	0.309	0.331	0.351	0.318	0.261	0.564				
OS AS	0.375	0.402	0.427	0.375	0.326	0.624	0.899			
OS DS	0.352	0.363	0.405	0.356	0.309	0.612	0.798	0.878		
OS PS	0.259	0.290	0.289	0.284	0.193	0.572	0.668	0.516	0.849	

Note: *LMX = Leader-Member Exchange; LMX PR=Professional Respect LMX LO= Loyalty, LMX AF=Affect; OCB= Organisational Citizenship Behaviour; OS=Organisational Silence, OS AS=Acquiescent Silence OS DS=Defensive Silence, OS PS= Prosocial Silence;* Source: *Authors own study*

Structural model

The structural model was analyzed to determine the significance of the path model. Key metrics such as determination of coefficient (R^2), predictive relevance (Q^2), and effect size (F^2) were assessed. Table 4 shows that the R^2 value for OCB (0.131) falls below the acceptable range, while the value for OS (0.306) is deemed acceptable. Predictive relevance, evaluated through Q^2-Stone-Geisser, indicates small predictive relevance for both OCB (0.123) and OS (0.089). Effect size, measured by F^2, reveals a medium effect size for OCB (0.150) and OS (0.311).

Table 4. *Determination of coefficient(r2), Adjusted r2, and Predictive relevance (q)*

Variables	Determination of Coefficient R2	Adjusted R2	Predictive Relevance Q2	F2(Effect Size)
OCB	0.131	0.128**	0.123	0.150
OS	0.310	0.306**	0.089	0.311

Source: *Authors own study*

Reflective measurement model

Reflective measures were utilized to assess all of the constructs in this study. Measurement models' reliability and validity were tested using the actor loadings, average variance extracted (AVE), composite reliability (CR) and Cronbach's alpha. Table 5, shows the scores of factor loadings, AVE, CR and Cronbach's alpha, of the given construct, representing the model's reliability and internal consistency. Table 5 depicts that each item's factor loadings of the construct are above 0.5, as Hair *et al.,* (1998) recommended. CR indicates the internal consistency of the latent construct estimated by Hoffmann and Birnbrich (2012). The score of CRs is more than the suggested threshold value of 0.7 (Nunnally, 1978). It has been observed that the values of Cronbach's alpha are also within acceptable range.

Convergent validity (CV) is crucial to assessing how well a measure correlates with alternative measures of the same constructs. It involves checking the outer loading values of items and AVE. The AVE for all constructs was found to exceed 0.5, recommended by Fornell and Larcker (1981), confirming the convergent validity of the constructs.

A collinearity test was conducted as suggested by Kock (2015), to address potential common method bias. This involved examining exogenous latent variables within the inner model for collinearity issues. The VIF results for each latent construct as below the '5.0 threshold', indicated the absence of multicollinearity issues among the latent constructs (Hair *et al.,* 2019).

Table 5. *Results for the assessment of reflective measurement for first order*

Construct	Item	Loading	AVE	CR	(rho_a)	Cronbach's Alpha
LMX PR			0.675	0.862	0.760	0.759
	LMX1	0.789				
	LMX8	0.851				
	LMX12	0.824				
LMX LO			0.694	0.872	0.781	0.779
	LMX2	0.843				
	LMX5	0.843				
	LMX9	0.812				
LMX AF			0.685	0.867	0.770	0.770
	LMX3	0.838				
	LMX6	0.818				
	LMX10	0.827				
LMX CO			0.694	0.781	0.744	0.744
	LMX4	0.798				
	LMX7	0.827				
	LMX11	0.814				
OCB			0.504	0.938	0.931	0.930
	OCB1	0.666				
	OCB2	0.753				
	OCB3	0.713				
	OCB4	0.710				
	OCB5	0.742				
	OCB6	0.730				
	OCB7	0.713				
	OCB8	0.727				
	OCB9	0.712				
	OCB10	0.671				
	OCB11	0.712				
	OCB12	0.706				
	OCB13	0.740				
	OCB14	0.668				
	OCB15	0.682				
OS AS			0.568	0.868	0.811	0.809
	OS1	0.798				

OS2	0.767				
OS3	0.696				
OS4	0.768				
OS5	0.735				
OS DS		0.511	0.825	0.735	0.734
OS6	0.725				
OS7	0.684				
OS8	0.661				
OS9	0.683				
OS10	0.727				
OS PS		0.521	0.830	0.744	0.744
OS11	0.684				
OS12	0.647				
OS13	0.691				
OS14	0.749				
OS15	0.744				

Note: AVE = Average Variance Extracted; CR = Composite Reliability; LMX = Leader-Member Exchange; LMX PR=Professional Respect LMX LO= Loyalty, LMX AF=Affect; OCB= Organisational Citizenship Behaviour; OS AS=Acquiescent Silence OS DS=Defensive Silence, OS PS= Prosocial Silence.

Mediation analysis

Structural equation modelling — hypotheses testing

The proposed model was rigorously evaluated using a 5000-retest bootstrapping system, as recommended by Ramayah *et al.*, (2018), to calculate coefficients, t-statistics, and significance values (p). Hypothesis testing centred on LMX(IV), OCB(MV) and organizational silence (DV) (Depicted in Figure 3). Table 6 shows that employee's perception of LMX practices has a significant degree of association with organizational silence (direct effect) (β = -0.136, t = 2.629).

Indirect effect (Mediating effect)

The mediating effect was assessed using the variance accounted for (VAF) approach, following Hair *et al.*, (2019) guidelines. The calculated VAF value (0.588), obtained by dividing the total indirect effect (-0.193) by the total effect (-0.328), suggests partial mediation **(Figure 3).** This indicates moderately strong partial mediation (Hair *et al.*, 2019) supporting *H4*.

Table 6. *Results of the Structural Model (Mediation Analysis)*

Type of Effect	Structural Path	Path Coefficient	T stats	P-values	Remark
Total Effect	LMX-->OS	-0.328	5.871**	0.000	Sig Total Effect
Indirect Effect	LMX-->OCB-->OS	-0.193	6.062**	0.000	Sig Indirect Effect
Direct Effect	LMX-->OS	-0.136	2.629**	0.009	Sig Direct Effect
VAF	IE/TE	58.8%	Moderately strong partial mediation Exists		H4 accepted

Figure 3. *Path Analysis Model (Extracted from SmartPLS v.4.0.9.8)*
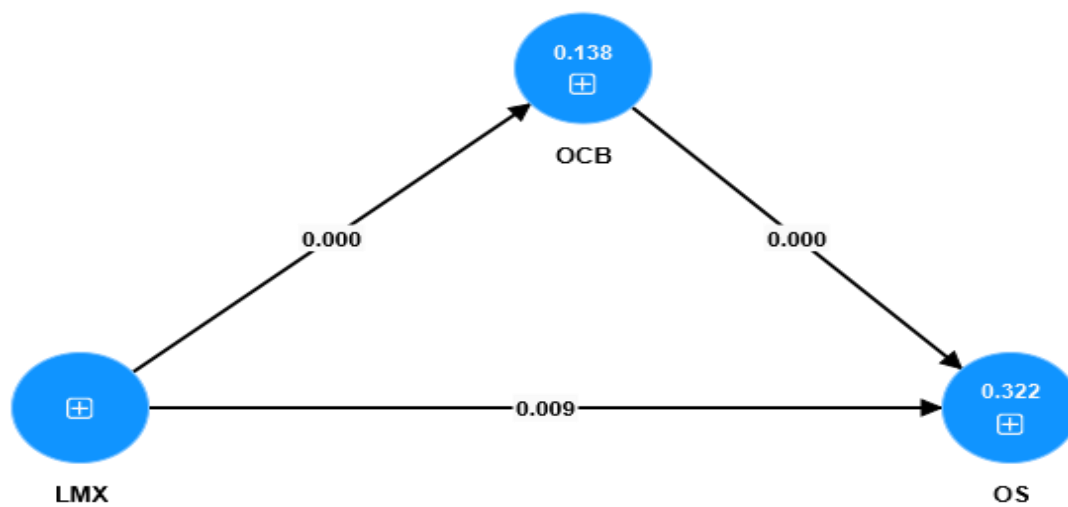
Source: *Authors own study*

DISCUSSION

The Indian tech industry is on the verge of a profound global transformation, resonating with the evolving paradigms of the modern workspace (Ghosh *et al.*, 2024). In this turbulent business environment, many IT business leaders have technical expertise but may have limited experience in interpersonal exchange with their employees. Here, the role of LMX in fostering extra-role behaviour and the voice of the employees is often underestimated. The present study utilized a second-generation statistical analysis, PLS-SEM, which comprehensively explains these relationships and highlights the practical implications for organizations.

Empirical results from the present study underscored a positive correlation between LMX and OCB, aligning with previous studies by Kapil and Rastogi (2020). The results suggested that positive exchanges between leaders and followers prompt the undertaking of extra-role behaviours (OCB) that are beneficial for the organization, thus verifying *HI* and supporting the tenets of social exchange

theory. The future of work will be shaped by influential leaders and their micro skills in enhancing employee engagement through continuous exchange (Ghosh *et al.*, 2024). The study also echoes findings from other studies by Liu *et al.,* (2017) and Zhao *et al.,* (2022), emphasizing that robust leader-member exchanges can promote employee voice, thereby reducing the silence, thus verifying *H2* and substantiating social exchange theory. The study results reaffirmed the negative correlation between OCB and organizational silence, consistent with prior research verifying *H3.* This highlights the importance of promoting OCB in the workplace to encourage employees to speak up and voice their opinions on critical organizational matters, which is essential for business improvement.

Furthermore, the results indicated that OCB partially mediates the relationship between LMX and organizational silence, providing organizations with valuable insights for enhancing OCB through diverse initiatives and activities such as 'Leadership Training Programs'. This finding will help organizations implement training programs for leaders to improve their interpersonal and communication skills. The study indicates that organizations should recognize the pivotal role of LMX in promoting OCB. By doing so, they can enhance the voice of the employees. In addition, leaders or managers serve as the crucial link between the organization and its employees. Providing them with the appropriate skills through specialized learning programs enhances the overall employee experience, encompassing engagement, retention, and recruitment (Ghosh *et al.,* 2024). This insight is particularly relevant for the IT business, where collaboration and synergy are essential for optimal performance and innovation (Mishra, 2023).

THEORETICAL IMPLICATIONS

The present study findings affirm the core principles of Social Exchange Theory (SET) by Blau (1964), based on the notion that leaders do not treat every employee equally. Employees with a strong perception of social exchange will thus be prosocially motivated and will feel a greater obligation to reciprocate the benefits and support received by engaging in behaviours that exceed the minimum requirements for employment. Employees increase their efforts by demonstrating that social exchange perceptions are associated with improved work performance and OCB (Andersen *et al.,* 2020). The strength of the theory is based on the fact that managers need to understand the significance of social exchanges to get to know the level of commitment of employees (Cropanzano and Mitchell, 2005), and committed employees often avoid involving in silent behaviour (Fard and Karimi, 2015). Furthermore, viewing these dynamics through the lens of SET provides a framework for exploring further intricacies in the relationship between various outcomes of LMX and effective people management strategies for business transformation in this turbulent era.

ORGANIZATIONAL IMPLICATIONS

According to 'Future of Work Trend Report' (NASSCOM, 2024), organizations are fostering an open and accessible culture where new hires can engage with senior leaders. Leaders at all levels are making themselves available to connect directly with employees and address concerns promptly and transparently. In this regard, the findings from the present study can serve as a foundation for initiating long-term projects exploring the role of LMX in people management, akin to DDI's 'Global Leadership Forecast 2021', which stands as one of the most comprehensive leadership research endeavours to date. Covering over 50 countries and 24 major industry sectors, it encapsulates top talent practices and offers crucial trends to shape the future of leadership. Further expanding and replicating the study in different sectors across India can prompt necessary policy amendments for employee welfare. Aligned with the UN Sustainable Development Goals (SDGs) 'Decent Work and Economic Growth' (United Nations, 2022), the study addresses empowering the workforce, addressing talent retention challenges, and advocating for policies supporting innovation and decent work environments.

Further, utilizing PLS-SEM allows for a more comprehensive examination of the proposed conceptual model, yielding robust findings and implications in the present study. The study, delving into the impact of employees' perception of LMX on OCB and silence, underscores the need for heightened micro-level research within the realm of leadership- and employee outcome studies in the Indian IT business sector.

LIMITATIONS AND FUTURE DIRECTIONS

The current study shares common limitations observed in other empirical organizational behaviour studies. The study focused solely on the Indian IT sector in Bangalore, and future research should encompass various industries that employ the same conceptual model. Further, the present study considered positive LMX and OCB as predictors of organizational silence. Future studies might consider other antecedents to examine their impact on silence. The second major limitation of the present article is that it did not consider the role of moderating variables; instead, it narrowed its scope solely to OCB as a mediator. Lastly, the data collected was at one point in time (cross-sectional). These types of data cannot offer causal effects. Consequently, concluding causality in the study analyses becomes unattainable. Future studies can be directed towards proposing a causal model between the variables by incorporating the primary data derived from experimental or longitudinal methods.

CONCLUSION

An optimistic Leader-Member Exchange is critical in predicting high OCB and addressing employee silence. In conclusion, the present study advocates for a paradigm shift in organizational strategies, urging human resource managers to prioritize the cultivation of positive LMX to achieve enhanced employee voice and a more proactive and committed workforce, as evidenced by OCB. This holistic understanding, backed by robust statistical analysis, offers actionable insights for organizations aiming to thrive in the global and dynamic IT landscape with positive LMX.

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GREEN AND SUSTAINABLE ENTREPRENEURSHIP IN THE FOOTWEAR INDUSTRY: THE PORTUGUESE EXPERIENCE

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ABSTRACT

Awareness of the impact of human beings on the environment has directed the business world towards sustainable development practices, consisting of the satisfaction of market needs without compromising the resources of future generations.

We intend to identify the key concepts of green and sustainable entrepreneurship, obtaining the perception of the knowledge that currently exists in the area.

To this end, the methodology used consisted of a literature review and a description of the footwear industry, to draw current conclusions regarding production methods. Furthermore, it provides a complementary perspective related to the options applied by the footwear industry to assess its environmental impact.

Keywords: Green Entrepreneurship; Sustainable Development; Shoe Industry; Environmental Impact; Production Methods.

INTRODUCTION

This study aims to identify the key concepts of green and sustainable entrepreneurship.

The rapid evolution of societies has translated, in addition to an era of prosperity, into a time of pronounced environmental problems. The increasing development of society and the choices made for human satisfaction have resulted in the overuse of natural resources and their pollution (Lenton et al., 2019).

Sustainability issues have received wide recognition over the last decade, along with the importance of green entrepreneurship (Gifford et al., 2020). The fashion and footwear industries are, among the various industries that affect the environment, the most polluting. Currently, these industries generate between 8% and 10% of the world's carbon dioxide emissions, including transportation and aviation.

In addition, about 20% of water pollution is caused by textile dyeing and finishing (European Parliament, 2022).

This research intends to understand the concepts of green entrepreneurship, being *later* related to sustainability. The focus was on the description of the factors that have a significant environmental impact on the footwear industry, along with the materials used in production. The unique contributions of this research are in listing the unsustainable practices adopted by the footwear industry and providing alternatives. In addition, it aims to describe the current global picture, support future lines of research, and alert to the need for effective change.

In this sense, the idea of green entrepreneurship as a social emergency is highlighted, as well as the need to review the literature, which even though it exists in abundance, is not applied in practical terms. The research was based on a comprehensive qualitative approach, not focused on any specific geographical area, to understand the global dimension of the problem.

Having said this, this article is divided into five sections, and the first, after the introduction, refer to the literature review, with the description of the concepts of green entrepreneurship, relating them to sustainability. Subsequently, the research methodology used is explained, and the fourth section is the diagnosis of the footwear industry. Finally, the final considerations are presented along with the limitations and future lines of research.

THEORETICAL FRAMEWORK

Green Entrepreneurship

Green entrepreneurship practices are those that, through knowledge, initiative, and resources, meet innovative and sustainable solutions. These practices encompass all activities that counteract the degradation of the environment while making a positive contribution to it (Navarathinam & Amutha, 2022).

Alonso et al. (2018) argue that this concept is related to the measures imposed by companies to reconcile the preservation of the planet with technological advances and the quality of human life. Thus, when companies implement these ideals, combined with financial sustainability, they find themselves in a favourable environment for green and sustainable entrepreneurship (Navarathinam & Amutha, 2022).

Vuorio et al. (2017) concluded that traditional entrepreneurship is directed towards prioritizing monetary rewards, in contrast, the green entrepreneur focuses on achieving environmental and social goals first. According to Nikolaou et al. (2018), the motivation of green entrepreneurs varies: some are

affected by the institutional context of society and the need for change, while others seek a competitive and strategic advantage through sustainable innovation.

In addition, Gao et al. (2019) argue that green entrepreneurship is defined by a company's green innovative behaviour of products, services, and market development. An efficient strategy oriented towards protecting the environment and handling benefits in consideration of it is present. Therefore, sustainable competitiveness can be reflected through the individual's knowledge, attitudes and skills (Masciarelli et al., 2020). Regarding the primary competencies that the sustainable entrepreneur should possess, these authors list: systematic thinking (the ability to identify, analyze, and combine the different areas of the company); administrative science; the ability to understand and anticipate the impact on environmental, social, and economic fields; ability to apply sustainability values and goals; accept opinions and decisions on environmental and social problems; communication and collaboration skills; social responsibility and strategic management.

Meyer and Krüger (2021) establish that entrepreneurship is the vehicle by which one enters the economic system. In this regard, several authors (e.g., Ibe et al., 2020; Chigozirim et al., 2021; Gregori & Holzmann, 2020; Hahn et al., 2018 and Bouzari et al., 2021) argue that entrepreneurial spirit ensures the necessary characteristics to exploit different business opportunities with the available resources using new ideas and innovation. Therefore, sustainable entrepreneurship is a key factor in the search for economic opportunities that generate future products that have economic and non-economic benefits for society.

According to Zhang et al. (2019), green innovation is presented as the essence of green entrepreneurship, and a high investment cost is required, which increases the company's liabilities. Green innovation is a long-term-oriented strategy aiming to decrease the contamination of business activities on the environment through product and process innovation (Guo et al., 2020).

Nevertheless, Geng et al. (2020) report that, to date, the literature on green entrepreneurship is still being developed and is very scarce. The studies already conducted have investigated the effect of green innovation, without obtaining conclusive results.

Relationship between green entrepreneurship and sustainability

According to Stubbs (2017), sustainable entrepreneurs are key to solving social and environmental problems, needing to recognize sustainable entrepreneurship opportunities that arise through gaps in the market.

In recent decades, green entrepreneurship, in tandem with technological development, has come to prominence significantly. Taking into consideration the definition suggested by Potluri and Phani

(2020), the concept is reflected in organizations that focus on technological development, directed at mitigating the impact of humans on the environment. Technology entrepreneurship, in this context, refers to the identification of market opportunities for green technology products and/or services and also the creation and exploitation of an appropriate business model (Trapp & Kanbach, 2021).

According to Hawken (1993), business is the only mechanism with sufficient power to produce the changes needed to reverse global environmental and social degradation. In this sense, Navarathinam and Amutha (2022) interpret green entrepreneurship as a necessity. They state that to preserve the future, sustainable development is a factor that has to be considered in line with green entrepreneurship since nature is an uncontrollable and exhaustible resource. In contrast, all other resources, whether economic or social, can be managed.

In terms of company behaviour, companies must implement a clear link between green entrepreneurship and sustainability (Ameera & Khanb, 2022). According to Terán-Yépez et al. (2020), the primary focus of researchers was to understand how entrepreneurs identify sustainable opportunities. Thus, it was concluded that they can put into practice the GEO (Green Entrepreneurial Orientation) strategy, which leads to sustainably responsible decisions in a business context.

Makhloufi et al. (2021) consider that sustainability is the basis for sustainable entrepreneurship. Therefore, GEO practice seeks to harmonize the relationship between the internal and external environment of organizations so that there is a positive evolution of sustainable innovation in environmental performance.

It is relevant to highlight the concept of CSR (Corporate and Social Responsibility) advocated by Stutz (2021). This is composed of an extensive and interdisciplinary nature that expedites, on the one hand, adaptation to the ever-changing economic, political, and social context; and on the other, to the market and the internal environment in the organization, involving concern for one of the main stakeholders: the community.

Mostepaniuk et al. (2022) state that companies today seek to integrate sustainable CSR practices into their strategies to gain a competitive advantage. There is, therefore, a strong relationship between CSR and sustainability, since, according to the same authors, both concepts are seen as fundamental tools in solving social and environmental problems.

METHODOLOGY

Within the scope of methodology, the researcher finds at his or her disposal theories, language, techniques, and instruments to provide answers to the problems of a particular field or area of study (Reis, 2010; Taylor & Bogdan, 1992).

According to several authors (e.g., Alves-Mazzotti & Gewandsznajde, 1998; Gil, 1994; Lakatos & Marconi, 2003), the methodology applied in the research context can be segmented into three classifications: as to the nature, which can be Pure and Applied Research; as to the purposes, involving exploratory, descriptive and explanatory research and, finally, as to the method, this being a set of methodical and rational activities, allowing the goal to be reached, highlighting errors and assisting in decisions. The latter allows the researcher to adopt an experimental path; bibliographic; documental; field; *ex-post-facto;* survey; with the inquiry; interview; case study; action; ethnographic and ethnomethodological (Lakatos & Marconi, 2003, p. 83).

Each of these segments requires a set of research procedures, techniques and instruments that will assist the researcher in his analysis, data collection and information. This analysis procedure may be qualitative or quantitative (Alves, 2021).

Considering the fundamental purpose of this article, the adoption of the qualitative methodology in detriment of the quantitative one proved to be adequate. The main objective is to explore a phenomenon that has not yet been considered in the literature, relating green and sustainable entrepreneurship with the existing literature on the environmental impact of the global footwear industry (Weiss & Roelen-Blasberg, 2014).

Regarding the research strategy, the use of a case study method was found to be pertinent. As Silverman (2013) argues, the choice of the research method must comprise an overall research strategy, since it is the methodology that defines which methods will be used and how. Nevertheless, due to the scarcity of quantitative and qualitative resources about international footwear brands, such as Adidas, the comparative nature was not found to be valid and sustained (Weiss & Roelen-Blasberg, 2014).

DIAGNOSIS OF THE PORTUGUESE FOOTWEAR INDUSTRY

Footwear market

The estimated value of the global footwear market is around \$381.9 billion, with significant growth expected in the coming years to reach \$508 billion in 2027 (Smith, 2022). On the other hand, *per capita footwear* consumption has increased considerably over the past few years and is expected to grow by 6% in 2022, according to the latest *Business Condition Survey* (APICCAPS, 2022).

The geographical areas of footwear production are another aspect to note. According to the report for 2020, Asia continues to be the largest responsible for footwear production (APICCAPS, 2021). This produces about 87.6% of the world's footwear, followed by Africa and Europe. However, footwear consumption differs between countries, in that China, for being the largest population in the world, is

the largest consumer of footwear. However, the United States of America (USA) is the largest consumer *per capita*, since each inhabitant buys, on average, 6.9 pairs of shoes per year (Worthington, 2022).

Statistically speaking, in 2018, the fashion and footwear industry emitted about 8% of CO_2 emissions, similar to the environmental impact of the European Union. However, only 1.4% came from the footwear industry (Quantis, 2018).

Materials used to make footwear

The use of raw materials, water, and energy is assumed to be part of the production process. However, the different components present in raw materials have different impacts on the environment (Muthu & Li, 2021).

Footwear is mostly composed of leather, textile and various other types of synthetic materials, and there may be as many as 40 different materials (Smith, 2022). As an example, a common pair of shoes is made up of 25% leather, 17% polyurethane, 16% thermoplastic rubber, 14% ethylene vinyl acetate, 8% polyvinyl chloride, 7% rubber, 7% other materials, and 6% textiles and fabrics (Mia et al., 2017).

When choosing materials, it is usual to opt for low-cost products, which facilitate and speed up the production capacity. Currently, every component used in the production of the sole, upper, heel and finishing process has negative impacts (Table 1) on the environment and human life (Better Shoes Foundation, 2022).

Table 1: Description of the materials used in production, their impact and the advisable substitute

Material	Description	Environmental Impact	Advisable Substitute
Chrome Tanned Leather	Chromium is a heavy metal used for tanning leather.	Tannery waste contaminates water sources through neglect (in rivers).	Cellulose fibre; cato leather; cork sheet; fine mycelium; biocouture; BeLeaf; BioVeg; Mirum, (...)
Conventional cotton	The chemicals (pesticides) used in cotton production eliminate or stop the growth of organisms, impairing essential biological processes.	In the rainy months, it drags down excess pesticides, contaminating the water sources.	Liberated fibres, e.g. hemp; climatex and/or organic cotton
Basic Dyes Acid dyes	Dyeing is a method of applying colour to fabric	The various chemicals present in dyeing can pollute	Reactive Dyes Waterless dyed fabric

Disperse dyes Direct dyes Vat dyes	and can be done at any time during the production process. It can be applied to fibers, yarns, fabrics, or to a complete garment. They can dye acrylic fibers, protein fibers (wool, silk, nylon), polyester and cotton yarns separately	the water supply of local communities and wildlife.	Undyed fabric
Durable water repellent (DWR) treated fabrics	Synthetic chemicals with fluorine. Their purpose is to make the parts waterproof.	Long-lasting materials can remain in the environment for hundreds of years. Animal studies have proven that these materials cause tumours, cancer, and reproductive problems.	Bionic-Finish®Eco Nikwax Sympatex
PVC (Polyvinyl Chloride)	Versatile plastic is found in soles, synthetic leather, and fabrics coated on shoe uppers.	Extraction of crude oil causes several problems: spillage at sea, pollution from toxic chemicals, and deforestation. Difficult decomposition.	Bioplastics
PU	Rigid polyurethane plastic is used in the soles of shoes because of its great durability, flexibility, and abrasion resistance.		Bioplastics Eco TPU Natural Rubber
TPU (thermoplastic polyurethane)	Flexible polyurethane plastic is used in the soles of shoes.		
EVA (ethylene vinyl acetate) foam	Resistant and flexible plastic used in the insoles		Cork Natural latex foam Bloom algae Sugar Cane SpreSole
Petroleum Rubber	Resistant and elastic, used in the soles		Natural Rubber
ABS (Acrylonitrile	Low-cost, easy-to-handle plastic used for making	Problems in crude oil extraction.	Bioplastics FSC - certified wood

Butadiene Styrene)	jumps. It has good impact resistance and stiffness.	Product with great resistance.	

Source: Adapted from Better Shoes Foundation (2022).

The lack of systems to reuse footwear raises the production of waste and, consequently, the increase in environmental impact. It is estimated that of all materials used, synthetic materials have a greater impact compared to textiles and leather (Chrobot, 2018). According to Muthu and Li (2021), although leather materials are present in only a quarter of the final product, they have a relevant environmental impact.

The textile industry is ranked as the most polluting industry in the world, due to excessive water consumption, pollutant emissions and waste production (Castro, 2021). According to Muthu and Li (2021), to counteract this trend, it is essential to choose materials with better performance or more sustainable products.

Supply-chain impact

According to Schwartz (2018), the *supply chain* in the footwear industry starts with product design and ends, after 18 months, with the manufactured product. Currently, we are facing the paradox of production and purchase: products are designed to have a short life cycle with low quality, while demand increases significantly over time (Braglia et al., 2021).

The intensive use of labour in the footwear and fashion industry affects the choice of tangible and intangible resources at the time of production and resource extraction (Chang, 2022). According to the same author, countries with lower costs, such as underdeveloped countries, are prioritized to base production to maximize profit.

When it comes to the time of extraction, the impact of CO_2 emissions is remarkable (Fig. 1). In 2019, the extraction of textile raw materials consumed about 61% of carbon dioxide, along with chemicals. At a later stage in the chain, in the final products, the fashion industry consumed about 85% (World Economic Forum, 2021).
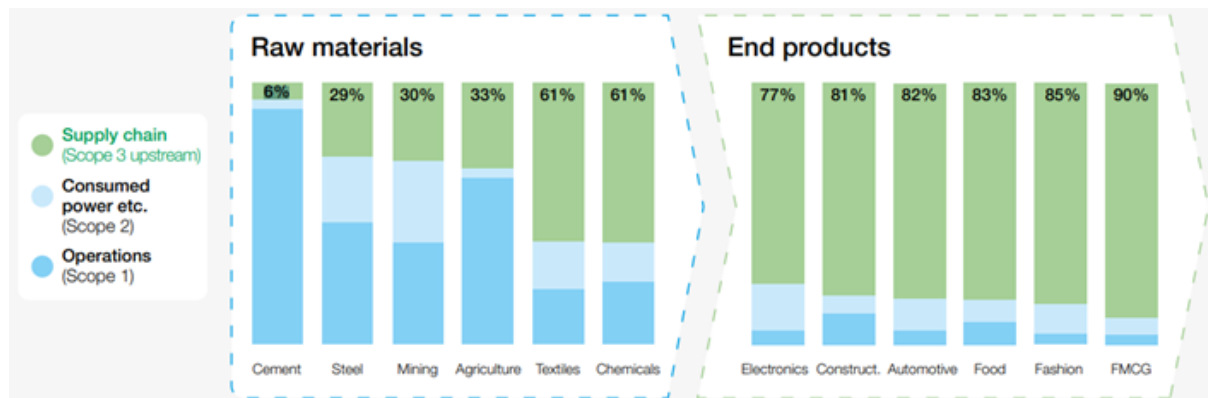
Figure 1: Division of CO2 emissions in selected industries in 2019

Source: World Economic Forum (2021).

According to Chang (2022), the biggest risks suppliers face in choosing where to base production are rising labour costs, national tax policy, tariffs, and exchange rates. In this follow-up, it was in China since 2002 where manufacturing production was centred, including the shoe industry, however, with the Covid-19 pandemic and the 10% increase in tariffs, industries moved to other countries.

There are several solid wastes and residues produced during the footwear manufacturing process. These result from the cutting and processing of materials that are *later* taken to landfills (Silva, 2022). The authors Jadhav and Jadhav (2020) argue that the addition of solid waste from the manufacturing process and the waste present at the end of the footwear life cycle emits toxic gases that pollute the atmosphere and harm the air quality.

According to Brodnjak and Jestratijević (2022) still present is the use of synthetic materials such as polyethene and polypropylene in the packaging of products, representing a large percentage of solid waste in landfills. These have beneficial properties for organizations, but a negative burden on the environment. It is through innovation and redesigns that organizations can replace them with components that are less erosive to the environment (Ellen MacArthur Foundation, 2022).

Analysis tools

To analyze the impact of products, organizations have at their disposal several support tools such as sustainability reports, LCA (*Life Cycle Assessment*), adoption of certifications and filtering when selecting suppliers with more sustainable behaviours (Bertoldo, 2022).

Macchion et al. (2020) state that sustainability reports do not have a mandatory link, however, their use conveys transparency to the organizations' *stakeholders.* The *Global Reporting Initiative* (GRI) is the most widely used and its objective is to describe the environmental, social and economic impact of the practices implemented by the company (Global Reporting Initiative, 2022). In addition, it gathers

information about carbon dioxide (CO_2) emissions, the use of clean energy and other fields present in the Sustainable Development Goals (SDGs) of the United Nations (Bertoldo, 2022).

The other instrument is the LCA, which is fundamental to describe the environmental impact of production taking into consideration the extraction, processing and end-of-life of the product (Chrobot et al., 2018). At the international level, the principles are defined according to ISO 14040 (ISO, 2022). However, Muthu and Li (2021) claim that it is common that producers not to have access to product life process data, making it difficult to write the document.

Macchion et al. (2020) argue that certifications are issued depending on the scope (social, environmental or economic) and purpose, being segmented between management system positions or for a specific product or process. According to the same authors, they are very useful, since they give companies the possibility to choose suppliers with high quality and social and environmental responsibility. Among the various certificates, the *Environmental Product Declaration* (EPD) presents a very important communicational solution, highlighting the environmental performance of the product, segmented according to the rules of the category it belongs to (EPD, 2022).

FINAL REMARKS

The growth of green entrepreneurship in society reflects human awareness of environmental issues. It is attentive to an improvement in the behaviour of entrepreneurs and, consequently, of companies. The aid of green innovation in the entrepreneurial process changes the current paradigm of prioritizing the company's rewards over the environment.

Currently, there is an effort by individuals to bring processes and product development closer to sustainability using green technology. Although there are no concise results in the literature about the effect of green innovation, we believe that companies are prioritizing it and changing their strategies, even if it is at a slow pace.

The importance of the relationship between green entrepreneurship and sustainability in the business core was noted. It is up to the green entrepreneur to strategize and encourage others to implement and develop sustainable opportunities through the use of available tools and existing gaps.

Even though the footwear industry is improving its *supply chain* choices, they are still betting on cheap and fast production in favour of materials that positively influence the environment, such as organic cotton. Although emerging companies are putting small-scale production and the choice of more durable and ecologically sustainable materials as a priority, it is the *fast-fashion* brands that are the problem.

Although companies have been putting more emphasis on sustainability-oriented CSR policies, they are still insufficient in terms of results. In addition, the documents available to companies, such as the LCA, are still only written by a niche of companies. Consumers, however, are beginning to pay more attention to *eco-friendly* practices by companies and expect an active market stance.

We conclude that several changes are needed, among which are increased consumer demand for the products they buy and their choice of brands; decreased consumption; increased use of reused materials in the production process; and a real behavioural change on the part of companies.

Research limitations

It is multinational companies that come to the greatest environmental impact, as a result of mass production, hence the focus on brands with great influence in the world market. Although the intent of the research follows a qualitative line, due to insufficient available materials, it was not possible to analyze the Adidas brand, nor to elaborate on the respective comparison with the data obtained in the diagnosis of the industry.

Several international footwear brands were considered in this case study, however, the lack of documentation made it impossible to analyze them. We considered that the study would bring a pertinent component to the research and the present literature; however, we prioritized writing and collecting current data to aid future empirical methodologies on the topic.

Regarding the statistical data present in the article, difficulty was felt in finding data only related to the footwear industry. It is customary to conduct studies on the environmental impact of the fashion industry, encompassing other industries, such as the footwear industry.

Future research lines

To bridge the gaps in this article and aid future studies, we advise the use of a qualitative methodology identical to the one used in this article, with the addition of a case study. In this, we highlight the use of primary and secondary data, such as the analysis of documents and/or archives of a footwear brand.

It is recommended to replicate the study in companies from different regions/countries; however, with the same size to obtain a concise result close to reality. We consider it appropriate, in the first instance, to evaluate multinational companies and, subsequently, to analyze emerging companies, to be able to perceive the behaviour change.

It is suggested that research related to green entrepreneurship be conducted in various societies, sectors, and industries to understand its impact on the business core and society. Finally, it is advised

that industries follow a more ecological approach, using less environmentally aggressive materials, and prioritizing the maintenance of the ecosystem that directly influences human life.

ACKNOWLEDGMENTS

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UNLOCKING ITALY'S POTENTIAL: MEASURING PUBLIC VALUE IN THE NATIONAL RECOVERY PLAN

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ABSTRACT

The purpose of this study is to highlight how to measure the public value generated by a National Recovery Plan. For this purpose, the research meticulously examines the funding program and evaluates how it will contribute to the creation of new public value. The interpretative model may be particularly suitable for data collection through the review of European Commission reports and associated literature. Data can be collected through online research methods, enabling the analysis and evaluation of European Commission reports to comprehend how the National Recovery and Resilience Plan (PNRR) will impact Italy and how it will benefit citizens and governments. The review also underscores how Italy will utilize the PNRR to enhance its economic and social conditions, thereby creating public value.

Keywords: Public value, PNRR, National Recovery Plan, Social impact.

INTRODUCTION

The European Union has adopted a recovery plan, through Next Generation EU which aims to help the countries to deal with their economic and social damage, which was caused by the pandemic Covid-19. The European Union has estimated a budget of around €750 billion, out of which €390 billion will be granted by the EU, whereas the remaining amount will be in the form of loans for the period of 2021 to 2026 (Esposito et al., 2021). With this fund, the EU aims to support the European countries in becoming greener, more resilient, digital, and better. This will also help them to meet the future challenges. Not only this, but also the digital platforms have helped the medical departments to continue their services via tele-health and help the nations to recover as soon as possible. Moreover, it also helped the countries to stabilize their economic condition via digital dealings and prevent market breakdown or shortage of resources for the people. The deliveries were made at home to ensure the availability of everything in the country and to prevent collapse of many businesses (Hirsch-Kreinsen, 2021). Thus, it proved that digital networking proved to be the backbone of the society and thus the European nations understood that they need to invest more in this sector to speed up their

developments in high-quality connectivity. It has changed people's perspectives and now healthcare services can be provided in any region of the world via tele-health services (Lloyd, 2021). The businesses are offering their products to multiple regions while establishing a single headquarter at a specific station. This shows that digital connectivity is the best way to expand business, educational, healthcare, social, and awareness associated services throughout the world, and does not even require huge investments such as physical buildings or travel expenditures.

The present document is structured into four distinct sections. The initial section sets the stage by discussing the importance of pioneering research in the realm of public value. Within this section, an overview is provided of the expanding body of literature on public value, focusing specifically on the discourse surrounding frameworks for measuring public value (Papi et al., 2018). After a literature review, we introduce the measuring public value in, generally, an EU Recovery Plan and in, particularly, a National Recovery Plan. The factor at the base of this are the literature gap on the measurement of public value and the increasing significance the National Recovery and Resilience Plan (PNRR) will impact Italy and how it will benefit the public and governments. The methodology and research design, presented in the second section, aims to broaden the scope of public value measurement frameworks by describing qualitative approach (Tomaszewski, et al., 2020). Third section discusses results of the research and proposes some recommendations for enhancement in terms of public value. It describes the examinations conducted to assess the stated hypotheses, the results of which progressively contribute to resolving the research inquiry. Furthermore, important insights pertaining to the public value theme are investigated to furnish practitioners with a groundwork. Fourth section discusses certain constraints of the study and suggests how the research framework could be applied for future investigations.

THEORETICAL FRAMEWORK: MEASURING PUBLIC VALUE

The COVID-19 pandemic on a global scale has prompted various local governments to upgrade their digital interface, providing a wider range of programs and services online and moving towards online platforms for engaging with the public. In order to provide an overall view of a company or entity's ability to create value for citizens and stakeholders, it is becoming common to consider various evaluation measures in addition to purely economic ones (Cohen and Karatzimas, 2015; Fordham et al., 2018). Additionally, to acquire a more profound comprehension of the particular idea of public worth, as estimated by a public value scale, and to compare it with other relevant social evaluation frameworks, we included a corporate social responsibility and reputation scale in our survey. Although there is an intersection between these concepts, they also present noteworthy variations

(Meynhardt, et al. 2019). While Integrated Popular Reporting is geared toward measuring through the six capitals the consumption of value and the realization of public services, there is a lack of research examining whether the tool has the capacity to measure the generation or depletion of public value. (Cohen and Karatzimas, 2015; Biondi and Bracci, 2018).

Firstly, Moore (2007) identifies three specific rationales for the significance of measuring public value: to adhere with external accountability mandates, to define a distinct and meaningful mission and objective for the organization, and to cultivate a robust "sense of internal accountability" (Moore, 2007). While (2007) Moore emphasizes the importance of accountable public managers for the creation of public value, he does not provide a clear answer to the question "how do you measure public value?" in creating public value. Mendel and Brudney (2014) argue that the concept of public value remains unclear, receiving scant attention and being surrounded by speculation. Furthermore, considerations of efficiency involve evaluating whether the appropriate measures have been adhered to and executed properly (Kelly et al., 2002). The assertion made by Donahue and Miller (2006) underscores the fiscal stress experienced by local governments due to limited public funds and increasing need for public services, compelling them to strive for greater efficiency.

Meanwhile, Epstein (2003) suggests correlation between high public value scores and the fulfillment of basic needs should potentially lead to favorable attitudes and behavior. Faulkner and Kaufman (2018) present a framework with four key themes for evaluating public value, covering aspects such as public satisfaction, economic value, political value, financial performance, non-financial performance, trust, and legitimacy. Cwiklicki (2016) observed a rise in the number of recommended "public value measurement frameworks" in his literature review over the last decade. For instance, social entrepreneurship offers a valuable resource for creating public value (Chandra and Paras, 2021). Additionally, Meynhardt and Jasinenko (2021) view value "as multi-faceted, encompassing hedonistic-aesthetical, utilitarian-instrumental, political-social, and moral-ethical dimensions". The gluttonous stylish aspect includes an emphasis on expanding delight, bliss, and unwinding, while the utilitarian-instrumental aspect envelops the interests in understanding, foreseeing, and controlling the climate, holding back nothing, monetary or financial worth. The political-social viewpoint connects with worries encompassing social character, feeling of having a place, and gathering participation, though the moral aspect depends on the drive for confidence and poise, individual moral and moral standards, uniformity, and reasonableness.

Although there is no universally applicable metric for public value, endeavors have been undertaken to construct methodologies for this objective. Consequently, several frameworks have been devised with the goal of comprehending public value.

METHODOLOGY AND RESEARCH DESIGN

The data analysis was conducted by employing a systematic approach that involved combining the available information through an inductive process (Dubois and Gadde, 2002). This approach was characterized by integrating the existing literature on the subject and utilizing empirical data. By adopting an analysis of a case study, it becomes feasible to observe the development of trends, changes, and relationships over time. Furthermore, this approach aids in comprehending the underlying motivations behind the evolution of a given situation (Fitzmaurice and Ravichandran, 2008). The case that was selected is the NODES's (Nord Ovest Digitale E Sostenibile - which is the Italian for "Digital and Sustainable North-Western Italy") funded by National Recovery and Resilience Plan (PNRR), Mission 4 "Istruzione e ricercar", Component 2 "From research to enterprise" – Investment 1.5, which is in turn financed by the Next Generation EU of European Union (Grant agreement no. ECS00000036). This serves the purpose of bridging the gaps that may arise from relying solely on a single approach.

The interpretative model may be particularly suitable for data collection through the review of European Commission and Italian reports and associated literature. Data can be collected through online research methods, enabling the analysis and evaluation of European Commission reports to comprehend how the PNRR will impact Italy and how it will benefit the public and governments. When digging deep into the European recovery plan, it consists of multiple components, where each component aims to bring social and economic benefits to the European countries. It identified several important risks to the success of the recovery plans, such as lack of focus and bias, illegal project management, slow work and lack of European dimension and capacity to implement such complex services. in addition to the regular EU budget (Núñez Ferrer, Jorge, 2021).

The authors investigated at both a qualitative approach and an evidence-based exploratory strategy, which is especially advised for researching phenomena that have not been well studied yet (Eisenhardt, 1989) or when it is difficult to distinguish between a phenomenon and its surroundings. This methodology has, then, the merit of ensuring a high degree of insight into the complex reality examined (Berg, 2004) through the use of multiple sources such as evidence analysis, internal company documents, interviews and direct observations. In this regard, it is useful to point out that

the implementation of a health expenditure monitoring information system within a regional health context involves the involvement of all public health companies in the system and, therefore, represents a complex process closely linked to the specific organizational context in which it is generated and is influenced by internal and external variables that are difficult to isolate. Multiple research paths can be acquired more easily when an approach influenced by the selection and review of prior research is employed (Khan et al., 2003). For this reason, to conduct a comprehensive analysis of the phenomenon and address the research inquiries presented, it is imperative to thoroughly investigate the subject matter. It was deemed appropriate to use a method capable of capturing both the technical and behavioral aspects that characterize the dynamics of the corporate organizational system under investigation.

DISCUSSION AND CONCLUSION

The Covid-19 pandemic has provided an opportunity to introduce digital advancement especially in education, industries to cover all financial and social challenges (Amankwah-Amoah, at al., 2021.). The developed countries will be able to facilitate the people with better services and opportunities to live a better life (Baldwin, 2020). Also, it will enable the people of that region to invest in different sectors and improve their contribution towards society (Bailey, et al., 2021). For this purpose, the EU introduced the European Union Recovery Plan, which works on central managed EU funds and thus every member state needs to share funds to help other states. The proposal aimed to highlight how measure the public value generated by a National Recovery Plan. To attain the objective, review of already published reports and literature was done and collected data was analyzed. Firstly, a way to measure public value is through Key Performance Indicators: NODES' Research and Innovation program adopts several KPIs because public value creation effects on citizens, companies and municipalities (Esposito and Tufo, 2023c). The effectiveness and explanatory power of public value were evaluated through the inclusion of measures that account for the fundamental variances between public and private sector establishments (Esposito and Tufo, 2023b). Our selection of KPIs was limited to those that could be feasibly applied across all types of organizations. Although willingness to pay more (Donahue at al., 2006) and consumption frequency are commonly employed as performance indicators in the private sector (Bracci et al., 2023), these metrics are also gaining prominence in the evaluation of public sector organizations.

The monitoring and the results evaluation of National Recovery Plan of Italy be run long the three-year period of the research and innovation program and articulated through tree dimension of KPI:

- Output KPIs, linked to the activities envisaged in the ecosystem in relation to the WPs implementation.

- Outcome KPIs, linked to what is intended to be generated through the activities of the Ecosystem's Booster.

- Impact KPIs, representative of the impacts that NODOS's intends to generate on the territory in the medium-long term and beyond the period of operation of the project.

In a specific case study analyzed, NODES's partners define specific verification sources in terms of reports, document, and information sources useful for measuring the indicator value. In particular, it is defined methods, tools and frequency used for data collection from NODES partner as well as for information processing from institutional and private actors involved in the local ecosystem (e.g. surveys, interviews, focus group workshops).

The Table 1 summarizes the identification and description KPIs (metrics) through which the monitoring of NODE'S implementation (output and outcomes) and the evaluation of impacts generated on the territory will be measured, as well as relative quantification of the expected targets.

Actions		Key Indicator (Impact Indicator, Outcome Indicator, Output Indicator)	NODES' overall target
ECOSYSTEM'S ENGAGEMENT AND DEVELOPMENT BOOSTER	Impact	(Increase of) engagement of the different actors in research and innovation actions within the ecosystem's territories	
		(boosting) innovation demand from industries and civil societies	
		(fostering) internationalization	
Research and Innovation Roadmap development	Outcome	Number of updated NODE's Research and Innovation Roadmaps	14
		Level of participation at Research and Innovation Roadmap's development, according to the principles of representativeness based on different parameters (eg type, size, maturity and geographical location)	At least 7 out of 10 in level of representativeness
	Output	Number of interdisciplinary working groups	14
		Number of collected industrial interest through NODES' entrepreneurial discovery processes	373
Engagement of actors, especially companies and civil society	Outcome	Number of stakeholders (including professionals, entrepreneurs, researchers, administrators, citizens, students) reached through engagement actions	17.500
		Number of member of Spokes' Stakeholder Committees in accordance representativeness based on categories	140
		Level of stakeholder's (firms and civic society) awareness on NODES's activities	At least 7 out of 10 in level of awareness
	Output	Number of organized events/seminars/workshops/infodays/webinar/etc.	50
		Number of B2B and B2R (Meetings businesses to business, businesses and research actors)	630
Mapping of competences and needs and Development of technology-driven value chains	Outcome	NODES' Analysis on research and innovation specialization, competence and needs, opportunities and challenge, according to each Spoke's thematic	21
		Number of established/boosted Spokes' value chains	14
	Output	Number of Ecosystem actors (in particular SMEs), mapped on competence and solutions, research and innovation interest, training and internationalization needs	420
Internationalization	Outcome	Number of established and strengthened collaborations and partnerships with EU and International entities (international research center, clusters, EDIH, associations and initiatives) to enhance NODES' actions, behind the period of the project	28
	Output	Number of mapped EU initiatives	84
		Number of international events organized or partecipated	42

		Number of companies/civic societies that participate in international initiatives organized at the local level	210
RESEARCH BOOSTER	Impact	(Increase of) private and public investment in R&D, through research and innovative activities carried out jointly by universities and companies, in particular SMEs, operating in the area	
		(Increase of) business potential in terms of creation and acceleration of high-tech start-ups, development of new/enhanced product/services and/or improved industrial process	
Research activities and Flagship Project	Outcome	Number of Pilot Line / Demonstrators / Prototypes	14
		Number of publications	500
		Number of registered IPR (patents, utility models, trademarks, industrial designs)	25
	Output	Number of flagship project	14
		Number of professor and researcher involved	368
		Personnel effort dedicated to Research and Innovation and Flagship Project	480
Recruitment of new talent	Outcome	Number of researcher and technicians (research and innovation manager)	91
		Personnel effort dedicated to Research and Innovation and Flagship Project (person/month in three years)	182
	Output	Number of open positions	91
		Number of applicants	273
COMPETENCE BOOSTER	Impact	(Increase of) Level of soft skill and technological competences gain	
		(Reduction of) the skills mismatch between education and job application	
		(Increase of) demand of highly qualified human capital in terms of number researchers and (young) talents hired by firms	
Lifelong Learning initiatives	Outcome	Number of professionals and managers involved in lifelong learning initiatives, and certified on the knowledge and skills acquired	1,400
		Number of firms involved in LLL initiatives.	160
	Output	Number of LLL initiatives in place	56
		Number of participants (managers involved in executive education programs and specialists involved in innovation initiatives)	1,400
		Number of training hours delivered	4,000
Industrial PhD	Outcome	Number of PhD students specialists certified on the knowledge and skills acquired	25
		Number of tutors specialists involved in innovation initiatives	25
		Number of young and newly graduate specialists hired in companies and involved in R&D&I activities	14
	Output 3	Number of industrial tutors involved in the PhD programs	25
		Number of firms participating at PhD programs	20
		Number of open PhD positions	28
Entrepreneurship training for students and early career researchers	Outcome B	Number of student team willing to develop their own business on the challenge	17
		Number of students and researched that gain a certification on Innovation management and entrepreneurship course	441
	Output 1	Number of training hours	7,000

		Number of student applicants participating at training course (step2start and Innovation management and entrepreneurship course)	735
		Number of challenges	35
		Number of student applicants to challenge initiatives	700
INNOVATION BOOSTER	Impact	(Increase of) Amount of EU funding raised by SMEs, start-ups and spin-offs	
		(Increase of) Amount of equity fund raising of supported start ups	
		(Increase of) Growth in companies' turnover (SMEs)	
Matchmaking actions	Outcome	Number of technologies that are exploited in entrepreneurial initiatives via PoC, acceleration support services, etc.	30
	Output	Number of technologies (patents, software) shared on KS platforms	200 technologies
		Number of events during which technologies are presented to firms and investors	50
		Number of events organized for the promotion and dissemination of technologies and research results (TechShareDay)	14
Academic PoCs	Outcome	Number of finished POC	22
		Amount of grants	5.6 mln
		Number of established spinoffs	15
		Number of transferred technologies (licensing, assignment, etc.)	20
		Number of granted projects	25
	Output	Number of cut-off dates for Academic PoCs	14
		Number of collected and evaluated PoC proposals	40
Industrial PoCs	Outcome	Number of POC granted projects	90
		Amount of Grants	18.8 Mln
		Amount of industrial investments in PoC Initiatives	37.5 Mln
		Number of funded firms (start-ups, SMEs)	180
		Total amount of research contracts generated within the PoC	3 Mln
	Output	Number of cut-off dates for Industrial PoCs	14
		Number of collected and evaluated PoC proposals	120
ACCELERATION BOOSTER	Impact	(Increase of) Amount of EU funding raised by SMEs, start-ups and spin-offs	
		(Increase of) Amount of equity fund raising of supported start ups	
		(Increase of) Growth in companies' turnover (SMEs)	
Access to finance	Outcome	Number of matchmaking between companies and potential investors/large companies	75
		Number of entrepreneurial projects for feasibility developed, presented by spin-off and SMEs	30
		Number of new start-ups incorporated, focus on NODES' thematic	10
		Number of strategic partnerships between NODES and innovation actors (Acceleration, Bank Foundations, Venture Capitalist) signed to support acceleration, scaling-up and access to finance	21
	Output	Number of involved SMEs and starts-up in the acceleration activities	200

		Number of start-ups and project supported in national and international funding calls	15
		Number of organized events to foster the dialogue between firms and large companies/venture capitalists	21
Market development	Outcome	Number of generated matchmakings with technological and business partners, as well as investors	300
		Number of Acceleration vouchers granted	280
		Number of funded SMEs and start-ups	100
		Amount of grants	11.5Mln
	Output	Number of listed acceleration services	15
		Number of applicants (SMEs and starts-up)	350

Figure 1. NODES' KPIs

Overall, the collected funds will be given to the desiring member states as loan, which it can be used for its regional and digital development and can pay back as per the EU recovery plan policies. Especially, when concerned about the new public value (Esposito and Ricci, 2015), people want development in the sector which may increase chances of employment, better healthcare opportunities, and more business investments in the region. Thus, with the advancement in network connectivity, the country will bring more outsourcing opportunities for the people. Especially, it will help people of remote areas to work from home, get better education, and get better employments without even leaving their home. Not only this, but also advanced digital technology will improve healthcare facilities for all, where the people in remote areas will also get access to tele-health on time.

LIMITATIONS AND FURTHER RESEARCH

A possible disadvantage is the use of a dataset, which could be overcome in the future because of the advent of AI (Artificial Intelligence) may undergo modifications several fields: economics, finance, education system, security and automotive (Esposito and Tufo, 2023a).

In the debate about public value measurement, according to Esposito et al. (2024), further research will investigate on renewable energy communities. Furthermore, all States must establish a proper report regarding how they consumed EU Recovery Plan and what outcomes were achieved through its associated funds. This will also be helpful for the EU and other organizations to propose other recovery plans and financial aids to the States in future. In particular, the reports must include the suggestions regarding how coming plans can be improved with respect to loan return policy or other financial and social measures. In this way better recovery plans will be introduced in future, which will bring more opportunities for the States to strengthen their GDP and gain more financial and social outcomes.

ACKNOWLEDGMENTS

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

DECLARATION OF INTEREST STATEMENT

The author declare that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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FINANCIAL AND NONFINANCIAL ANNUAL COMPANY REPORT INFORMATION – A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The aim of the study is to explore the body of research on financial and nonfinancial company report information. A bibliometric analysis is conducted for the topics of earnings management, fraud and sustainability for publication frequency, publication trends on the basis of keywords, as well as author co-citations and journals with a special focus on the affiliation countries Italy and Germany.

In order to achieve desired strategic company goals, accounting managers can purposefully vary the outcomes of financial reports of a company by applying earnings management methods. When the line of legal accounting choices is crossed, the topic of fraud becomes relevant. According to the European Sustainability Reporting Directive 2022/2662/EU, companies of public interest need to include corporate sustainability information into their published annual company report with details on their sustainability efforts. As a consequence, sustainability report information has become an increasingly relevant strategic communication tool in the field of nonfinancial company information.

In a bibliometric analysis, important topics and trends of publications from 2020 to 2023 concerning the key concepts of financial and nonfinancial company reports are examined and relevant keywords in the publications about earnings management, fraud and sustainability concepts are analyzed. This contribution aims at finding out about the current research landscape in the field of earnings management, fraud and sustainability management of a firm by identifying current research trends.

Keywords: Earnings Management, Fraud, Sustainability, ESG, Bibliometric Analysis, Italy, Germany.

INTRODUCTION

The purpose of this bibliometric study is to examine the research landscape and to assess publication and research trends on the topic of financial and nonfinancial company report information, specifically about earnings management, fraud and sustainability.

In the following case study, the objective is to identify current research subject areas based on keywords, to outline relevant journals and authors, and to analyze relevant publication trends in the

academic landscape over time. Based on the results of the bibliometric analysis it could be shown, that the focus from financial information research relevance has been gradually shifting to nonfinancial issues, such as environmental, social and governance aspects, since nonfinancial information has become increasingly important to shareholders, customers and analysts, making sustainability report information crucial for various stakeholder groups and therefore attracting huge attention from academic researchers as well.

Annual sustainability report analysis is a crucial topic in empirical accounting research. In recent years, trust in financial statement information has been reduced due to accounting scandals and fraud, making the topic of corporate accountability increasingly important. Therefore, financial and nonfinancial statement readers need to be able to interpret published information in the context of earnings management and strategic sustainability management publication. Earnings management identification can be useful for investors in order to assess current company performance as well as for making predictions for future firm profitability. When the line between legally permitted and non-permitted accounting tactics is crossed, it is no longer earnings management but fraudulent financial reporting that takes place, which is often leading to huge economical losses in society. Empirical research in this area contributes to financial statement reader awareness in interpreting published accounting numbers. In regards to nonfinancial company reports, on the other hand, the European Nonfinancial Reporting Directive (CSRD) 2022/2662/EU is obliging large companies of public interest to include a non-financial statement in the annual report, thus providing sustainability and accountability information that stakeholders tend to be interested in (see Campra et al., 2020).

1. RESEARCH QUESTIONS AND METHODOLOGY

The following research questions are addressed in the bibliometric analysis:

- What are the worldwide accounting research trends in the publication frequency for articles with the keywords "earnings management", "fraud" and sustainability"?

- What are relevant journals in these three subject areas, for the affiliation countries Italy and Germany?

- What are most co-cited authors in accounting research about financial and nonfinancial reporting for the affiliation countries Italy and Germany?

- What are relevant subject areas in the current accounting research landscape?

The bibliographic database used for the literature analysis is the Scopus database, considering "abstract, title, keywords" for each search of "earnings management", "fraud" or "sustainability" related articles. The VOSviewer software is used for a visual bibliometric analysis for co-author

citations as well as a co-occurrence keywords of current research trends. For the analysis with VOSviewer, the years 2020-2023 were considered for "earnings management" and "fraud", and 2021-2023 for "sustainability" related articles. The results have been limited to Italy and Germany for a more specific analysis of the research landscape in these affiliation countries. The number of analyzed documents for the topic of earnings management is 72, for fraud related research 844 documents, and for sustainability, 17451 documents were included in the bibliometric analysis.

2. LITERATURE REVIEW

In the beginning stages of empirical accounting research on the theme of accountability of company reports, the topic of earnings management seemed to be in the center of empirical accounting research. In fact, empirical accounting research on the subject matter of accountability of company reports started around the 1980s, when financial company report information, such as earnings management and fraud, were in the focus of attention of empirical accounting research. At that time, there was little or no company reporting about sustainability or nonfinancial information in general, so naturally, accounting research was mostly on financial company information (see table 1).

Author and year	Publication title	Scientific Contribution
Watts and Zimmerman (1978)	Towards a Positive Theory of the Determination of Accounting Standards	Positive Accounting Approach: • Bonus Plan • Debt/Equity • Political Cost
Healy (1985)	The Effect of Bonus Schemes on Accounting Decisions	Existence of bonus plans can be a possible explanation for earnings management decisions
Jones (1991)	Earnings Management During Import Relief Investigation	Empirical method for earnings management measurement
Dechow et al. (1995)	Detecting Earnings Management	Refined method for empirical earnings management measurement
Dechow et al. (2011)	Predicting Material Accounting Misstatements	Stock and debt market incentives, abnormal reductions of employees can be indicative of misstatements

Table 1. *Selected publications on the topic of financial information analysis*

„Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999, p. 368). The beginnings of systematic earnings management research were marked by the so called positive accounting approach with 3 main hypotheses that were empirically tested and could be often also considered as reflection of the accounting reality at that time. These 3 main research fields that had been described by Watts and Zimmerman (1987) are the bonus plan hypothesis, the debt/equity hypothesis and the political cost

hypothesis. The bonus plan hypothesis states that earnings management might be used to reach a certain bonus plan level. The debt/equity hypothesis predicts that the management is more likely to use income increasing earnings management so that the debt/equity ratio of the company can decrease, for example to avoid a violation of loan contracts. The political cost hypothesis states that large firms rather than small firms tend to use income reducing earnings management. These large corporations sometimes use income decreasing methods in order to reduce attention from regulators or other institutions, and so their so called political costs can decrease (see Watts and Zimmerman, 1990). The study by Healy (1985) discusses in more detail about the effect of bonus plans on accounting decisions, where it could be shown that managers tend to use upward or also downward earnings management, depending on the bonus schemes in a company. The statistical measurement of earnings management is another noteworthy aspect of empirical accounting research. First, the so called Jones Model had been developed by Jones (1991). This model had subsequently been modified by Dechow et al. (1995) to the modified Jones model, which uses a regression analysis to estimate financial earnings management of a company, and which is an accepted method for empirically measuring earnings management until this day (see Capalbo et al. 2014). The study by Dechow (2011) is pointing out practical situations, in which material accounting misstatements might take place and how they can be spotted. The result of this study could show that stock and debt market incentives or abnormal reductions of employees can be indicative of financial misstatements. In more recent literature contributions, the focus of research has shifted to the analysis of nonfinancial information of company reports (see table 2).

Author and year	Publication title	Scientific contribution
Aras and Crowther (2008)	Governance and sustainability – An investigation into the relationship between corporate governance and corporate sustainability	There is a social contract between a business and its stakeholders. There is a shift towards a greater accountability of companies vs. only orientation towards financial results
Maglio et al. (2019)	Exploring sustainable governance: Compliance with the Italian related party transactions regulation for the legal protection of minority shareholders	• Italian Context • Sustainable governance and minority shareholder protection
Campra et al. (2020)	The engagement of stakeholders in nonfinancial reporting: New information-pressure, stimuli, inertia, under short-termism in the banking industry	Sustainability and accountability information
Papoutsi and Sodhi (2020)	Does disclosure in sustainability reports indicate actual sustainability performance?	• Sustainability disclosure and sustainability performance • Focus on keywords
Mazzotta et al. (2020)	Are mandatory non-financial disclosures credible? Evidence from Italian listed companies	Empirical construct of "credibility" according to the theory of communicative action, with the categories "truth", "sincerity", "appropriateness" and "understandability".

Esposito et al. (2023)	The financial and green effects of cultural values on mission drifts in European social enterprises	Importance of sustainable innovations and sustainable entrepreneurship

Table 2. *Selected publications on nonfinancial (sustainability related) information analysis*

Sustainability can be defined in the following way: "Sustainable development requires meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life" (United Nations, 1987 p. 54). "Corporate Social Responsibility can be reflected in sustainability governance programs that cover social, environmental and economic activities" (Maglio et al., 2019). The scientific contribution by Aras and Crowther (2008) could highlight, that there might be a social contract between a business and its stakeholders, and that there currently might be a shift taking place towards a greater accountability of companies in areas such as environmental sustainability and social responsibility, and not only an orientation towards financial results. The study by Maglio et al. (2019) analyzes corporate governance systems that can support ESG policies. The study by Campra et al. (2020) emphasizes the need for a stakeholder dialogue in the context of nonfinancial company reports and for transparency regarding sustainability reports, so that the credibility of nonfinancial statements can be increased. Papoutsi and Sodhi (2020) studied sustainability performance of a company on the basis of keywords. Mazzotta et al. (2020) empirically constructed the concept of "credibility" of company reports. Esposito et al. (2023) emphasizes the importance of sustainable innovations and entrepreneurship that simultaneously achieves environmental, social and economic aims in order to be successful in today´s corporate world. Important theoretical approaches that can serve as a motivational basis for financial and nonfinancial accountability information publication are agency theory, stakeholder theory and legitimacy theory. According to agency theory, managers tend to act opportunistically and there is a need for monitoring mechanisms that reduce information asymmetry, such as annual financial and nonfinancial statements, as well as certain corporate governance characteristics which can protect shareholder interests. Similarly, stakeholder theory is focusing on the necessity of companies to meet the needs its of stakeholders. Legitimacy theory, on the other hand, highlights the importance of societal acceptance as a prerequisite of a company`s survival, and states that the survival of an organization depends on whether it operates in a socially acceptable way. Legitimacy can be defined as a "generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within the same socially constructed system of norms, values, beliefs and definitions" (see Suchman, 1995, p. 574). In fact, the challenge for companies in today´s world is to balance environmental and economic organizational principles, which requires skilled management capabilities in order to make a company competitive while also having environmental and social goals (see Esposito et al. 2023, p. 2; see Esposito and Dicorato 2020, p. 6), both in the short- and in the long term perspective (see Campra et al. 2023, p. 1).

3. RESULTS OF BIBLIOMETRIC ANALYSIS

In figure 1, the publication trends of earnings management and fraud related articles worldwide are presented.
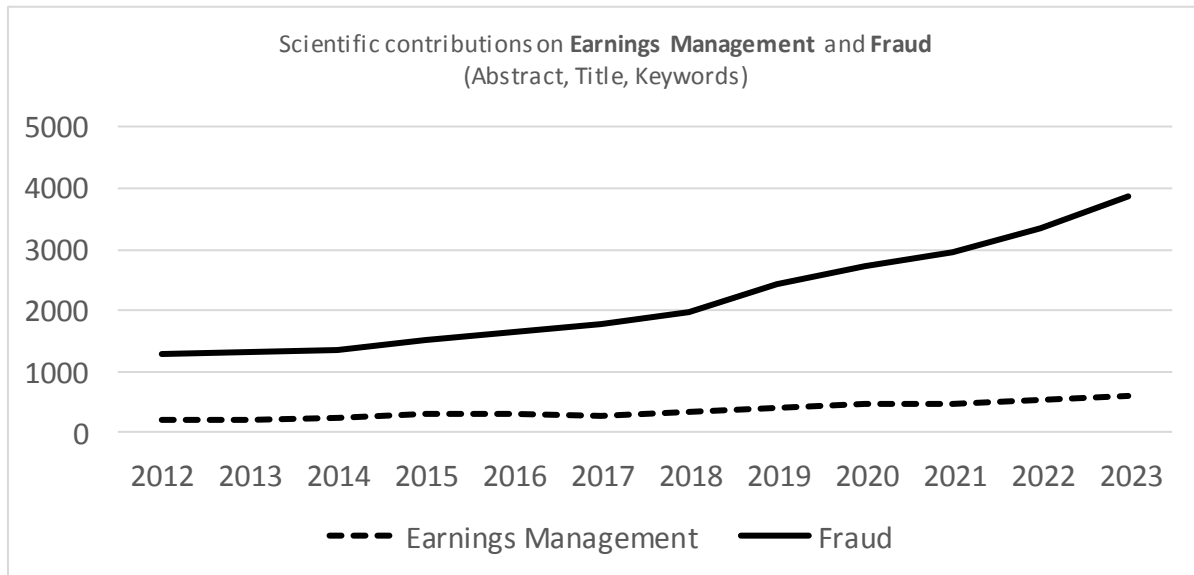
Figure 1. *Number of scientific publications on "earnings management" and "fraud" worldwide from 2012-2023, based on data from Scopus (2024)*

In figure 2, the growing trend of sustainability related publications from 2012-2023 is visible. With the introduction of the European Non-Financial Reporting Directive (NFRD) 2014/95/EU on sustainability, which obliged large companies to publish sustainability reports beginning from the year 2017, a huge increase in the publication of sustainability related articles could be observed (see figure 2).
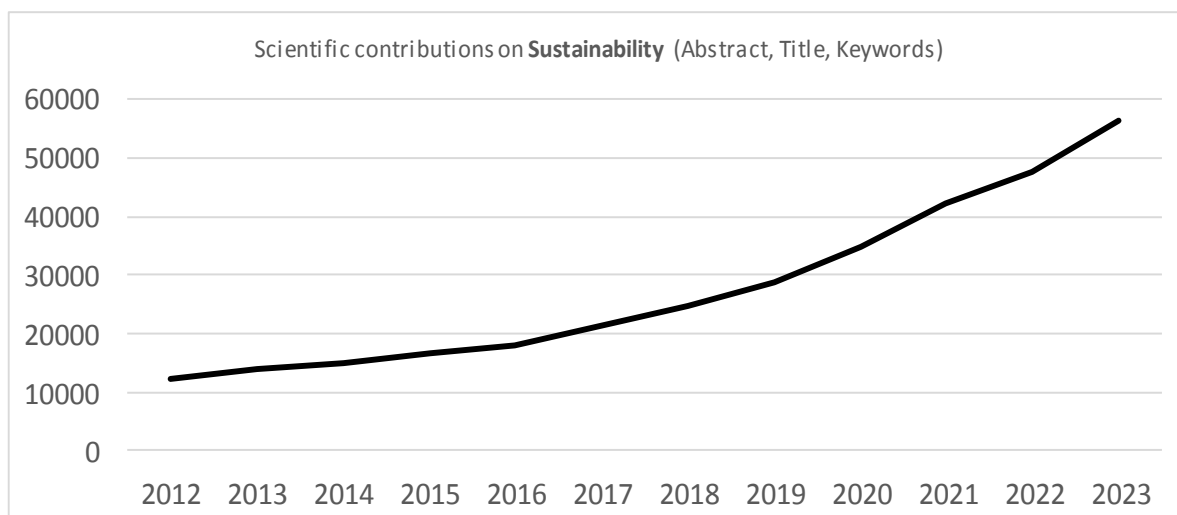
Figure 2. *Number of scientific publications on "sustainability" worldwide from 2012- 2023, based on data from Scopus (2024)*

In figure 3, relevant journals in the field of "earnings management" and in figure 4, fraud related

articles in the years 2017-2023 are outlined, for the affiliation countries Italy and Germany. The publication numbers with the abstract keyword "earnings management" and "fraud" are generally not very high, with under 5 publications per year on this topic. Relevant journals for earnings management related articles are "Rivista Italiana di Ragioneria e di Economia Aziendale" with 4 publications in 2020 for earnings management related articles. Another relevant journal in this subject matter seems to be "Accounting Europe" with two publications on earnings management in the year 2023 (see figure 3).
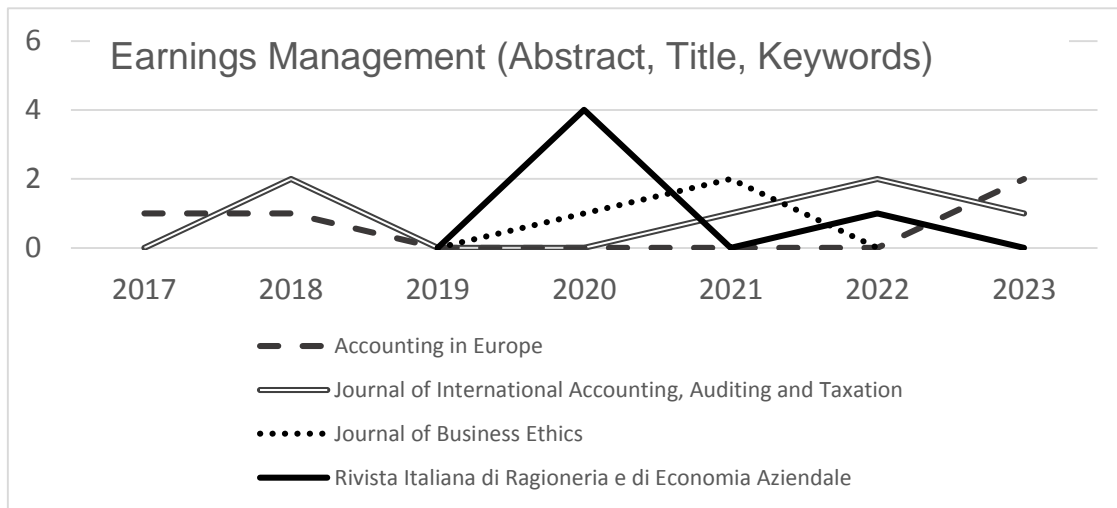
Figure 3. *Publication Analysis on "Earnings Management" from 2017- 2023, limited to affiliation countries Italy and Germany, based on data from Scopus (2024), search code: TITLE-ABS-KEY ("earnings management") AND PUBYEAR > 2016 AND PUBYEAR < 2024 AND (LIMIT-TO (AFFILCOUNTRY , "Italy") OR LIMIT-TO (AFFILCOUNTRY , "Germany"))*

Relevant journals for "fraud" related articles for the affiliation countries Italy and Germany seem to be "Journal of Business Ethics", "Journal of Business Economics", as well as "European Accounting Review", which published up to two articles per year since 2020 (see figure 4).
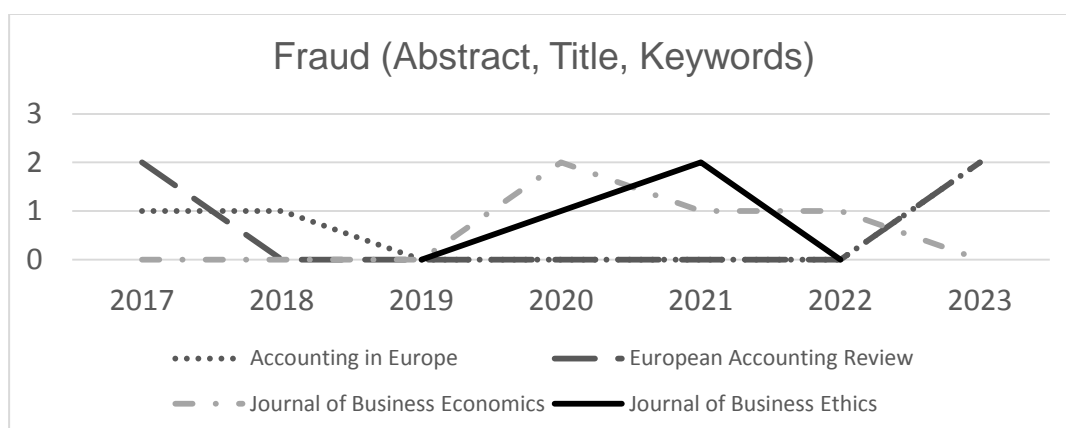
Figure 4. *Publication Analysis on "Fraud" from 2017- 2023, limited to affiliation countries Italy and Germany,*

based   on   data   from   Scopus   (2024),   search   code:TITLE-ABS-KEY (fraud) AND PUBYEAR > 2016 AND PUBYEAR < 2024 AND (LIMIT-TO (AFFILCOUNTRY , "Italy") OR LIMIT-TO (AFFILCOUNTRY , "Germany"))

Figure 5 shows different journals with publications on "sustainability" in the years 2018-2023, showing the leading position of the journal "Sustainability Switzerland" concerning the number of publications on this topic for this timespan, with a maximum occurrence of over 600 publications in the year 2021, followed by "Journal of Cleaner Production" (see figure 5).

Figure 5. *Publication Analysis on Sustainability from 2018- 2023, limited to affiliation countries Italy and*
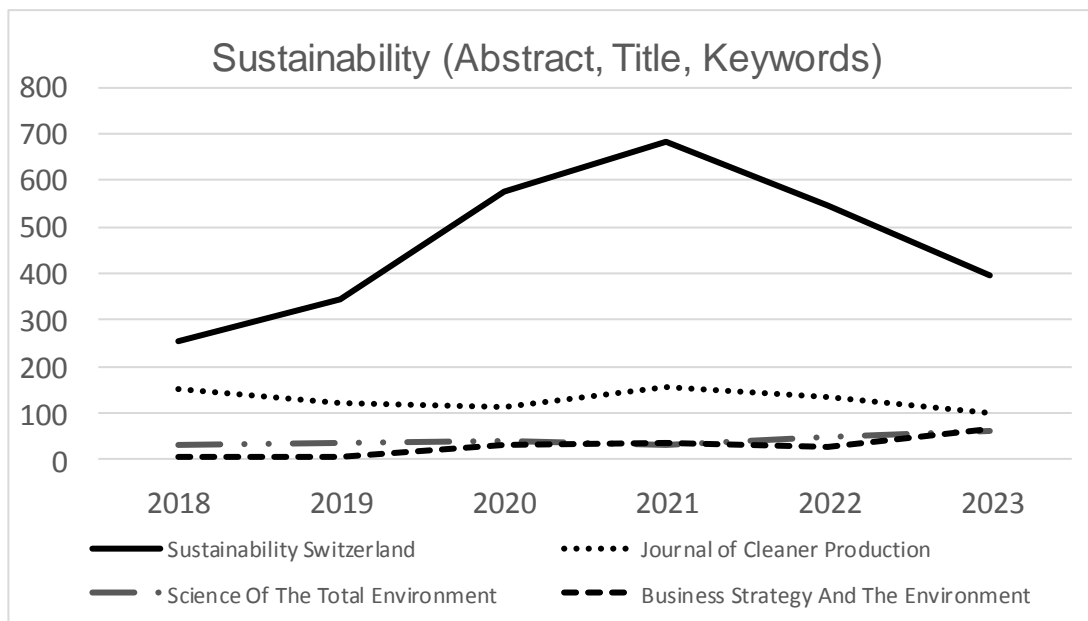
Germany,   based   on   data   from   Scopus   (2024),   search   code: TITLE-ABS-KEY (sustainability) AND PUBYEAR > 2017 AND PUBYEAR < 2024 AND (LIMIT-TO (AFFILCOUNTRY , "Italy") OR LIMIT-TO (AFFILCOUNTRY , "Germany"))

In Figure 6, co-cited authors on the topic of earnings management from 2020-2023 are presented, for the affiliation countries Italy and Germany, showing that the majority of co-citations seem to occur for Italy-affiliated authors.
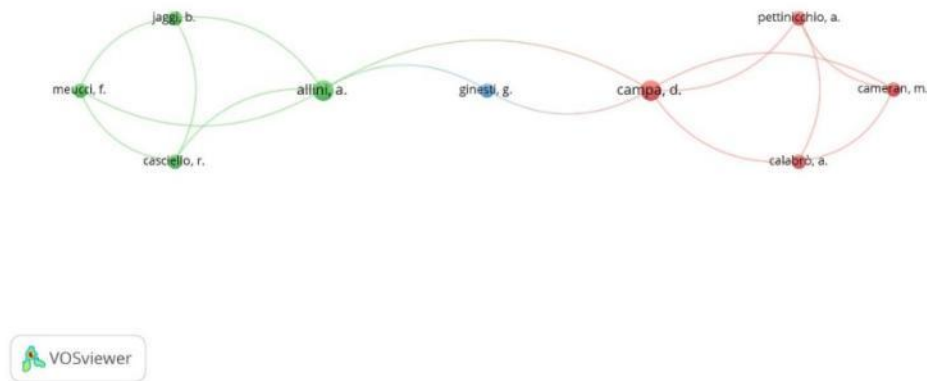
Figure 6. *Author co-citations with publications on Earnings Management from 2020- 2023, limited to affiliation countries Italy and Germany, obtained with VOSviewer (2024), based on data from Scopus (2024)*

In figure 7, relevant keywords and topics of earnings management related articles are outlined. The topics internal control, reviews, abnormal audit fees and quality seem to be relevant in the current research about earnings management, for the affiliation countries Italy and Germany (see figure 7).
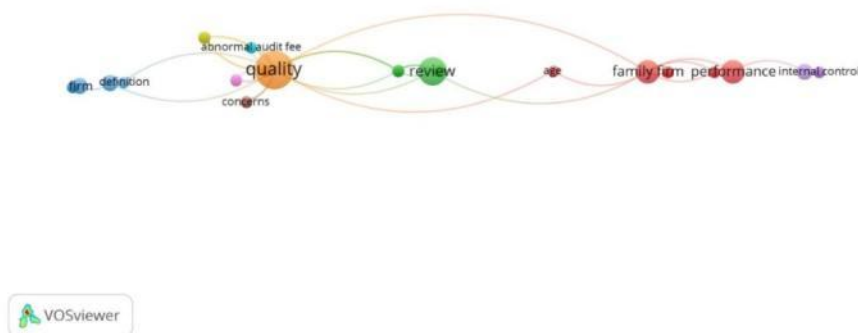
Figure 7. *Co-occurrence keyword analysis of publications on "earnings management" from 2020- 2023, limited to affiliation countries Germany and Italy, obtained with VOSviewer (2024), based on data from Scopus (2024)*

In figure 8, the co-occurrence of keywords of fraud related articles is presented. It is immediately visible that the topics of "fraud detection" and "crime" are the center of academic attention in this subject area (see figure 8). According to the image, "artificial intelligence" seems to be of interest for fraud detection as well.
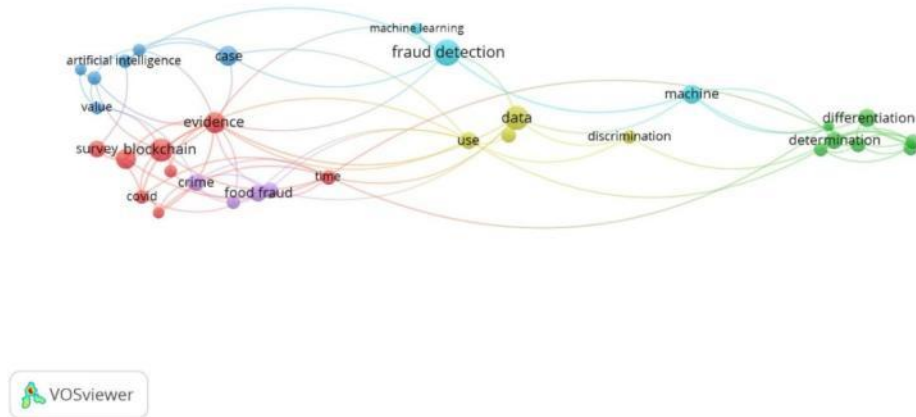
Figure 8. *Co-occurrence keyword analysis Fraud publications from 2020- 2023, limited to affiliation countries Germany and Italy, obtained with VOSviewer (2024), based on data from Scopus (2024)*

In figure 9, relevant authors of sustainability related articles from 2021-2023 are presented.
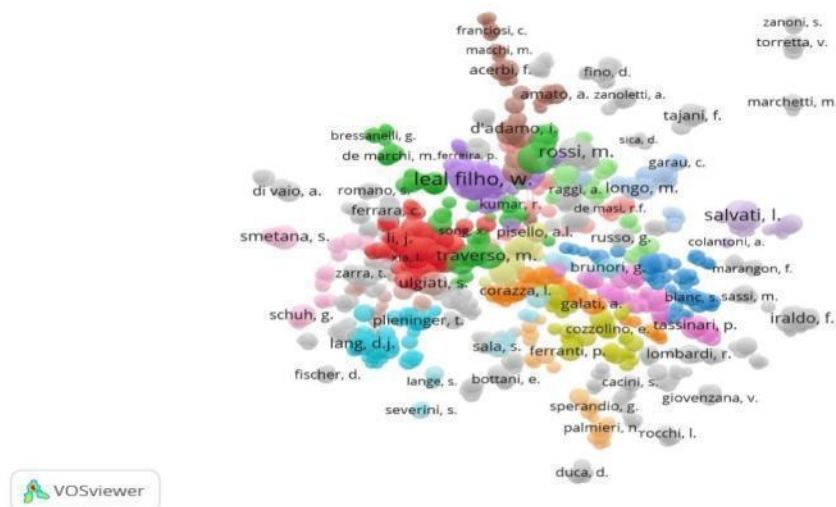
Figure 9. *Author co-citations on "sustainability" related publications from 2021- 2023, limited to affiliation countries Germany and Italy, obtained with VOSviewer (2024), based on data from Scopus (2024)*

In figure 10, the co-occurrence map of keywords of sustainability related articles with the affiliation countries Italy and Germany is visible. Frequent topics of interest seem to be sustainable development, waste, life cycle assessment, circularity, resilience and the consideration of the supply chain in sustainability reporting (see figure 10).
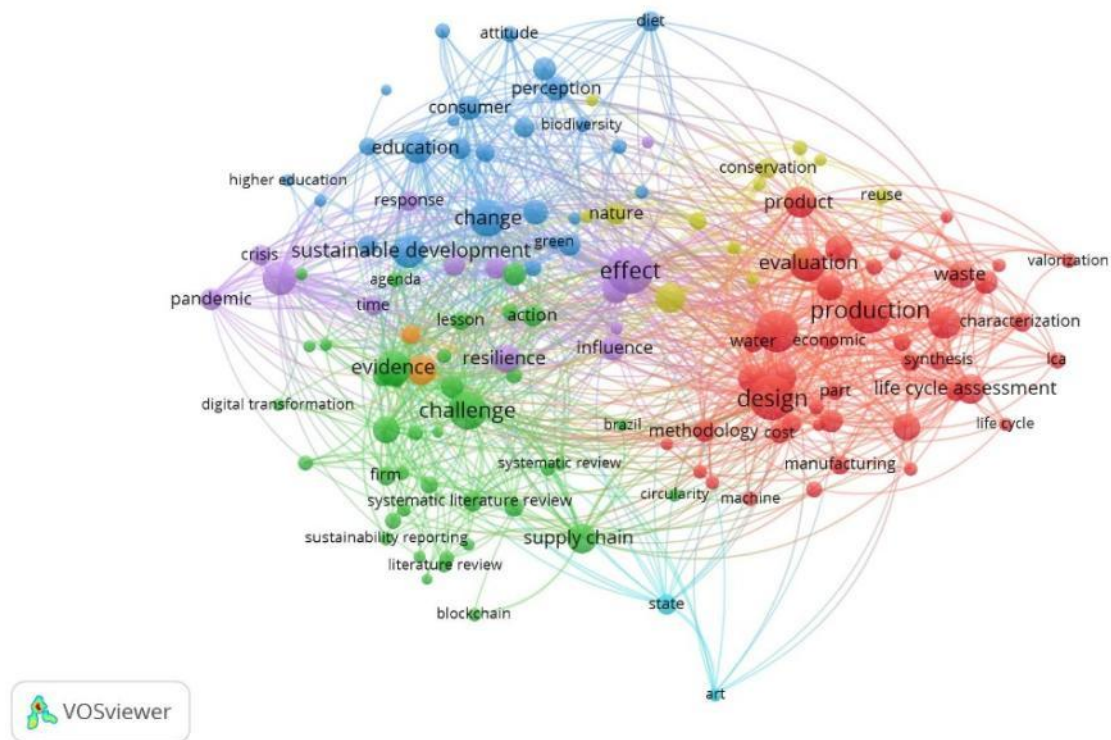
Figure 10. *Keyword co-occurrence analysis on Sustainability from 2021- 2023, limited to affiliation countries Italy and Germany, obtained with VOSviewer (2024), based on data from Scopus (2024)*

4. CONCLUSION

The literature analysis could show that the academic focus on earnings management and discretionary accruals based studies has been gradually changing to an emphasis on nonfinancial information based studies. Even though there still seems to be a growing trend in earnings management and fraud related articles, it is the theme of sustainability related articles that currently seems be a "hot topic" in the accounting and accountability research field, whereas, earnings management and fraud related publications seem to have become a "niche" topic.

Academic publications on the topic of earnings management identification and prediction seem to provide useful insights in regards to the interpretation of the current economic position of a company and future profitability prediction when reading financial company information, especially from the point of view of shareholders who are considering their investment decisions. Moreover, the literature review could show, that the topic of accountability and credibility of financial and nonfinancial information is currently a relevant research stream for practitioners and researchers alike, which emphasizes the need for more empirical studies in this field.

The earnings management keyword analysis could reflect the importance of internal controls, reviews

and audits. Moreover, a co-occurrence keyword analysis could show that fraud related articles tend to focus on crime, fraud detection and artificial intelligence. The keyword analysis of sustainability related publications suggests that the whole supply chain needs to be considered when reflecting on sustainability policies. Other keywords, such as life cycle assessment, circularity, waste and water, highlight the relevance of waste and water management systems.

In conclusion, the topic of accountability and credibility of company reports, which is constructed of both, financial and nonfinancial information, seems to be a highly relevant topic from an academic, political, societal, managerial and shareholder point of view, which emphasizes the need for more empirical studies in this field, and for an integrated analysis of financial as well as nonfinancial annual company report information.

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FROM BYTES TO BEAUTY: ICT'S INFLUENCE ON CULTURAL HERITAGE VALORIZATION

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ABSTRACT

This article employs a multiple case study approach to examine virtual museums and their digital culture, thereby enhancing the existing literature on the effectiveness of cultural organizations by scrutinizing the influence of digitization on their communication strategies. Furthermore, it identifies the drivers and factors that contribute to the sustainable valorization of cultural heritage. Additionally, the article presents a practical list of currently available technologies that can assist tourism professionals in mitigating the negative effects of overtourism and in regenerating inland areas. By addressing these intertwined issues, the article aims to provide valuable insights to cultural managers, scholars, policymakers, and practitioners interested in promoting sustainable tourism practices and fostering the revitalization of neglected inland regions, thus contributing to the comprehensive development of the cultural heritage and tourism sectors.

Keywords: Cultural Heritage, Digitalization, Emotions, Accounting Culture, Virtual museums, Immersive museums, Virtual Reality, Augmented Reality, Mixed Reality, Extended Reality.

INTRODUCTION

The optimal presentation of a country's cultural legacy has been a frequent topic of discussion in scholarly and cultural circles. Moreover, it also helped the countries to stabilize their economic condition via digital dealings and prevent market breakdown or shortage of resources for the people. The deliveries were made at home to ensure the availability of everything in the country and to prevent collapse of many businesses (Dwivedi et al., 2020). Thus, it proved that digital networking proved to be the backbone of the society and thus the European nations understood that they need to invest more in this sector to speed up their developments in high-quality connectivity. It has changed people's perspectives and now healthcare services can be provided in any region of the world via tele-health services. The businesses are offering their products to multiple regions while establishing single headquarter at specific station. This shows that digital connectivity is the best way to expand business, educational, healthcare, social, and awareness associated services throughout the world, and even does

not require huge investments such as physical buildings or travel expenditures. More particularly, this paper points to look at stakeholders' recognitions (Cubilla-Montilla, et al., 2019; Dal Maso et al., 2017; Iazzi, at al., 2020; Lee, 2020) in social organizations (Burns, et al., 2019) and whether the digitization of historical centers ought to be considered as it were an financial action or instep be seen as a modern shape through and through of corporate social sustainability (Esposito and Ricci, 2020). Whereas mechanically progressed administrative hones have frequently been considered possibly unsafe within the interest of proper/acceptable social guidelines (Hofstede, at al., 2005), the digitization of exhibition hall collections clearly appears how advancement can bring sustainability (Packalén, 2010) and responsibility, because the previous can and ought to continuously contribute toward the era of open esteem. By addressing these intertwined issues, the article aims to provide valuable insights to cultural managers, scholars, policymakers, and practitioners interested in promoting sustainable tourism practices and fostering the revitalization of neglected inland regions, thus contributing to the comprehensive development of the cultural heritage and tourism sectors.

The article is structured as follows: in section 2, through a careful analysis of the relevant literature on Tourist Engagement, the increasingly versatile role of the museum is explored. After the review of studies on the topic, the analysis focuses on the reconstruction of a theoretical framework, trying to concentrate on the aspects analysed in the most recent scientific works concerning the strategies of museum enhancement by Innovation Communication Technologies (ICT). The aim of the latter is to create value for cultural organisations and their stakeholders. The theoretical model from which it is intended to start is then outlined in order to contribute, through the multiple case studies illustrated in section 3, to broadening the debate. Section 4, divided into subsections, illustrates the multiple case studies and the analysis of the different geographical areas. The elements of the survey conducted and its results are presented in detail. Preliminary conclusions are presented in subsection 5, while limitations and aspects to be investigated for potential future developments are presented. The same section then goes on to discuss the implications of the work.

FROM STAKEHOLDER ENGAGEMENT TO TOURIST ENGAGEMENT

Engagement is a phenomenon, a concept, a process that has been the subject of study in various fields of science: in psychology, in sociology, in economic and business studies through organisational behaviour, in the contexts of tourism and sport and social media (Ahn and Back, 2018; Hollebeek et al., 2019; So et al., 2014; Verhoef et al., 2010; Yoshida et al., 2014). Whereas in museums, it is mainly stakeholders who demand more attention to environmental protection and sustainability. The COVID-19 pandemic provided an opportunity to introduce digital advancement especially in education and industries to address all financial and social challenges (Amankwah-Amoah, at al., 2021). It will also

enable the people of that region to invest in different sectors and improve their contribution to society (Bailey, at al., 2021; Esposito and Tufo, 2023a). In this perspective, the museum, as a multistakeholder (Napolitano and Riviezzo, 2011), must activate itself by implementing innovative strategies and increasingly participatory organisational models, which consider the visitor as the central subject of the process (Bonet and Negrier, 2018).

Tourist Engagement (TE) is not a universal concept, it is not the same for everyone and is not applicable in all contexts and countries. In this study we understand (TE) as the emotional, psychological and behavioural relationship with a tourist destination, a place or attraction that can be a museum, a tourist site in general (Chathoth et al., 2014). Interestingly, tourists' involvement may vary according to different variables: for example, their involvement may differ according to whether they are tourists visiting a place for the first time, or according to their gender (Rasoolimanesh et al., 2021), or even according to the use of technology during all phases of their trip (Loureiro and Sarmento, 2019), which seems to greatly enhance the overall experience (Kearsley and Shneiderman, 1998). It is well established in the literature that for users to use a technology they must perceive it as quality, useful, easy to use and of good functionality along with more social and hedonic motivations (Davis, 1989; Venkatesh et al., 2012). However, technology adoption is influenced by a person's subjectivity and skills, as well as age, experience, level of education and even culture, all of which represent barriers to technology diffusion (Eaton and Kortum, 1999).

Moreover, from a holistic perspective, technologies integrated within a tourism ecosystem entail collaborative efforts from all stakeholders (Barile et al., 2017). Various studies have delved into the effects and applications of augmented and virtual reality (e.g., immersive technologies) in museum settings, aiming to elevate visitor experiences and interactions (Lee et al., 2020b; Hollebeek et al., 2020; Flaviàn et al., 2019; Hammady et al., 2021; Pengnate et al., 2021). This form of museum experience is on the rise, driven by the captivating interest it incites in visitors as they embark on immersive and emotionally stimulating journeys facilitated by intricate designs and digital tools. Regretfully, there are currently no research projects that connect the employment of new technology in museums to a rise in the value that is created for both the region and its visitors. The only recent study that makes use of augmented reality was done by Izzo et al. (2023). The findings of this study demonstrate how new technologies have the potential to significantly contribute to the creation of value for visitors, the museum, and society at large. The use of technology in cultural and museum settings has increased significantly during the past ten years. In this way, a significant portion of legacy is appreciated outside the home thanks to cutting-edge multimedia products. Because museums and absorbed cultural assets are widely distributed and constitute an established infrastructure in the regions (Esposito and Tufo, 2023b), this feature may be used to provide residents and visitors with access to a variety of areas and

services (Rota, 2019). As a result, the emphasis is on a further outcome: how the tourism site will use its technology in the future to improve visitors' experiences (Ahn and Back, 2018). To the best of our knowledge, nevertheless, no research has been done and published in the literature that shows a direct correlation between visitor involvement and culture. Thus, using cross-cultural studies methodologies in other contexts, this study intends to investigate how visitors' involvement with and future behavioral intentions in adopting immersive technology may differ by nationality and culture.

METHODOLOGIC APPROACH AND RESEARCH DESIGN

According to the several economic sectors and the different scientific disciplines involved in the research area focused on Tourism and Culture Industry, the research and innovation program adopts the comprehensive approach of UNESCO's Framework for Cultural Statistics.
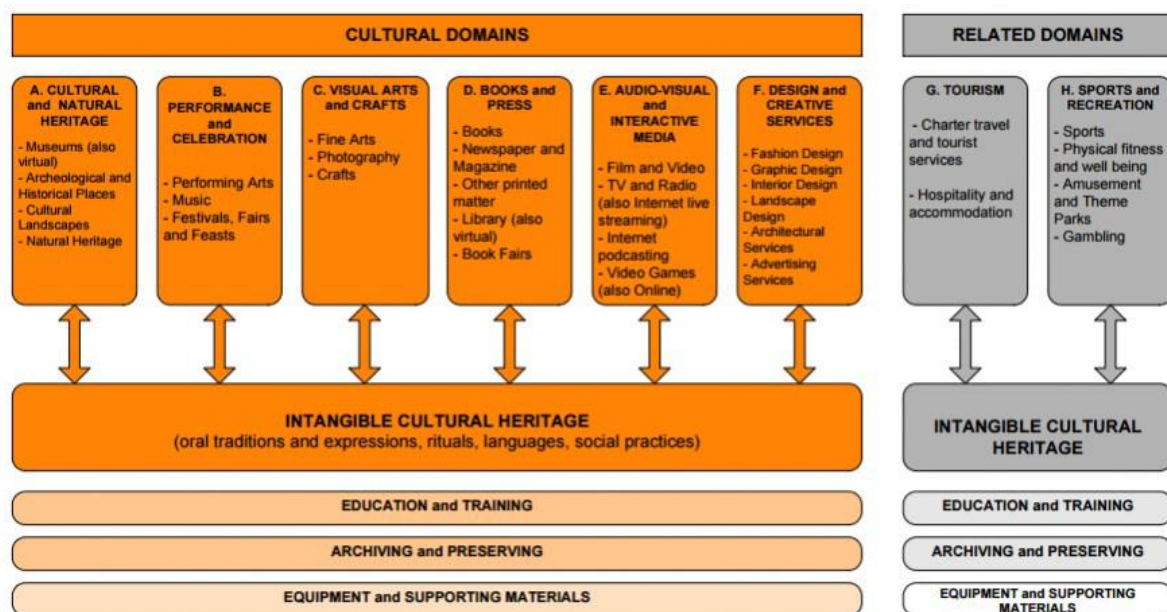
Figure 1. Source: 2009 UNESCO Framework for Cultural Statistics, p. 24

The approach places the emphasis on human creativity that is fundamental for innovation i in culture industry. Those industries which have their origin in individual creativity, skill and talent which have a potential for job and wealth creation through the generation and exploitation of intellectual property. The development of the territory and local culture is usually linked to historical, artistic, and architectural factors, as well as to its natural beauty. In this perspective, the European Commission and the PNRR state that progress in digital and industrial technologies, including space applications, can shape all sectors of the economy and society and the application of these technologies can support a more resilient, green, and digital recovery (Corbisiero and Monaco, 2021).

This article employs a multiple case study approach to develop an open infrastructure for immersive virtual reality systems for research and educational purposes. The multiple case study builds on the

LEEDSpoke 3 entitled "Cultural-Industry Regeneration Immersive Lab" (CIRIL) of NODES' (Nord Ovest Digitale E Sostenibile - which is the Italian for "Digital and Sustainable North-Western Italy") Research and Innovation program. This project is based on the architecture of a collaboration platform able to integrate advanced technologies and human expertise. NODES in general, Spoke 3 and CIRIL in particular, are connected and tackle the Digital, Industry and Aerospace specialization area through its scientific (Smart Specialization) and economic (productive, industrial and economic sectors) vocations. With reference to PNRR - M4C2 "From Research to Business", the Innovation Ecosystem aims to strengthen the conditions for the development of an economy with a high intensity of knowledge, competitiveness, and resilience.

The authors used a numerous case study methodology, which is a qualitative method that provides for a larger research viewpoint than a single case study might bring. Procedures for manual content analysis were used to conduct the study. By recognizing, through a coding procedure, particular qualities of the text and condensing it into many content categories, they let the researcher to simply and methodically evaluate vast quantities of data (Neimeyer et al., 1983; Rosenberg et al., 1990; Stemler, 2000). A deeper comprehension of the phenomena is possible via the examination of several case studies, which highlight the unique features and aspects of each individual instance (Goodrick, 2020). Because of its unique characteristics, this qualitative method is frequently employed in the field of business studies and is essential when attempting to explore the dynamics surrounding the development of a particular experience.

CIRIL have three emblematic places for experimentation and research plus a community of practice involving researchers, startuppers, innovators and other stakeholders: Museo della Seta in Como, Campus in Città Studi located in Biella, and Samnium Heritage Innovation Lab in Benevento. The case studies were also selected in view of the opportunity to make a direct observation of the ongoing phenomena and also to be able to make use of additional multiple sources of primary and secondary data useful for this purpose. Through utilizing a diverse range of data collection and analysis methods, numerous case studies form a research methodology that facilitates the examination of phenomena through context analysis and the gathering of extensive information (Vindrola-Padros, and Johnson, 2020). This methodology effectively provides a deep understanding of the observed phenomenon (Siedlecki, 2020) and aids in bridging the gap between theory and practice, a common challenge highlighted in the literature within the cultural organizations field.

FINDINGS

The Tourism and Culture Industry Spoke encompasses the territories where the participating Universities are based: In Lombardy the Province of Como (University of Insubria). As to Culture

industry, there is a macro-cluster of creativity (art, industrial design, fashion, media industries) worldwide recognised by Como and Biella belonging to UNESCO Creative City Network under the category "Crafts and Folk Arts" and Turin as UNESCO Creative City for Design and the city that saw the birth of Italian cinema. CIRIL aims at enhancing and systemizing recent existing initiatives as the project COMO UNESCO Creative City on sustainable fashion (University of Insubria). It should be noted that Como has a Silk Museum, which, in addition to being an educational museum, is also a laboratory of ideas that interacts with local businesses.

Museo della Seta (Como)

Museo della Seta in Como, with a surface of 1000 square meters, displaying textile-machines from the end of the 19th century to the first half of the 20th century. In the Museo della Seta specific applications about virtual silk tours will be developed as well virtual representations and simulations of the textile-based production. The Smart Land Sustainable Fashion Pilot will be integrated in the open infrastructure CIRIL by the means of 2D and 3D data mapping tools and paradata for 3D models and virtual reconstructions (sources and interpretation processes), using methodologies for the optimisation of 3D models aimed at VR or video production. The final goal in a digital twin facility, onsite in Museo della Seta and available online, for simulating, collaborating and demonstrating textile fashion supply chain activities. The case study analyze the impact of digitalization on the dynamics of innovation of companies in the textile-fashion sector of the NODES area, investigating on the one hand the effects on the strategic choices of fashion companies with regard to the sustainability of both products and production processes, on the other hand the repercussion - both current and potential – on the competitiveness of companies and on the territorial ecosystem in terms of attractiveness and strategic repositioning. In particular, the research aims to investigate the effects of the adoption of digital innovation on the skills necessary to support the development and growth of a new sustainable fashion digital ecosystem and the impact of digitalization on corporate culture in order to verify the potential for generativity to which digital innovation opens up.

Città Studi (Biella)

The Campus located in Biella, in Città Studi where new laboratories are being built specifically for artificial intelligence and photogrammetry applications for research/educational fields and in the neighbouring Cascina Oremo, a "green" farmhouse regeneration project mainly dedicated to recreation activities and citizen involvement. The research aims to is to investigate places of memory and historical-artistic experiences and to propose new innovative methods and technical solutions that may improve new cultural enjoyment habits together with new methods and innovative solutions for interactive storytelling and multimedia narratives. The methodology has as its foundation the

conjunction of the rich tradition present on the territory (and on cultural and environmental heritage), with the new channels of communication and participation opened by the Internet, social media and new digital devices by the means of 3D source-based reconstructions of heritage in specific historical periods, spherical photogrammetry and virtual reality environment (single/multi users) through the use of graphics engines for 3D real time applications (Unity 3D, Unreal, etc).

Samnium Heritage Innovation Lab (Benevento)

The flagship project also encompasses the Sannio, that is the province of Benevento, located in the Apennine hinterland of Campania. Benevento was first a Samnite, then Roman, later Lombard and finally pontifical city and therefore boasts a significant historical-artistic heritage and a notable archaeological heritage, that UNESCO has included in the list of World Heritage Sites. Sannio is not only Benevento but also a series of small towns surrounded by nature, hills, and mountains known for their ancient craftsmanship and historical architecture. The University of Sannio, a Benevento city university, is involved in the project as an emblematic place where the activities of the flagship project will be developed. Thanks to the project SHERIL (Samnium Heritage Innovation Lab) where it aims to re-functionalise an area of about 2,000 square metres, the University of Sannio is aimed at the creation of a centre oriented towards research activities, technology transfer, higher education, business creation and dissemination in the sector of protection, valorisation and use of tangible and intangible cultural heritage. Located in the Triggio district of Benevento, the Center endeavors to establish a strong interplay between technical-scientific disciplines and humanities. Its primary focus is on the development of knowledge, skills, models, and operational practices that explore the potential of technology, artificial intelligence, and digital services in the preservation and enhancement of cultural heritage. The SHERIL Laboratory embodies the spirit of the new European Bauhaus, reinterpreting the technological, green and digital transformation in function of the valorisation of our heritage of art and culture, a driving force for the emergence of new services and the establishment of a new generation cultural industry.

The analysis revealed that cultural factors play a significant role in tourists' involvement in the adoption of new technologies, also influencing users' behaviour and attitudes (Hofstede, 1980; Lonner et al., 1980; Srite and Karahanna, 2006; Oshlyansky et al., 2007; Gogus et al., 2012; Besoain et al., 2022). Baptista and Oliveira (2015) found that collectivism and a low degree of uncertainty influence technology use behaviour. Furthermore, several studies in the literature indicate that acceptance plays a key role in engagement and technology use, suggesting the importance of understanding cultural factors to optimise tourists' experience and improve engagement with immersive technologies in the tourism industry (Taheri et al., 2014; Rasoolimanesh et al., 2019). Over the ages, these geographical areas have gained widespread recognition for the natural beauty of their surroundings as well as the

inventiveness of its people, who have had a significant impact on the craftsmanship, socioeconomic growth, and scenery.

PRIMARY CONCLUSIONS

The research examined the relationship between tourist engagement and the use of new immersive technologies to reshape post-Covid business models in the cultural sector. The empirical observation and the study of sources allowed us to understand some important implications. Thus, the cases are examined in the light of common and differential elements: one was in the phase before the management experiment and was not publicly accessible.

It can therefore be inferred, in the light of the literature study and case study observation, that the integration of human skills and immersive technologies is developed by:

- new divisive technologies from mobile devices to new immersive environments VR, AR, XR;
- 3D source-based reconstructions of heritage in specific historical periods;
- spherical photogrammetry and VR environments through the use of graphics engines for real time 3D application.

The research identifies the drivers and factors that contribute to the sustainable valorization of cultural heritage:

- geographical areas;
- history of each site;
- number of visitors;
- the first impact approach to the site;
- the nature and competences of the entities;
- the development of the site;
- environmental problems.

The three sites compared demonstrate how different phenomena lead to similar solutions that cannot be repeated but must be adapted according to the exogenous factors of the site. On these depend not only the adoption of a model and thus the choice of governance (Esposito et al., 2021), institutional design, leadership and managerial process, but also the outcomes and performance results in the long run. By addressing these intertwined issues, the article aims to provide valuable insights to cultural managers, scholars, policymakers, and practitioners interested in promoting sustainable tourism practices and fostering the revitalization of neglected inland regions, thus contributing to the comprehensive development of the cultural heritage and tourism sectors. Furthermore, it identifies the drivers and factors that contribute to the sustainable valorisation of cultural heritage. Additionally, the article presents a practical list of currently available technologies that can assist tourism professionals in

mitigating the negative effects of overtourism and in regenerating inland areas. Recognising the importance of cultural factors in technology adoption and user behavior is acknowledged in this study, emphasizing the requirement for a more thorough understanding of cultural influences to enhance the visitor experience and increase engagement with immersive technologies in the tourism sector.

IMPLICATIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTIONS

This study has two significant implications, both for research and for private and public tourism management. First, it provides insights into the factors that contribute to tourist engagement and the future use of technology in an archaeological cultural site. The results of this study also have implications for management and tourism marketing professionals who seek to enhance the visitor experience through immersive technology offerings. In the debate on stakeholder engagement, according to Esposito et al. (2024), further research will investigate on citizens engagement in renewable energy communities. To gain a deeper insight into the complex interplay between culture and the utilization of emerging immersive technologies, further research is necessary to examine unique circumstances. This investigation contributes to the ever-growing body of knowledge regarding consumer involvement during the age of Industry 5.0 and the recovery period post-Covid by bridging the divide between culture and the adoption of technology. Considering the significant impact that culture can exert on user actions and acceptance of novel technologies across a wider spectrum of tourism scenarios, potential research endeavors could factor in cultural variables as precursors of TE and as mediators in the connection between TE and forthcoming technology implementation. Scholars have the option to explore how diverse immersive technologies, such as augmented or virtual reality, influence visitor immersion and attachment. A further research trajectory is investigating how visitor attendance in lesser-known cultural areas can be increased through the adoption of ICT that allow mitigating the overtourism. Future studies should focus and investigate the actual functioning of such models through the measurement of the public value created (see Agostino and Costantini, 2022; Romanelli, 2018). A way to measure public value is through Key Performance Indicators: NODES' Research and Innovation program adopts several KPIs because public value creation effects on citizens, companies and municipalities (Esposito and Tufo, 2023c). Ultimately, future studies could examine how immersive technologies can be used to enhance the visitor experience in different types of tourism, such as ecotourism or adventure or leisure tourism, and in different contexts (hospitality, transport, services), and longitudinal studies should be undertaken.

ACKNOWLEDGMENTS

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author(s).

DECLARATION OF INTEREST STATEMENT

The author declare that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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ROBOTIC PROCESS AUTOMATION AS AN INTEGRAL PART OF DIGITAL TRANSFORMATION

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ABSTRACT

Digital transformation is a critical priority for leaders in almost every industry, as it can support organizations in increasing their performance and making them more resilient. Within this context, robotic process automation (RPA) is a promising technology that can help companies automate time-consuming and repetitive tasks, enabling them to improve efficiency and productivity and save valuable resources. Despite the growing interest in RPA, there is still limited empirical evidence on how it can effectively support companies, highlighting business benefits and challenges. This research examines the impact of RPA on supporting companies' digital transformation, analyzing two real-life cases from the banking and private sector. The results provide valuable insights for research in the field, entrepreneurs, and managers. In addition, it highlights future research avenues and further strategic roles of RPA, mainly when competing with Artificial Intelligence (AI).

Keywords: Digital Transformation, Robotic Process Automation, Benefits, Challenges, Artificial Intelligence

INTRODUCTION

In a turbulent era marked by rapid technological advancement and increasing pressures, organizations across various sectors are turning to digital transformation to enhance efficiency and achieve a competitive advantage (Warner and Wäger, 2019). Among the technologies driving this transformation, Robotic Process Automation (RPA) has emerged as a pivotal enabler, offering the potential to automate routine tasks, reduce operational costs, and improve accuracy (Hofmann *et al.*, 2020). The potential of RPA to drive digital transformation is a key area of study (Siderska, 2020). Case studies, such as the one at Deutsche Telekom, have demonstrated the successful implementation of RPA in driving digital transformation, with a significant increase in the number of automatic transactions (Schmitz, 2019). Implementing RPA is a significant step in digital transformation, as it can automate processes, free up time for workers, and improve task execution speed. (Villar and Khan, 2021).

Despite its growing adoption, academic literature such as those by Syed et al. (2020) and Flechsig et al. (2022) highlight significant gaps in the empirical understanding of RPA's impact. Additionally, Sobczak (2021) identifies RPA as a pivotal element of future DX endeavours yet notes a lack of comprehensive analysis correlating RPA deployment with broader digital transformation objectives. Another critical area underexplored in the literature is the impact of RPA on business models and organizational structures. Sobczak (2021) suggests that while RPA is instrumental in modifying operational processes, its effect on organizational level and business strategies remains insufficiently examined. Our study is also motivated by a prominent literature review on the field of digital transformation by Kraus *et al.*, (2022), stating *"Given the current state of research, it appears relevant to initiate more research aimed at studying the impact of certain technologies for realizing and supporting different DT-related efforts, e.g. improving processes, operations, or business models"*.

To this end, this research employs a multi-case study approach analyzing two real-life RPA implementations from the Banking and Public sectors to study the impact of RPA on supporting companies' digital transformation efforts. This study contributes to understanding RPA's role in digital transformation, providing empirical evidence and highlighting its business value. It also provides actionable insights for leaders considering RPA investments, offering a detailed account of the potential benefits and challenges as well as a practical guide to implement them in practice, maximizing the return on investments. Additionally, the study proposes further strategic roles of RPA technology and further research opportunities for researchers. Overall, the research questions addressed in this study are presented below:

Q1: How and to what extent are RPA and Digital Transformation correlated?

Q2: What are the empirical results of real-life RPA implementations?

THEORETICAL BACKGROUND

RPA

Nowadays, organizations integrate digital technologies into their everyday tasks to alleviate the burden of repetitive work, allowing their workforce to focus on higher-value activities. RPA is a prominent technology that can support those efforts. Various sectors, including banking, finance, human resources, and healthcare, are increasingly adopting RPA to digitalize their operations and pursue more cost-effective methods to enhance productivity (Timbadia *et al.*, 2020; Plattfaut et al., 2022).

RPA is a user-friendly technology that uses software robots to automate business processes, emulating human interactions with a system's graphical user interface (Timbadia, 2020). Gartner (2023) defines RPA as *"robotic process automation (RPA) is the software to automate tasks within business and IT processes via software scripts that emulate human interaction with the application user interface. RPA enables a manual task to*

be recorded or programmed into a software script, which users can develop by programming, or by using the RPA platform's low-code and no-code graphical user interfaces. This script can then be deployed and executed into different runtimes. The runtime executable of the deployed script is referred to as a bot, or robot".

By automating various functions, RPA is proving valuable across a broad spectrum of business processes. For instance, it is pivotal in automating routine tasks such as invoice and order processing, data entry and migration, email management, and generating reports. It is also beneficial in human resources processes like payroll management and the recruitment and onboarding of employees. These examples illustrate the diverse applications of RPA in business. Nevertheless, it is essential for management to identify the most appropriate processes for automation, typically those that are repetitive, time-consuming, prone to human error, and consist of rule-based activities. Furthermore, RPA is most effective when applied to well-established processes that IT staff are prepared to support, showcasing readiness for this transformative technology (Bu et al., 2022).

Digital Transformation

Digital transformation is a topic of great interest both from the academic community and practitioners (Vial, 2019), and it is a strategic imperative for business (Verhoef *et al.*, 2021). Despite the enthusiasm surrounding digital transformation, many organizations fail to apply its principles, ideas, and methods effectively, often leading to suboptimal results. This creates a significant gap between the theoretical potential of DX and its practical outcomes, as noted by Gökalp and Martinez (2022) and Doukidis *et al.* (2021). Additionally, conceptual ambiguity surrounds the term. To this end, it is essential to define it.

From a theoretical perspective, according to Gong and Ribiere (2021), digital transformation is defined as "A fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources *and capabilities, aiming to radically improve an entity* and redefine its value proposition for its stakeholders."* From a business perspective and grounded on the practitioner framework by Doukidis et al. (2020) study, digital transformation encompasses four critical pillars: Customer Experience Transformation, Business Processes Transformation, Business Model Transformation, and Organizational Transformation. These pillars guide organizations through changes, enhancing customer interactions via personalized data-driven solutions, digitalizing and optimizing business processes for better decision-making, evolving business models to generate new revenue streams through innovative products and global expansion, and making structural changes at strategic and operational levels to support a digital-first approach. Figure A provides a holistic overview of the framework and the integration of advanced digital technologies across all facets of an organization.

CE: Customer Experience Transformation	BP: Business Processes Transformation	BM: Business Model Transformation	OT: Organizarional Transformation
1) Comprehension of Customer's Needs and Behavior 1.1) CRM and Loyalty Scheme 1.2) Business Analytics 1.3) Personalization	1) Business Processes Digitalization and Redesign 1.1) Automation and Redesign 1.2) Agile Development, Collaboration, and Integration 1.3) New supporting Services	1) Digital Organizational Modifications 1.1) Supplementary Digital Channel 1.2) Digital Modifications 1.3) Digital Innovations	1) Integrated Business Strategy 1.1) Compliance 1.2) High Investments 1.3) Integrated Strategy
2) Upgrading Customer's Experience 2.1) Customer Journey 2.2) Multichannel 2.3) Omnichannel	2) Support and Improvement of Employees' Daily Tasks 2.1) Info Reporting and Support 2.2) Personalized Services 2.3) DSS and Artificial Intelligence	2) Establish New Digital Activity/ Service and Business Model 2.1) Customer-Centric Targeting 2.2) New Digital Services 2.3) New Business Models	2) New Organizational Structures/Functions/Alliances 2.1) New Structures 2.2) Supervision Process 2.3) Alliances
3) Automation and Digitisation of Sales Processes 3.1) Information Reporting and Support 3.2) Upgrade Salesperson's Role 3.3) Customer Self-Service	3) Business Performance Management 3.1) KPIs and Balanced Scoreboard 3.2) Real-Time Reporting and Analytics; Continuous Integration 3.3) Precision Management	3) Digital International Expansion 3.1) Consolidation of Subsidiaries 3.2) International Service/Support 3.3) Think Global and Act Local	3) Human Resources Development, Talent Acquisition, and Exploitation 1.1) Training and Talent Acquisition 1.2) New methods 1.3) Innovation Structures

Figure 1. *The four pillars of Digital Transformation, Adopted by (Doukidis et al., 2020)*

RPA and Digital Transformation

To provide a solid theoretical foundation relevant to RPA within the digital transformation (DX) scope, we initially map our literature findings onto the four pillars, as depicted in Table *1*.

Table 1. *Mapping the literature finding on the pillars of DX*

Literature Findings	Source	Pillar
To successfully implement RPA, the processes must be redesigned and automated.	(Teunissen, 2019)	BP
88% of companies implementing RPA sought ways to relieve their employees from repetitive and monotonous tasks.	(Sobczak, 2020)	
Artificial intelligence is recommended for successful RPA implementation and maximizing outcomes.	Syed et al., 2020)	
For successful RPA implementation, all stakeholders must collaborate.	(Plattfaut et al., 2022)	
For successful RPA implementation, KPIs should be used to manage its performance better. A good practice for successful RPA implementation is using a dashboard to monitor progress,	(Teunissen, 2019)	
Companies use RPA to collect information, provide immediate customer service, and improve the sales process.	(Sobczak, 2020)	CE
RPA aids in data collection, and the combination with artificial intelligence leads to extracting significant information. If information is processed, it can offer personalized customer experiences, such as marketing campaigns. The personalized experience can enhance the entire customer journey.	(Romão et al., 2019; Villar and Khan, 2021)	
The implementation of RPA inspired staff to work on digital innovations. 65% of the surveyed businesses claimed they adopted RPA to innovate their business model	(Flechsig et al., 2022; Sobczak, 2020)	BM
A pharmacovigilance company combined AI and RPA to replace manual searches, offering a new system to simplify the customer experience. Company also combined AI and RPA to offer a new digital service that replaces non-automated searches.	(Bu et al., 2022)	
For successful RPA implementation, it is recommended to create a new department that consolidates resources and guides knowledge.	(Plattfaut et al., 2022)	
RPA standardizes tasks, which enhances transparency and thus increases compliance. RPA standardizes tasks, which enhances transparency and thus	(Syed et al., 2020)	OT

increases compliance.		
Companies must ensure compliance with information technology, organizational, and security policies	(Plattfaut et al., 2022)	
An organization must cultivate a culture of innovation.	(Villar and Khan, 2021)	
Employees must be trained in basic technical skills to be prepared to handle the new system.	(Bu et al., 2022; Teunissen, 2019)	

METHODOLOGICAL APPROACH

Research Design and Case Selection

This study employs a qualitative multi-case study approach to explore the role of Robotic Process Automation (RPA) in supporting digital transformation in the banking and public sectors. The choice of a multi-case study is justified by its ability to provide a rich, contextualized understanding of the phenomenon within its real-life setting (Eisenhardt, 1989; Cunningham, 1997). Cases were selected based on a purposive sampling strategy to include a variety of implementation scales and RPA technologies used. Also, cases are selected due to the availability of data.

Data collection and analysis

Data were collected through two primary methods: semi-structured interviews and document analysis. Structured interviews were conducted with the project manager on the provider's side (big consulting company) and key stakeholders on the client's side for each case study. The consulting firm granted the research team access to the pertinent project documentation, which facilitated an in-depth understanding of the RPA deployment specifics and the contextual factors influencing its success. All interviews conducted as part of the study were audio-recorded with the consent of the participants. These recordings were then transcribed verbatim to ensure that all details, including nuances of language and instances of emphasis, were accurately captured. The transcription process adhered to strict confidentiality and data integrity protocols to protect participant privacy and data accuracy. Once transcription was complete, the data was coded based on the research questions and the theoretical framework established by the literature review. In our study, digital transformation was conceptualized through its four pillars, employing the framework suggested by Doukidis et al. (2020). This approach mirrors the method Farmakis et al. (2024) used in their study of digital twin technology, as well as building upon relevant research (Karatzas *et al.*, 2023; Farmakis *et al.*, 2024A). The core objective was to map existing findings against the digital transformation framework, identifying established insights and highlighting areas ripe for further investigation.

Finally, the study follows a triangulation approach involving three independent researchers to mitigate potential biases and contribute to a more balanced interpretation of the data. Each researcher

independently analyzed the data, which included coding interview transcripts, reviewing documents, and synthesizing observations.

RPA TRANSFORMATION PROJECT CASES

Case A

Case A belongs to the banking sector and is a big private Greek bank listed on the Athens Stock Exchange. Case A offers a full range of banking and investment products and services, such as loans, credit cards, savings accounts, and investment products for individuals and businesses. Aiming to increase productivity and effectiveness, the Bank initiated an accounting process automation project that lasted about 6 to 8 months. Specifically, the company's provider aimed to robotically enter documents and invoices from the accounting department into the Bank's ERP system, utilizing cutting-edge technologies like IBM's RPA,

Case B

Case B is one of the largest chambers of commerce in Greece. The chamber represents all businesses in Greece, collaborates with other chambers of commerce and associations, and defends members' rights through committees on issues such as competition, development, and city interests. This case consists of smaller automation projects implemented over time. The company's provider used cutting-edge technologies such as IBM's and Automation Anywhere RPA, developing six processes. Specifically, the processes selected for automation were creating announcements, creating an application folder, monthly rent payments, and the entry of accounting receipts and payments.

RESULTS

Digital Transformation mapping of RPA projects

Table 2 maps the outcomes of Case A and Case B to the pillars of digital transformation, illustrating how specific RPA implementations align with and support broader digital transformation. This mapping provides a structured overview of the strategic contributions and impacts of RPA across different organizational areas, highlighting its role in advancing business processes, enhancing customer experience, and reshaping business models.

Table 2. *Digital Transformation mapping of RPA projects*

BP Pillar		1. Business Processes Digitalization and Redesign	2. Support and Improvement of Employees' Daily Tasks	3. Business Performance Management
BP	Case A	1.1) Redesign and automation of accounting processes (1.2) Time savings and efficiency	(2.1) RPA-generated Reports and Metrics to evaluate the process. (2.1) RPA was implemented to relieve employees from repetitive, monotonous tasks. (2.3) Reports generated by RPA supported the decision making	(3.1) RPA generated KPIs for error rate and payment date. (3.2) KPIs exported in real time
	Case B	1.1) The six processes that needed to be redesigned to be automated were digitalized in whole or part. 1.2) RPA implementation resulted in collaboration enhancement while minimizing conflicts.	2.1) RPA is the reason for structuring data, and better reporting is generated to support daily tasks. (2.1) RPA implemented to relieve employees from repetitive	3.1) RPA generates KPIs, like successful and failed clients' application 3.2) The bot enters data and produces real-time reporting and day analytics
CE Pillar		1. Comprehension of Customer's Needs and Behavior	2. Upgrading Customer's Experience	3. Automation and Digitization of Sales Processes
CE	Case B	(1) RPA cannot analyze clients' needs without accompanying tools. (1) RPA demands accompanying tools like Microsoft's Process Mining to analyze clients' needs	(2) The bot can detect corrupted or missing files, prevent errors, eliminate time and enhance the customer journey.	
BM Pillar		1. Digital Organizational Modifications	2. Establish New Digital Activity/ Service and Business Model	3. New Organisational Structures/ Functions/ Alliances
BM	Case A	(1) RPA has liberated resources and enabled employees to generate innovative ideas for organizational modifications.	(2) Belonging to the banking industry allows little room for business model changes due to strict regulations.	
	Case B		(2) Being in the public sector, it has limited opportunities to alter its business model due to strict regulatory compliance.	(3) Domestic Digital Expansion, Client Acquisition. RPA automated the process and made Firm B competitive.
OT Pillar		1. Integrated Business Strategy	2. New Organisational Structures/ Functions/ Alliances	3. Human Resources Development, Talent Acquisition, and Exploitation
OT	Case A	(1.2) RPA requires high investments. (1.3) For successful RPA implementation, an integrated strategy from top levels is needed.	2.1) For successful RPA, structural changes – employees becoming managers- are needed. 2.2) The employees became robots' supervisors	3..1) Employees were not trained or new acquisitions made. The project manager stated that RPA does not demand advanced skills. 3.1) For successful RPA adoption, employees need an appropriate culture to overcome resistance to change.

Case B		1.3) Digital strategy enabled RPA's successful implementation.	2.1) The new RPA technology resulted in employee relocations and organizational chart modifications.	3.1) To exploit RPA capabilities, personnel were trained in basic Microsoft skills. 3.1) For successful RPA adoption, employees need training in basic skills and appropriate culture to overcome resistance to change.

KPIs achieved

Table *3* outlines the Key Performance Indicators (KPIs) achieved through the RPA projects across the studied cases. These KPIs provide quantifiable metrics that reflect the impact of RPA. In primary, the cost reduction, time reduction, full-time employees, error elimination, and open mindset/innovation orientation were presented.

Table 3. *KPIs achieved*

KPIs	Case A	Case B	Description
Cost Reduction	68% Decrease	65% Decrease (Similar to C	Due to the minimization of full-time employees (FTEs) and other cost savings (performance bonuses no longer existed since robots replaced humans and other operational expenses) .
Time Reduction	From 4h to 2-3 minutes	-	Before the automation, the invoices' entry to the ERP lasted up to four hours, and after the implementation, the maximum duration was 2-3 minutes.
Full-time employees	3 Employees Decrease	4 Employees Decrease	
Errors Elimination	88% Decrease,	90% Decrease	Case A operated all its processes manually, resulting in human error as the workload increased. After the RPA project, the company achieved significant error elimination.
Open mindset & Innovation Orientation	85% Increase	75% Increase	This element was quantitatively measured through questionnaires. The company provider conducted this internal research during the first year of the implementation with the employees of Firm A

Motivation, Challenges and Enablers associated with RPA transformation projects

Table *4* provides an overview of the challenges, motivations, and enablers identified in implementing RPA across the case studies. Table *4* categorizes and details the main obstacles faced during RPA deployment, the underlying reasons driving organizations to adopt RPA, and the factors that facilitate its successful integration.

Table 4. *Motivation, Challenges and Enablers*

	Codes	Description	Case
Challenges	Communication Gaps among employees	"Different language" based on each side's expertise resulted in additional meetings.	Case A
	Requirements Change	The communication gaps caused emergent requirements.	Case A
	Resistance in Change	Technological illiteracy and the threat of being replaced resulted in resistance to change.	Case A, B
	Obsolete existing systems	Obsolete existing systems constantly demonstrated readability issues.	Case B
Motivations	Improves employees' everyday tasks	Relieving employees from heavy, dull workloads.	Case A
	Cost savings	Avoid acquiring employees by automating the process.	Case A
	Acquire new markets	Automating its processes would save time and make B competitive.	Case B
	Increase profits	Acquiring new markets would increase profits.	Case B
Enablers	Validation Steps	The architectural implementation process ensured the validity of data through checkpoints.	Case A
	Redesign Processes	Redesigned processes to optimize the functionality.	Case B
	Warning Functionality	Embedded early warning functionality to announce human intervention needs.	Case B
	Training of employees	Training in basic skills for employees	Case B
	Top management sponsorship and support	Top management support is important to create the appropriate digital culture among employees	Case B

Further strategic evolution of RPA projects

After conducting interviews with the project manager and stakeholders from cases A and B, valuable information pertinent to the research community was obtained. Table *5* presents the findings from the RPA implementations in private and public banking, highlighting inferred future potentials and applications from the analysis.

Table 5. *Further strategic evolution of RPA projects*

BP Pillar		1. Business Processes Digitalization and Redesign	2. Support and Improvement of Employees' Daily Tasks	3. Business Performance Management
BP	Case A			.3) Provide the robot with data and precise regulations to enable decision-making.
	Case B		2.3) Train the robots by exposing them to multiple scenarios to help in decision-making.	
CE Pillar		1. Comprehension of Customer's Needs and Behavior	2. Upgrading Customer's Experience	3. Automation and Digitization of Sales Processes

CE		1.3) Utilise AI to incorporate customer behaviour, and create a personalized customer profile	2.1) Exploiting personalized profile from (1.3) the client is custom served, and his/her experience is being upgraded.	3.1) AI detects patterns and provides information to RPA 3.2) RPA undertakes the salesperson role of promoting products automatically
	Case B	1.2) Assisting tools, like Microsoft's Process Mining, can serve as analysts that suggest processes for automation. 1.3) Combining AI and RPA to identify customers' patterns and comprehend their needs.	2.1) Incorporating the needs found in (1.3) can optimize customer experience. 2.1) Enabling interconnectivity between systems with RPA eliminates bureaucracy and optimizes the customer journey.	
BM Pillar		1. Digital Organizational Modifications	2. Establish New Digital Activity/ Service and Business Model	3. New Organisational Structures/ Functions/ Alliances
BM	Case A	1.3) Automatically bid in e-auctions with RPA	2) Developing a totally new product, solely based on the RPA technology may not be feasible.	3.3) Subsidiaries could mimic parent company, globalizing its digital strategy
	Case B	1.2) Digitally modifying public service systems with the RPA incorporation to enable interconnectivity. 1.3) Automatically modifying business data with RPA for all institutes would innovate the public sector.		

DISCUSSION, CONCLUSION AND FUTURE RESEARCH

Theoretical Contribution

This research enhances the theoretical understanding of RPA's role in businesses' digital transformation journey, particularly within the banking and public sectors (Q1). By employing a multi-case study approach, the study addresses gaps identified in prior literature, such as those by Syed et al. (2020), Flechsig et al. (2022), and Sobczak (2021), which call for more empirical insights on RPA's impact on organizational processes, structures, and overall organization (Q2). The study presents the KPIs of both cases, as well as maps the literature and outcome of RPA projects on business process, customer experience, business model and the organizational transformation of companies, thereby supporting Kraus et al.'s (2022) recommendation for targeted research on technology's role in digital transformation efforts (Table 2, Table 3; Table 5). This study builds upon previous relevant studies that examine the role of specific technologies in supporting digital transformation in various contexts (Karatzas et al., 2023; Farmakis et al., 2023; Farmakis et al., 2024A). The study also elucidates the companies' RPA implementation challenges, enablers, and motivations, as they are crucial in the digital transformation (Table 4) (Warner and Wäger, 2019). In addition to the technological aspects of digital

transformation, examining organizational factors is crucial (Ghonim et al., 2024). Additionally, identifying the success factors of specific technologies can significantly contribute to the research (Carpentiere et al., 2024).

Business Implications

By understanding what makes RPA technology effective in certain contexts, the study also offers practical insights for digital and business leaders to optimize their investment in RPA technologies. As is evident from the cases, RPA is associated with various benefits across the four pillars of digital transformation, grounded by the practitioner's oriented digital transformation framework (Doukidis et al., 2020). In particular, by automating routine tasks, RPA has saved time and costs and increased effectiveness, allowing employees to transition into supervisory roles over processes. RPA also supports the detection of errors, such as identifying corrupted or missing files, thereby preventing mistakes and improving customer experiences. Additionally, RPA helps generate valuable KPIs, such as tracking customer applications' success or failure rates and aids in creating detailed reports that bolster decision-making. Finally, RPA facilitates better team collaboration, reduces conflicts, and drives innovation orientation among employees. An interesting piece of evidence is that RPA has liberated resources and enabled employees to generate innovative ideas for organizational modifications, showcasing the effect of digital technologies on enabling innovation in business models (Farmakis *et al.,* 2024B).

Despite the benefits, implementing RPA has encountered several challenges across the different cases, highlighting key areas that require strategic attention. In Case A, communication gaps led to unmet emergent requirements, complicating the deployment process and adaptation to new workflows. Additionally, Case A and B resisted change, mainly due to technological illiteracy and employee fears about being replaced by automated systems. This resistance underscores the need for better change management strategies and employee engagement initiatives. In Case B, the challenge was compounded by obsolete existing systems that exhibited frequent readability issues, hindering the smooth integration of new technologies. These challenges collectively stress the importance of addressing human and technical factors in RPA projects to enhance success rates and operational efficiency. To overcome these challenges, training and top management support to craft an appropriate digital culture can be essential. The essential role of leadership support and digital culture is highlighted in relevant studies in the context of digital transformation (Martínez-Caro, Cegarra-Navarro and Alfonso-Ruiz, 2020; Chatterjee et al., 2022). Finally, digital transformation analysis of RPA technology can enable practitioners to achieve both economic and capability-driven outcomes, supporting value creation paths in the organization, enhancing customer experience, and enabling business model innovation.

Limitations

This study has several limitations that should be acknowledged. While the empirical research offers valuable business implications, it relies on limited sources. The case studies covering both the public and private sectors are confined to just two entities based in Greece. Additionally, the number of interviewees remains restricted despite conducting interviews with both the project manager from the provider company and a stakeholder from each firm to gain a broader perspective.

Future Research Opportunities

Further strategic roles in RPA may be the combination of RPA with AI to analyze customer behaviour patterns and automate service suggestions, aiming to upgrade customer experience and support personalizing interactions. Furthermore, RPA can automate sales processes, acting as a virtual salesperson and promoting products directly to the customers, which exemplifies the automation and digitization of sales processes. Future research should focus on analyzing the combination of RPA and AI and provide more real-life cases of RPA showcasing their digital transformation potential. Furthermore, future research can be concentrated on the impact of other digital technologies in various industries under the lens of digital transformation following a similar approach. Finally, examining how RPA and AI can enable new business models and enhance business model innovation of companies could be an interesting research opportunity.

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ECOSYSTEMS IN LIFE SCIENCES: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The importance of ecosystems has been known in the literature for many years. There are numerous definitions of ecosystems, especially if we include within them all the possible connections from the varied forms of aggregation and collaboration between companies, research centres, territories and much more. In recent years, also due to the recent pandemic, there has also been a growing interest in life sciences and the entire supply chain linked to it. This obviously includes not only research and production, but also all the players who have proven to be fundamental for the entire system. Following this growing interest and with the aim of identifying the areas and themes of greatest interest that have emerged in relation to what has been described above, we have decided to analyse, through a bibliometric analysis, academic publications in the business and management area.

Keywords: Ecosystems, Life Science, Innovation, Bibliometric Analysis, Review.

INTRODUCTION

The study of ecosystems, districts, clusters and all agglomerations, formal and informal, with repercussions on different industrial sectors, has attracted the attention of scholars for many decades (Moore, 1993). This is certainly also due to the birth of places, physical and otherwise, and the development of territorial realities in which the factor of "decentralized social ties" and "informal links" had become decisive and a source of advantage for all the actors involved (Saxenian, 1994). The phenomenon of ecosystems, however, is not only linked to physical aspects and geographical proximity, but there are also digital ecosystems (Senyo et al., 2019) or those linked to mutually dependent relationships (Iansiti and Levien, 2004; Oh et al., 2016), or even those that concern entrepreneurial ecosystems (Spigel, 2017). Analysing the numerous scientific articles concerning ecosystems, in its broadest sense, it is possible to notice how reference is often made to the importance of the "network", especially when analysing business aspects (Jocevski et al., 2020).

Although there are many sectors affected by the presence of ecosystems, our particular interest concerns the life sciences. Within the focus on ecosystems and life sciences, there are various aspects analysed by scholars. In this regard, trying to identify the most interesting areas, there are some that analyse the involvement of technology, therefore proposing a focus on innovation (Casper, 2007),

while others focus on business accelerators (Kulkov et al., 2021), but all the works just mentioned have the life sciences as their reference sector.

According to some scholars, the role of institutions is also important (e.g. Carayannis and Campbell, 2009) or in any case of research bodies or universities that can stimulate technological transfer and therefore the birth of ecosystems (Good et al., 2019) or networks in which managers, scientists and practitioners are involved (Casper and Matraves, 2003).

Given the importance that both ecosystems assume in business and the role they play in the life sciences sector, we believe that it is important to analyse the studies published in the area of business, management, and marketing in this regard. The objective of this research is therefore to analyse the issues on which they focused and the development that has taken place over time, therefore before, at the same time and after the COVID 19 pandemic, of the works published in this regard.

METHODOLOGY

Considering the objective of the research, like many similar works, we opted for a bibliometric analysis (e.g. Casprini et al., 2020). We performed a bibliographic coupling analysis using the VOSviewer 1.6.19 software (Van Eck and Waltman, 2010). Data were acquired via SCOPUS, as it was deemed the appropriate database for this research. The keywords, on the other hand, were taken by obtaining all the definitions of Ecosystems and Life Science from the literature reported above, trying to have as broad an approach as possible, thus inserting all the words that could be reconsidered within this meaning.

TITLE-ABS-KEY ((ecosystem* OR cluster* OR network* OR (informal AND link*) OR ((informal AND social AND (tye OR ties)) OR (informal AND (tye OR ties))) OR (informal AND link*) OR district* OR cluster* OR communit* OR incubator* OR (population AND ecology) OR (business AND relationship*) OR accelerator OR technopole OR technopark OR (scien* AND park) OR (research AND park) OR catapult OR (innovation AND lab*) OR (living AND lab*) OR (spatial AND agglomeration) OR proximity OR (regional AND innovation AND system*) OR (national AND innovation AND system*) OR (area* AND of AND innovation) OR (business AND innovation AND (center OR centres))) AND (((life AND science*) OR biotec* OR pharma* OR *pharma OR chemi* OR biopharma* OR med* OR telemedic* OR *medicine OR (medic* AND devic*) OR (medic* AND tech*) OR biomed* OR elettromed* OR health* OR *health OR (precision AND medicine*) OR cosmeceutic* OR cosmetic* OR nutraceutic* OR nutrac* OR (laborator* AND (analy* OR clinic*)) OR diagnostic* OR bioinformatic* OR bioelectronic* OR genomic* OR biotechnolog* OR biopharmaceutical* OR diagnostic* OR (medical AND devic*) OR (wireless AND health AND care)

OR optic* OR drug* OR wellbeing))) AND PUBYEAR > 2018 AND PUBYEAR < 2024 AND (LIMIT-TO (SRCTYPE , "j")) AND (LIMIT-TO (SUBJAREA , "BUSI")) AND (LIMIT-TO (LANGUAGE , "English"))

The timespan considered covers the last 5 years, since it has been considered the most relevant period during which we had the possibility to include recent publications about ecosystems in Life Science both before, during and after the COVID-19 pandemic. The number of documents obtained was 21,688.

RESULTS

Interesting results emerged from the analysis carried out. We start from the country the authors belong to and from the relationships that emerge, proposing in figure 1 the density relating to co-authorships and the related countries. The figure shows how United States, India, China, Italy and other European countries (France, Germany, and Spain) represent the major nodes of these relationships. However, we note how the phenomenon has extended to all continents and to most countries, signifying the diffusion and importance of ecosystems and life sciences on a global level.
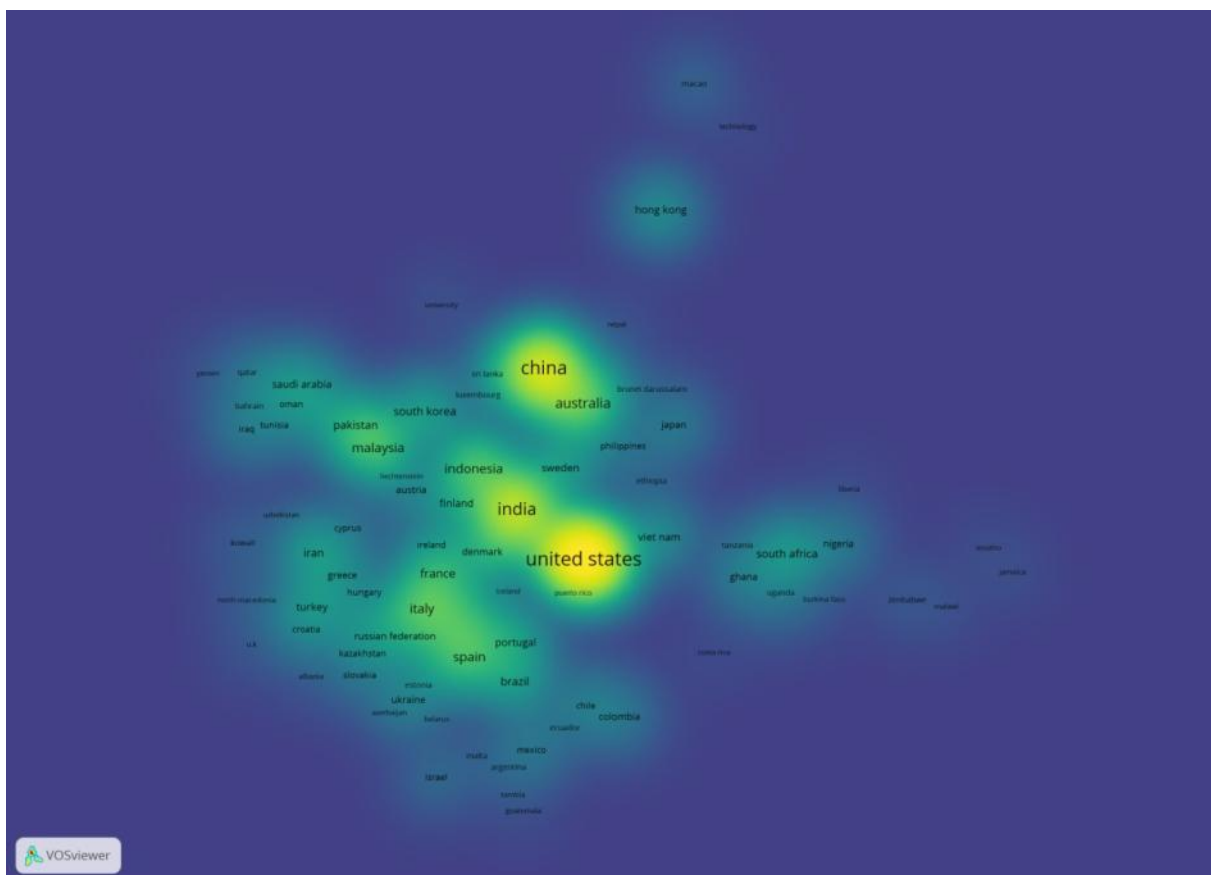
Figure 1*: Authors' co-authorship country of provenance - density (Source: Authors' elaboration).*

We then analysed the recurring keywords. It is interesting to notice that, amongst the most cited keywords, there are: managerial implications, competitive pressure, policy development, home health care, digital innovations, innovation management, entrepreneurial action, social network, sustainable development, humans, as well as many technologies and, obviously, Covid-19.

Finally, we performed the bibliographic coupling analysis. This helped us in clustering documents in thematic groups that emphasise. 11 clusters were identified and reported in Table 1. Bibliographic coupling is reported in Figure 3.

Figure 2: *Keywords co-occurrence (Source: Authors' elaboration).*
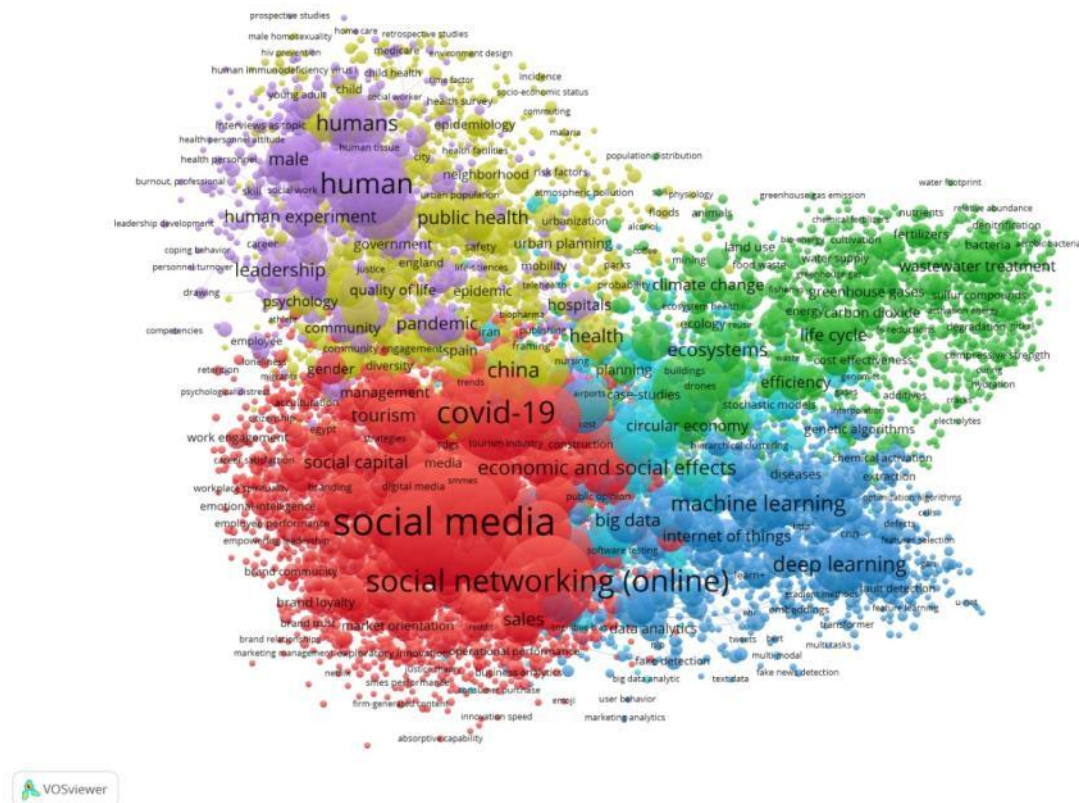
Cluster	colour	N°	time	Main articles	main topics
1	Red	5664	2019 - 2023	Benitez et al. (2020); Hermes et al. (2020); shaikh and levina (2019)	Factors that lead to the creation and evolution of the ecosystem and that allow it to be governed and organised
2	Green	2032	2019 - 2023	bacon et al. (2019); Panetti et al. (2020); Xin et al. (2023); jiang ret al. (2022); Xu et al. (2022); Xie and Wang (2021)	Business models, innovation ecosystems, knowledge transfer
3	Blue	980	2019 - 2023	Gardiazabal and Bianchi (2021); Schiavone et al (2020)	Value co-creation
4	Gold	903	2019 - 2023	Moliner-tena et al. (2023)	corporate social responsibility
5	Violet	451	2019 - 2023	Chaudhuri et al. (2023)	Human capital
6	Light blue	338	2019 - 2023	Wei et al. (2021)	Digital and platforms
7	Orange	164	2019 - 2023	Sharma et al. (2022); Dittes and Smolnik (2019)	Collaboration, supply chain and ecosystems
8	Brown	72	2020 - 2023	Ozcan and Hannah (2020)	Digital technologies and ecosystems
9	Pink	16	2019 - 2022	Lyashenko and Pidorycheva (2019)	Technologies and communications
10	yellow	14	2019 - 2022	Deutsch et al. (2022)	Performances
11	grey	14	2019 - 2022	Kuchenmüller et al. (2022); Atinga et al. (2019)	Influencing and critical factors of ecosystems

Table 1*: Bibliographic coupling clusters (*Source: Authors' elaboration)
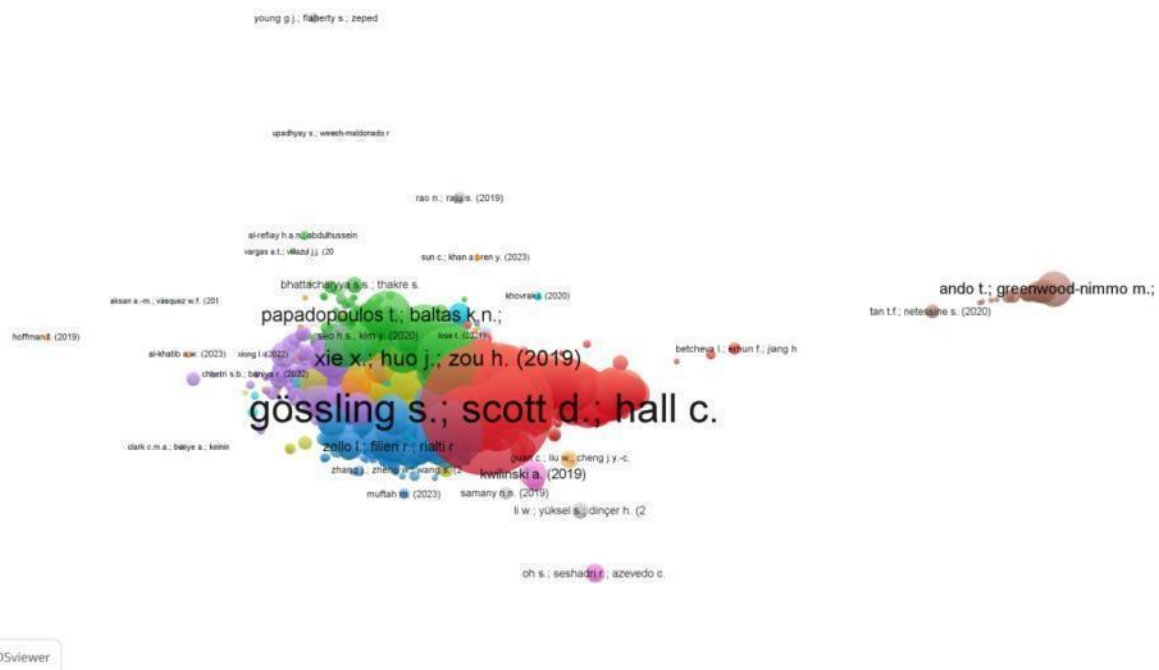
Figure *3: Bibliographic coupling* (Source: Authors' elaboration).

From the bibliometric analysis we can identify that there are multiple aspects that are analysed by the literature. In the grouping process it was decided to identify the most significant aspects highlighted by the articles present in each cluster. Therefore, the following macro-categories emerged:

- Factors that lead to the creation and evolution of the ecosystem and that allow it to be governed and organized.

- Business models, innovation ecosystems, knowledge transfer

- Value co-creation

- corporate social responsibility

- Human capital

- Digital and platforms

- Collaboration, supply chain and ecosystems

- Digital technologies and ecosystems

- Technologies and communications

- Performances

- Influencing and critical factors of ecosystems

From the cluster analysis it emerges that there are recurring aspects common to many other researches. However, we note how scientific works are instead going in the direction of understanding how ecosystems and the various forms they can take can modify otherwise consolidated structures and organizations. An example of this is the first studies on business models linked to ecosystems.

CONCLUSIONS, IMPLICATIONS AND LIMITATIONS

From the analysis of the results, it emerges that the topic of ecosystems in the life sciences sector is acquiring ever greater relevance, both for the interesting theoretical findings and for the importance it also has for practitioners. From the academic side, interesting research ideas concern the impacts that the creation, development, and boost of ecosystems has on various organizational and managerial aspects. among these we can highlight the impact in the definition of business models, in technology transfer models, the process linked to the transmission of tacit and explicit knowledge, the use of technology and the advantages it brings both internally and in relationships between companies.

This analysis of the academic literature has useful implications for managers as it offers them interesting food for thought. First, ecosystem management is focal, therefore system logics become prevalent compared to corporate logics. Second, new technologies are changing the way businesses interact and therefore changing the relationships within ecosystems and the structure of the ecosystems themselves. Third, sustainability is increasingly a predominant factor even at an intra-company level. Environmental, social and economic sustainability is increasingly being discussed also in relation to interactions between companies. Finally, the topic of policies, which still today represent a fundamental aspect for the creation, development and propagation of ecosystems.

However, this preliminary research has limitations, although it offers useful help in overcoming them. The first is that it is limited to the last 5 years of publication, while a broader time horizon would be interesting for a better analysis of evolution over time. The results of this research will certainly allow us to refine the interesting aspects, thus focusing interest on what is most worthy of analysis. To avoid a dispersion effect that would jeopardize subsequent literature analysis work on such a complex and vast topic, future work can be based on the outcome of this research. In fact, it will be advisable not to overlook any nuances either regarding ecosystems or the varied sector of life sciences, while avoiding the confluence of works that are too heterogeneous and difficult to schematize within the same analysis. Finally, a final limitation is due to the analysis of the results. Although bibliometric analysis

offers a replicable method, the interpretation of the results is influenced by the subjectivity of the

researcher and therefore could be a victim of interpretative distortion.

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SMART INDUSTRY IN AGRIBUSINESS: CASE STUDIES FROM ITALY

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ABSTRACT

The impacts of innovation within the agricultural sector have notably intensified in recent years. An intriguing phenomenon is the cross-contamination of technologies and competences from diverse sectors, profoundly influencing the evolution and revitalisation of agriculture. While numerous scholars have concentrated on dissecting the effects of specific technologies and methodologies in agribusiness, we contend that comprehending the broader impact of the smart industry, not confined to individual technologies or skills, is of paramount interest. Our study, characterised by its exploratory nature, employs a qualitative analysis approach. We have identified four pertinent case studies of companies situated in the Tuscany region of Italy. The findings gleaned from a cross-case comparison have yielded compelling insights for both scholarly discourse and managerial practice.

Keywords Agribusiness, Entrepreneurship, Innovation, Smart Industry, Precision Agriculture, Case Study.

INTRODUCTION

In recent years there has been great and increasing interest from the business and academic world in the process of digitization, confirmed by the recent adoption of various technologies, of the agricultural sector (Osservatorio Smart AgriFood, 2019). The aim of such challenges is oriented towards higher sustainability, improved food safety, or more efficient agri-food supply chains (Monteiro *et al.*, 2021; Lezoche *et al.*, 2020). This is in line with the new challenges and needs that not only the food supply chain, but all nations are facing to respond to the ever-increasing demands to produce more with fewer resources which can only be satisfied thanks to the use of new technologies in agrifood sector (Blasi *et al.*, 2017).

When we take the agricultural supply chain into consideration we must include in it a series of strictly heterogeneous but interconnected macro-areas: production activities (e.g. agriculture, forestry, fishing and industrial agricultural or food processing), distribution and commercial activities (e.g. large-scale

organized distribution and logistics of the food supply chain), ancillary services (e.g. a varied series of services of all types for all characteristic and non-characteristic activities) (Gismondi *et al.*, 2016)

Despite the critical issues and reluctance, the first precision farming applications appeared at the end of the last century (Auernhammer, 2001; Falzarano, 2018). However there has been a significant delay in the adoption and an incorrect use of all the potential deriving from new technologies, at least for the sector of use (Mohelska and Sokolova, 2018).

All these aspects have attracted the attention of many scholars and therefore there has been an increase in the number of publications and, at the same time, in the interest of both practitioners and academics (Karunathilake *et al.*, 2023). However, there is still a need to understand how this phenomenon could create opportunities for new entrepreneurship and effective cross contamination.

THEORETICAL BACKGROUND

The main technologies used in precision agriculture are technologies for receiving and transmitting data, sensors, geolocation systems, data storage and data analysis, semi-automatic or self-driving tractors, and intelligent systems for dosing plant protection products, water or fertilizers (Blasi *et al.*, 2017; Kamilaris, *et al.*, 2017; Falzarano, 2018). In addition to these, in recent years there have been further developments, which have led to an extensive use of technologies deriving from Industry 4.0, such as IoT, Big Data Analytics, robotics and artificial intelligence which have allowed the development of precision agriculture in digital agriculture (Cambra Baseca *et al.*, 2019; Muangprathub *et al.*, 2019; Spanaki *et al.*, 2020; Khanna, 2020). Technologies belonging to the 'Industry 4.0' field are populating the rural scene.

Internet of Things can constantly monitor crops and yields, hence reducing the use of natural resources and, at the same time, diminishing the abuse of chemicals that can damage the environment (Fatima *et al.*, 2021). Other technologies from I4.0, such as sensors, drones or satellite's images together with image recognition allow enhanced decision-making process thanks to more organized data (Koutsos and Menexes, 2017).

Thus, Industry 4.0 aims to revolutionize manufacturing through the digital transformation of processes and products (Rojko, 2017; Vaidya *et al.*, 2018). GPS tools allow the autonomous driving of agricultural machinery, Industrial Internet of Things (IIoT) sensors offer the chance to monitor the climatic conditions, the status of the crops and their growth levels, the state of health of the livestock (Alekseeva *et al.*, 2021). Furthermore, technologies help in understanding customer needs and

enabling the producer to monitor competitive position relative to changes in the market (Tortorella *et al.*, 2019). Higher integration alongside the whole chain allows permanent information exchange between producers and consumers (Verdouw *et al.,* 2014). However, this transformation is far from easy. There are many challenges for smarter agri-food and, in this regard, we can refer to the words of Liu *et al.* (2021): "hard to find single standard solution; gap between farmers and AI researchers; distributed secure machine learning; [and] technical and social issues with big data".

In a traditional context such as the agricultural one, currently characterized by a push toward digital transformation, while parallelly showing scarce dissemination of digital skills, it is conceivable that the digital experience of individual users plays a crucial role in supporting the digital transformation process of the entire sector. The role of Innovation Users (Fuchs and Schreier, 2011) could be decisive for the innovative development of the agricultural sector. In fact, Innovation Users boast deep knowledge of the agricultural market, having themselves been an active part of that market; such knowledge should facilitate the ability of Innovation Users to understand and interpret customer's digital needs and turn them into ad hoc digital solutions.

The role and impact of Innovation Users along the digital transformation process of the agricultural sector has not yet been investigated in literature.

In terms of volumes and values the agricultural sector has increased its importance over the past years. From 3,9% of the total value added by agribusiness in 2018 in Italy, it increased to 4,1 in only one year (Istat, 2020). At a global level, agribusiness 4.0 increased by 7 billion in 2018 (more than double of the previous year), while in Italy it grew by 270%, with a value of 430 million of Euros (Osservatorio Smart AgriFood, 2019).

The sector has been the one with the highest number of startups, and, in terms of technologies only in 2019 415 innovative solutions were created for monitoring (39%), management software (20%), connected machineries (14%), remote monitoring (10%), mapping systems (9%), and decision support systems (5%) (Osservatorio Smart AgriFood, 2019). The technical solutions are based upon blockchain (43%), QR code (41%), mobile app (36%), data analytics (34%), IoT (30%), and cloud systems (27%) (Osservatorio Smart AgriFood, 2019).

There are several elements pushing the introduction of technology in a traditional and tech-adverse industry like agriculture. Amongst others, environmental sustainability and optimal use of natural resources helped in changing the agricultural processes, mixing them with the I4.0 paradigm (Bonneau, *et al.*, 2017). Thus, one of the main goals of precision agriculture is to minimize costs, risks,

and environmental impact while increasing the quality and quantity of production (Pierce and Nowak, 1999; Khanna and Kaur, 2019). Therefore, one of the outcomes of precision agriculture and so of A4.0 has been the increased productivity and the quickening of production (Vinitha, *et al.*, 2020). A crucial role for gaining this task and also increasing the production to sustain the global increasing need of food has been done by ICT (Parvin, *et al.*, 2019). Precision agriculture had a significant impact thanks to the use of sensors that acted as enablers of PA starting from traditional agriculture (Suma, *et al.*, 2017; Patil, and Kale, 2016).

Thanks to the I4.0 paradigm, agriculture turned into agriculture 4.0 (A4.0). Amongst others, drones, augmented reality and big data are the technologies that had a great impact on the agribusiness sector. With drones, companies can collect data about soil composition, build 3D maps and provide fruitful information to the farmers (Ahirwar, *et al.*, 2019). Augmented and Virtual Reality, even if originally developed for completely different industries, help farmers by offering an immersive and easy to use solution that combines digital images, 3D vision and extra effects (Wu, Xiao, and Guo, 2013). Self-driving and connected machineries and tractors enhance productivity and data collection (Braun, Colangelo, and Steckel, 2018),

Big data and sensors represent the easiest and most effective technological improvement for A4.0. Sensors can instantaneously monitor any aspect of the ground and of the crops (Pajares *et al.*, 2013). As in I4.0, also for A4.0 data become smart and organized data, helping the decision-making process (Koutsos and Menexes, 2017).

However, all the above-mentioned benefits can be reached by really and fruitfully implementing A4.0 and this is possible only by having an open mindset, increasing personal knowledge and introducing specific training courses (Mohelska and Sokolova, 2018). This could be facilitated by some innovation brokers (Auernhammer, 2001).

METHODOLOGY

The authors opted for a qualitative approach owing to the exploratory nature of the research question and the novelty of the phenomenon under examination (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Yin, 2003).

In determining the cases for analysis, it was elected to examine four companies located in Italy, specifically within the region of Tuscany. This selection was made due to the region's perceived high

potential and significant technological concentration (Bertini, 2017; CERVED, 2019) and that is renowned worldwide within a sector traditionally regarded as conventional.

 Finally, the presence of esteemed universities and research centres is of particular significance. An initial screening of potentially interesting companies for the study was conducted using regional lists of recipients of public funding tenders, such as: Tuscany Region, MET Research Institute, Confagricoltura, Irpet, Cia, Federalimentare, Confindustria, Ikigai, Coldiretti. Among the array of compelling cases, it was determined to select the four proposed due to their distinctive characteristics, which are of particular interest in discerning the application of various technological aspects within an agribusiness context.

For each case, data were collected through in-depth direct interviews, which were subsequently triangulated with data from other sources, such as archival data (Gibbert *et al.*, 2008), to achieve an adequate level of internal validity (Yin, 2003).

The interviews, lasting between 60 and 11 minutes, involved company founders and CEOs. After the interviews, which were recorded, there was a meticulous transcription process. This made it possible to identify the possibility of new entrepreneurship and the birth of new supply chain relationships, as well as some critical issues that emerged.

FINDINGS

Through the interview, the authors explored the company history and the skills of the founders, with a focus on the impact of 4.0 paradigms on the birth of the initiatives. There were also examined the technologies adopted and the motivations behind the entry into the agribusiness sector, with a focus on the role of skills and technology in the evolution of the business model. An attempt was also made to investigate any changes made to the business plan during the growth and development process, the main challenges faced, and integration into the value chain. Finally, they were asked to assess the benefits of technologies for both: the end customers and the company itself.

Within case analysis

The Alpha company is an innovative SME that deals with the design, installation and management of soilless cultivation systems that are based on free root technology.

The interview with the Alpha company highlights how the birth and development of the company, which has embraced innovation in the agricultural sector, occurred starting from a history originally linked to the construction sector. Through professional networks, the founder discovered the opportunity to develop soilless cultivation systems, opting for the aeroponic system for its innovativeness. The process of acquiring skills took time, with the company seeking external collaborations, including the agricultural sciences department of the University of Pisa.

The company has highlighted the importance of technology in the process, using sensors and software to efficiently manage the cultivation process. Company Alpha also presented a comprehensive value proposition that goes beyond the supply of systems, also including consultancy, assistance and know-how transfer services.

The main challenges in the development path were the difficulty in penetrating the market and the need to adapt to the dynamics of the agri-food supply chain, dominated by large-scale retail trade. There have been revisions in the target market and seeking collaborations with producer organizations to increase awareness and adoption of their technology.

The company has highlighted the multiple benefits of its technology, including environmental sustainability, waste reduction and greater quality of the final product. The final objective, based on the aspirations that emerged, is to contribute not only to the economic aspect, but also to the social and health aspect, trying to guarantee the certification and traceability of the products, as well as the creation of a social value around the 'diet.

In summary, the interview illustrated the complex but promising path of a company that seeks to revolutionize the agricultural sector through technological innovation and the creation of added value at a social and environmental level. The Beta company is an innovative startup that creates an online platform that allows operators in the forestry supply chain to be brought into contact, allowing, thanks to the technical knowledge of the founders, the valorisation of the forestry heritage.

The company was born as a spin-off of the University of Florence with the aim of bringing circular innovation to the forestry sector, focusing on a concrete problem that is little addressed by public opinion, namely that 80% of forested land in Italy is unused or abandoned.

The company has developed a digital platform as a place of interaction and exchange between actors in the forestry supply chain, promoting the sustainable management of forest resources. This

initiative, according to the interviewee's considerations, reflects an entrepreneurial approach oriented towards solving real problems, rather than starting from a generic business idea.

The people who took part in the development of the Beta company have heterogeneous backgrounds, from precision agriculture to information technology. This diversity has enabled a multidisciplinary approach to problem solving, with a particular emphasis on information technologies. The company has developed customized solutions for customers, using technologies such as drones, IoT and satellite data analytics to optimize the management of forest resources.

The company has tried to constantly identify new opportunities in the tech sector, aiming to develop complementary solutions to the agricultural and forestry supply chain. The partnership with other companies and institutions has allowed it to expand its portfolio of services and access public funding and EU Funding & Tenders Programs.

Despite the main challenges that have emerged, i.e. bureaucratic and competition-related ones, the Beta company seeks to become a point of reference in the sector, promoting environmental sustainability and circular innovation. Collaboration with similar companies and others belonging to adjacent sectors is considered essential to stimulate the contamination of skills and encourage the development of innovative solutions. The Gamma company is an innovative SME that creates technological deterrents that use high intensity ultrasound to defend against ungulates, which cause significant damage to agriculture and especially to wineries every year.

The company was founded by an entrepreneur with previous experience in marketing departments, based on the perception of increasing conflict between animals and humans in agricultural and road contexts. After years of research with the

Department of Information Engineering of the University of Pisa, the company has developed an innovative ultrasonic deterrent for wild animals, obtaining a European patent.

The company sought to create a multidisciplinary team, made up of engineers, wildlife experts, veterinarians and bioacoustics to develop the technology and also conducted a market survey on the damage caused by animals, identifying a strong Italian and European demand for the deterrent of animals in agriculture.

The company has moved beyond the production of bollards, exploring precision agriculture with the use of technologies such as geolocated poles and data transmission via new technologies. To this end

it has entered into partnerships with universities and companies for the technological development of its solutions and has managed to win public tenders to finance research and development.

The target market initially identified was that of wineries, only to then try to broaden its scope to include the agricultural sector and the creation of applications for environmental monitoring and fire prevention. The company's mission remains to create smarter and more sustainable agriculture through technological innovations.

According to the founder, the main challenges encountered were in accessing credit and developing a business plan with little pre-existing market data. Despite this, she benefited from partnerships with organizations that allowed her to access public funding and provided her with specialist advice. The company, according to the founder, has made a contribution to the push towards more technological and sustainable agriculture. The Delta company is an innovative startup that creates innovative robotic traps that use the most modern technologies to capture pests harmful to crops.

The company was born from the founder's observation that in the intensive cultivation of olive trees one of the main problems to be faced is that linked to insect attacks which can damage the crop in a short time. Not finding alternative solutions to traditional chromotropic traps on the market, the founder decided to create the company to develop robotic traps with low environmental impact.

The founder has previous skills in the economic sector and has also recently started studying agriculture. The idea of investing in agriculture in Italy was born mainly from a passion for the sector and the perception that it is undervalued compared to other parts of the world.

Delta is a company that develops robotic traps and artificial intelligence software for insect monitoring. The company uses a variety of technologies, including GPS, wireless connection and Bluetooth, to collect and analyse data on crops and harmful insects with the main objective of providing useful statistical data to insurance companies to modulate farmers' insurance coverage.

The company has developed through partnerships with other companies and institutions and has encountered several challenges, including limited entomological knowledge and delays caused by COVID-19. Despite this, it has managed to forge collaborations with important clients in the insurance and agricultural sectors.

Delta offers precision agriculture service packages, with the goal of reducing pesticide use and increasing crop productivity and quality. The company aims to change the way agriculture is

conducted, with tangible benefits such as the reduction of pesticide treatments and an increase in the productivity and quality of agricultural products.

Cross case analysis

Through the analysis of the interviews, it emerges that some of the companies interviewed have adopted innovative technologies even if the founders had backgrounds outside of agribusiness. Enabling technologies such as IoT, geolocation, data analysis and sensors have been fundamental to developing innovative solutions in the agricultural context. This approach has allowed the creation of new entrepreneurial initiatives related to agribusiness, leading to a break between traditional agriculture and precision agriculture. Companies have sought to implement additional 4.0 technologies to offer high value-added products and services in the field of precision agriculture. Their use has allowed us to create interconnected solutions that add a completely new value to the customer, confirming the importance of these technologies in improving the perception of the value of products and services in the agricultural sector.

Another commonality is that the companies interviewed had to resort to external help and strategic collaborations to develop their business proposals. These partnerships were not limited to classic supply relationships but took the form of interconnected and nuanced collaborations between suppliers and customers, with active involvement of the partners in the development of the final solution. The companies, acting as collectors, act as a bridge between traditional agribusiness players and new partners (and therefore technologies) coming from heterogeneous sectors such as automotive, electronics and sensors. The analysis highlights a contamination between previously unrelated sectors favoured by the spread of the 4.0 paradigm in agriculture. Universities have played a significant role in strategic partnerships, collaborating closely with companies on entrepreneurial innovation. None of the companies followed a "close innovation" approach, but all sought external collaborations to develop quality solutions, with an open innovation perspective. While outsourcing the production and assembly phase for budgetary reasons, companies have tried to maintain a focus on the design and research and development phase. Customers are considered fundamental partners from the initial stages, actively contributing to the design through feedback, with the aim of creating products and services that better suit their needs. From the observation of the cases, it also seems that training and previous experiences have influenced the managerial skills linked to the definition of the company's market target. This difference in approaches to the market naturally affected the drafting of the business plan and the creation of the most suitable business model. Those with real estate experience were less aware than those with marketing experience in identifying the target segment to

address and, as a result, the decision to reorient company efforts was reactive rather than proactive. The common element that emerged concerns the fact that all the interviewees considered it essential to submit their MVP to the market, useful for receiving feedback for the remodulation of their technological offer.

The business model of all the interviewees underwent conscious or unconscious changes after the birth of the company. In particular, it seems to have been the first impact with the market that determined the main technological, organizational changes or refocusing on a different market target. The crucial building block for the interviewees was the one dedicated to key partners, a founding element that allowed them to acquire specialized knowledge useful for reducing technological uncertainty and keeping the organization inserted in a collaborative and dynamic context. All companies considered it important to have a business plan before starting the business but, unfortunately, the limited pre-existing market data for the innovative solutions they wanted to be created made the document unreliable. As an alternative, they tried to acquire new ongoing market data by updating the business plan monthly. Given the disparate skills of the founders, a common element of great importance was the ability to manage and know how to relate their company with a heterogeneous set of collaborators and partners who helped them overcome problems of various kinds. It therefore seems that the skills possessed play a decisive role in requiring different managerial efforts to overcome the barriers that arise.

The analysis also revealed some common difficulties encountered during company life, one of which was access to credit. Despite the knowledge of the possibility of accessing tenders for public funds, everyone believes that they cannot rely on this source of financing as it is extremely uncertain and difficult to find. The consequence is that the interviewees tried to keep the company structure as streamlined and flexible as possible, not perceiving a climate of trust that could allow greater investments in R&D.

At the same time, the need to quickly make up for the lack of internal specialist knowledge through the search for reliable partners capable of providing the necessary support emerges as a common problem.

An interesting common element that emerges for everyone is the discovery of new opportunities complementary to one's agribusiness initiative which unfortunately were not pursued by the various founders mainly due to the difficulty in accessing new sources of financing.

CONCLUSIONS

Thanks to the analysis carried out on the small sample of companies examined, which however does not allow certain results to be generalized across the entire agribusiness 4.0 ecosystem, some interesting considerations emerge that deserve attention.

First of all, from the empirical analysis it seems that technology 4.0 has truly had an impact on the creation of new entrepreneurship linked to agribusiness. In particular, it was the out-of-context use of some of these technologies that allowed the emergence of these new initiatives and, at the same time, what appears to have been a first turning point for the transition from traditional agriculture to agricultural 4.0.

Another aspect concerns the search for specific specialist knowledge not always linked to the agricultural sector. this requires companies to rethink the type of relationship that binds them to their main customers and suppliers. The new supply chain relationship indispensable for each of the interviewees seems to be the partnership, as a relationship that best reflects the integration and collaboration between these companies and the main players essential to their business.

A third interesting aspect concerns companies operating in agriculture 4.0 which are contaminating the reticent context of the primary sector thanks to the contribution of innovative 4.0 technologies also coming from historically foreign sectors and supply chains. Their presence also undermines the traditional classification of agribusiness proposed by the ATECO codes, no longer capable of coherently representing the changed structure of the primary sector contaminated by the dynamism of technological innovations in recent years.

Based on the observations made, the motivations intrinsically linked to the search for sustainability that drive entrepreneurial ideas and business objectives are confirmed. Through the paradigm of precision and digital agriculture, the interviewees ride the market trend, which we can define as "green", also noted in the literature.

The fifth point we can draw for entrepreneurs and aspiring entrepreneurs concerns their previous skills. Some of the interviewees have been able to adapt them to an unrelated sector to create new businesses with the help of 4.0 technologies.

From the analysis carried out, in addition to the encouraging previous ideas, two barriers apparently also emerge that impact the diffusion of entrepreneurship in agribusiness 4.0 and the consolidation of existing businesses. The first refers to the difficulty in constantly researching and finding specialist

skills that are crucial for company development according to the new 4.0 paradigm and at the same time complementary to those present within the company. For the interviewees, the ability to combine these skills plays a decisive role in the very survival of the business.

The second concerns the significant difficulty encountered in accessing credit and alternative sources of financing. The interviewees unanimously consider this the most impactful problem for the birth and development of the company.

However, this research presents some limitations which lie above all in the number of cases analysed and in the extreme geographical concentration of the cases analysed. Although Tuscany is a region of an important country in the European agricultural context, it would be desirable for subsequent studies to replicate and validate what emerged here with analyses of cases from other countries and regions.

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LINGUISTIC STRATEGIES AND GOVERNANCE IMPLICATIONS IN SUSTAINABILITY REPORTING

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ABSTRACT

This study examines the effectiveness of linguistic strategies in sustainability reporting (SR) and their impact on corporate governance and stakeholder engagement. Using language game theory, the research analyzes 210 sustainability reports from leading Italian firms to determine if their linguistic representations align with sustainability efforts. The findings reveal that while SRs are increasingly adopted to enhance corporate transparency, their effectiveness in communicating genuine sustainability initiatives could be improved. Sector-specific linguistic strategies significantly influence stakeholder perceptions, yet discrepancies between reported efforts and actual practices raise concerns about the credibility of SRs. The study advocates for standardized reporting frameworks to enhance the reliability of sustainability disclosures and suggests that clearer guidelines could better serve stakeholders in evaluating corporate sustainability. This research contributes to understanding the strategic use of language in corporate communications and its implications for governance and stakeholder relations.

Keywords: sustainability reporting, corporate governance, stakeholder engagement, language game theory, linguistic strategies, Italian firms

INTRODUCTION

This study aims to shed light on the effectiveness of sustainability reporting (SR) as a corporate governance tool by investigating whether the language used in SR reflects a standardized common understanding of sustainability actions. Governance for sustainability encompasses the organizational structures, policies, and practices that drive the integration of sustainable principles into business operations (Lozano, 2015; Naciti et al., 2022). Previous studies have demonstrated that corporate governance mechanisms, sustainability actions, and SR are intricately related. Robust and effective governance practices facilitate companies' efforts to set attainable, sustainable goals and are often a guarantee of transparent and full disclosure (Van Beurden and Gössling, 2008; Wang, 2017; Tarczyński et al., 2020).

Among the reasons companies communicate their commitment to sustainability is the growing stakeholder demand for greater transparency on environmental and social issues (Fonseca, 2015). However, despite the best intentions, SR can sometimes serve instrumental interests. Social pressure can make SR perceived as 'mandatory,' 'anticipated,' or 'standard practice' (Powell and DiMaggio, 2012), regardless of whether the company genuinely invests in sustainability.

Examining the quality of SR, there is evidence that the information companies provide in their sustainability reports (SRs) is fragmented, diverse, multidimensional, and rarely standardized. This necessitates unique analysis to transform these reports into mechanisms that disclose the value created and serve as practical governance tools. Within scholarly discourse, the features of sustainability accounting and the structure, content, and language of SR hold considerable significance.

The issue of SRs' content and language is particularly relevant, considering that although regulatory pressures and trends in several authorities push companies to adopt sustainable business practices, their disclosure remains mainly voluntary. Even when an obligation exists, the norm rarely prescribes the document's structure or the use of specific information and language, resulting in each company having its way of disclosing and committing to sustainability.

Given these premises, our study adopts language games theory to explore the effectiveness of SR as a corporate governance tool. Specifically, we investigate whether the language used in SR relies on a standardized common understanding of sustainability actions, effectively communicating companies' efforts in setting and achieving sustainable goals and enabling readers to appraise companies' sustainability strategies.

To achieve our goal, we conduct a content analysis of 210 SRs provided by a sample of 203 large Italian companies recognized as leaders in sustainability for 2023. Our findings, even if preliminary and part of an ongoing work in progress, offer interesting insights, showing both scholarly and managerial implications.

LITERATURE REVIEW

Several studies (Delmas and Montes-Sancho, 2011, Kolk and Perego, 2010, Naciti et al., 2022) highlight that firms with robust solid governance systems are more likely to integrate sustainability into their operations and achieve better environmental and social performance, driving sustainable business practices, and providing a framework for decision-making processes considering environmental, social, and economic dimensions. In this sense, governance for sustainability has mainly been investigated

under the lens of stakeholder theory (Aguilera et al., 2007, Freeman, 2010), agency theory (Dorfleitner et al., 2020), and resource dependence theory (Li et al., 2023), has become a critical field of research.

Specifically, transparency as an attribute of corporate communication refers to the quantity and quality of information available about an organisation such that external parties can monitor its activities and performance (Grimmelikhuijsen et al., 2013). According to agency theory, transparency is crucial in corporate governance mechanisms (Ştefănescu et al., 2021).

Regarding the effectiveness of sustainability accounting and reporting in increasing transparency, scholars express considerable concerns (Adams and Larrinaga-González, 2007). As discussed by Crane and Glozer (2016), the purpose of sustainability accounting and reporting is only sometimes to provide evidence of the impact of corporate strategies. Still, it is often used to achieve specific goals, concerning which sustainability statements are instrumental. Similarly, Montiel (2008) and Schwartz and Carroll (2008) have noted that organisations exhibit diverse interpretations of sustainability and its practical implementation. Sustainability accounting is a means for companies to fulfill their environmental and community-related social and ethical obligations within the contexts where they operate (Owen, 2008). Besides this, it may be used as an unintentional stakeholder management tool instrumental in cultivating trustworthy relationships and shaping behaviour (Coombs and Holladay, 2012; Morsing and Schultz, 2006).

For this reason, the language adopted is particularly relevant to avoid misunderstandings. A deep comprehension of the words, phrases, and content of SRs is essential for evaluating their effectiveness as tools of accountability and governance.

Language game theory

Language game theory, rooted in the philosophy of language by Ludwig Wittgenstein (1953), focuses on the idea that language is a form of social activity governed by specific rules or games.

Wittgenstein's theory suggests that language and action are deeply intertwined. According to the author, language does not just describe or represent actions; it plays a fundamental role in shaping and influencing actions. In language game theory, the context in which a language develops is critical in defining communication effectiveness. The meaning of words and expressions is context-dependent, and understanding them requires an awareness of the specific language game being played. In this way, language sets the context for action. Wittgenstein argued that language games involve rule-following activities. Understanding the rules of a language game is essential for engaging in the associated actions. Language, therefore, provides the rules that guide and structure actions within a particular context. Wittgenstein proposed the idea that the meaning of a word is found in its use within specific language games.

Research on language games in management studies confirms that the fundamental purpose of the managerial language is to enable practical action. Managers are interested in shaping the functioning of the environment in which they operate instrumentally to their ends. Consequently, the language they use to communicate creates a framework in which organisational life is shaped and reshaped. Astley and Zammuto (1992) state that managers are interested in using language instrumentally to shape the environment according to how they conceive of a given organisational reality.

Although a niche approach, language game theory and linguistic analysis techniques have been used in sustainability and CSR research to understand how language reports environmental, social, and governance (ESG) information.

Several studies have investigated the use of proclaims and language in SR as a greenwashing strategy (Szabo and Webster, 2021, Guo et al., 2017) that can be synthesized as a gap between words and deeds (Laskin and Mikhailovna Nesova, 2022). In 2019, the Task Force on Climate-related Financial Disclosure (TCFD) 's investigation of 1000 companies SRs found that only 29% disclosed decision-useful climate-related financial information (2019).

Moreover, they assert that SR meets the basic information transparency and value relevance requirements. Similar conclusions emerged from Adhariani and Du Toit's (2020) investigation into Indonesian companies. Their research indicates that SRs exhibit a low level of readability, signifying that the disclosed information could be more explicit for the intended users to decipher and comprehend.

Using this theory allows us to investigate the main keywords and themes that emerge from SRs and understand how and why a specific language is used.

METHODOLOGY

To achieve our aim, this study adopted a gap analysis methodology to deeply analyze the SRs and identify the crucial aspects of the language used. Companies convey their unique perspectives on sustainability to external and internal stakeholders through official documentation like SRs, plans, or declarations.

The quantitative content analysis was applied to analyse the articulation and communication of sustainability within the operational context of contemporary sustainability leaders in Italy. The Italian rating for 2023 was just released by Lab24, focusing on 2021 revenues. Our analysis focused on 203 large companies with revenues exceeding 100 million euros included in the mentioned rating.

The analytical capabilities of https://voyant-tools.org/ were used to determine the top 59 keywords of each SR. Italian and English-language SRs were examined independently. To ensure consistency throughout content analysis phases, identified keywords in English were directly incorporated into further analysis, while keywords in Italian were first depicted and then translated into English. To ensure translation accuracy, the forward-backward translation technique was applied. The collected data was cleaned by removing numbers, articles, question words, prepositions, and frequently repeated but extraneous words. Some plural words were singularised and suffixes were removed.

Linguistic associations were then considered to select terms closely linked to the core sustainability concepts. Words with a Pearson's correlation coefficient of 0.85 and higher were expected to be substantially related to the terms "sustainability" and "sustainable" (in English) and "sostenibilità" and "sostenibili(e)" (in Italian). Additional data cleaning included removing articles, numbers, question marks, prepositions, and non-existent terms. Plural forms were singularised, and suffixes were removed, although no nouns were released in this case, as any correlation would have been intriguing to explore further.

In the final phase, a thematic clustering approach utilizing LLMs use was applied to group sectors based on lists of keywords and associations specific to each industry. The goal was to find common themes and subjects across sectors. Exact word matches were optional for a more abstract and flexible representation of information.

FINDINGS

According to the Italian sustainability rating, the country's top five sustainable industries were Energy, Procurement & Raw Materials, Banks, Industrial Products & Components, Finished Products & Consumer Goods, and Food & Beverages. Italian ratings remarkably track global sustainability trends, except for the telecommunications and pharmaceutical industries, which rank in the top 10 of the Global 100 list of the most sustainable businesses worldwide. Notably, Fiorini International Italia stood out as the sole company among 203 not to submit an SR through any available channels. Among the materials examined, 25.00% were exclusively provided in Italian without an accompanying English version. "Work, training, sustainable, management, health, environment, energy, employees, development, business, and activity" are common keywords in all 16 sectors. Furthermore, popular keywords include "safety, risk, people, information, and emissions" (found in 15 out of 16 industries), as well as "value, social, and compliance" (14 out of 16 sectors). The word cloud shows 50 phrases strongly related to the terms "sustainability" and "sustainable," with a Pearson's correlation coefficient

of at least 0.85. Common linguistic patterns in the thematic clustering research of sixteen different business sectors revealed seven coherent clusters with a shared sustainability perspective.

Cluster 1

Cluster 1 concentrates on environmental, social, and governance (ESG) elements and risk management and unites Banks, General Services & Insurance, Financial Services, Investment Holding, & Asset Management. Keywords like "climate, emissions, environment, and initiatives," which highlight congruence with SDG 13, demonstrate a thorough grasp of environmental issues. "Sustainability, employees, training, and development" aligns with decent work and economic growth within SDG 8 and highlights the commitment to ethical business practices. Moreover, recognizing social consequences, expressed through words like "social, impact, health, safety, women, and men," resonates with SDGs 3 and 5.

A closer look at terms strongly linked to "sustainability" and "sustainable" provided further details about the cluster's sustainability strategy. "ESG, SDGs, and SFDR" (Sustainable Finance Disclosure Regulation) are closely related to the responsible business practices covered in the sustainability documents.

Cluster 2

Cluster 2 focuses on resource management, employee well-being, and environmental sustainability through the sectors of Beauty, Personal Care & Healthcare, and Catering & Ho.re.ca. Keywords strongly aligned with SDG 12 include "environment, sustainability, energy, and waste," indicating a commitment to minimize the environmental impact of business activities. Under "employees, training, and safety," workforce development and safety are prioritized (SDG 3).

In the domain of sustainability associations, the frequent use of terms like "plan, element, ecosystem, and directive" in connection with "sustainability" suggests a significant focus on careful planning and implementation.

Cluster 3

Cluster 3 is focused on product-centric sustainability, environmental management, and employee well-being. It includes Finished Products & Consumer Goods, Fashion, and Wholesale & E-commerce industries. Keyword analysis emphasizes material selection, waste minimization, and energy efficiency in production operations, focusing on responsible resource use (SDG 12). Cluster 3's sustainability-associated words indicate a recurring focus on "financial, agenda, stakeholders, SDGs, business, brand,

and global," underscoring the significance of involving stakeholders, connecting with the SDGs, and incorporating sustainability into fundamental business operations while creating sustainable brand identities.

Cluster 4

Cluster 4 combines the following industries: Energy, Procurement & Raw Materials, Industrial Products & Components, Transportation, Logistics & Automotive Supply Chain, Chemistry, Pharmaceuticals, Waste Disposal, & Recycling. According to the keyword analysis, the cluster prioritizes personnel development, energy efficiency, and environmental management. With terms like "environment, climate, safety, risk, and emissions," the emphasis is on minimizing the environmental impact and protecting employees' health. Consistent with SDG 17, emphasizing "governance, compliance, stakeholders, board, and control" stresses the value of stakeholders' interests and effective governance frameworks. In addition, considering "business, development, innovation, production, process, taxonomy, network, and systems" suggests a comprehensive strategy for sustainability that includes planning, working together, and streamlining procedures consistent with SDG 9.

Cluster 5

Telecommunications & Media and Technology & IT are combined in the rapidly evolving High-Tech. Cluster 5 illustrates how environmental responsibility, staff development, and risk management are strategically prioritized in the sustainability documentation analysis. The terms "environment, emissions, energy, waste, economic, consumption, and value" reflect an awareness of business activities' economic and environmental implications and the need for responsible resource consumption, which is highly compatible with SDGs 7, 12, and 13. Keywords "customer, service, suppliers, and stakeholders" demonstrate the sustained strong relationships that support SDG 17. In addition, the focus on "employees, development, training, safety, health, social, people, and women" highlights the cluster's commitment to staff's well-being, consistent with SDG 8.

Cluster 6 and 7

The last two clusters differ from the others and only include one industry. Food & Beverages Cluster 6's sustainability documentation analysis demonstrates that environmental sustainability, supply chain management, and product quality are prioritized. SDG 12 and the cluster's commitment to waste reduction, the use of sustainable production resources, and emission reduction are closely aligned. The cluster's "environment and emissions" consideration aligns with SDG 13, demonstrating a dedication to

tackling climate-related issues. The emphasis on "production, materials, packaging, and energy" advances industry innovation and sustainability, supporting SDG 9.

Cluster 7 includes the sustainability documentation analysis for Engineering & Construction, underscoring the industry's dedication to risk management, environmental responsibility, and sustainable business practices (Fig.9, left). The industry regularly uses terms like "work, safety, health, and employees," indicating how important it is to improve workplace safety and foster employee growth (SDG 8). Social factors are also considered, focusing on the effects on communities and information openness (SDG 11). The cluster's dedication to sustainable practices aligned with SDG 12 is evident in waste reduction, effective use of resources, and training initiatives.

DISCUSSION

This study examined the complex field of SR within large Italian firms identified as the most sustainable for 2023, focusing on the relationship between SRs and corporate governance practices. The findings reveal a varied but dispersed approach to SR. Notably, the results demonstrate significant differences in the focus on sustainability themes across various sectors, exposing a sector-specific strategy towards sustainability issues, as evidenced by the emergence of seven distinct clusters. Each cluster delineates a strategic approach to addressing social and environmental issues, directly or indirectly referencing specific Sustainable Development Goals (SDGs). The findings of this study emphasize the importance of a nuanced and transparent approach to SR for practitioners. Policy-wise, the diversity and fragmentation observed in SR content and language underscore the need for more standardized reporting frameworks. According to our data, some SDGs are either completely omitted from SRs or only given limited attention. While SDGs 5, 10, and 16 are only addressed by one cluster, SDGs 1, 4, 14, and 15 are not covered. Several reasons exist for this discrepancy in SDG coverage, such as stakeholder expectations, corporate agendas, and contextual relevance. However, even though SDG 1 might receive less attention given Italy's comparatively low poverty rates, SDGs 4 and 5 remain crucial despite the country's socioeconomic standing. Figure 1 synthesizes the main findings by introducing an intriguing interpretative model.

Figure 1 - The interpretative model
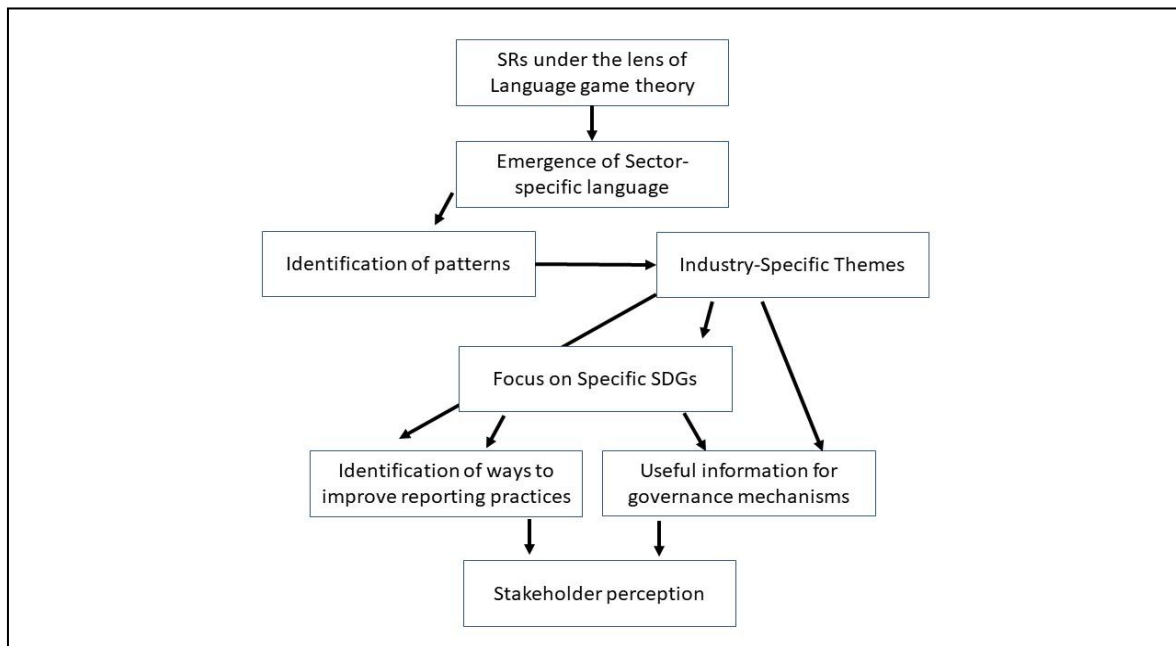
Source - Authors elaboration

The conceived model builds on the fact that language game theory is the foundational theory that helps to understand the language used in SRs. Analyzing documents under this theoretical lens, the context-dependent nature of language strongly emerges. The study uncovered that specific patterns exist and, in particular, different sectors focus on different and well-defined themes. In other words, the study highlighted the existence of unique themes and strategies used by different industries, which emerge when applying language game rules. Similarly, sector-specific languages and themes elucidate the attention of specific SDGs. This kind of analysis helps improve reporting practices to enhance the clarity and credibility of SRs driven by understanding language patterns, themes, and SDG attention. These insights heavily spotlight how linguistic strategies can affect governance for sustainability in terms of SR and SDG focus. Finally, the proposed model suggests that language is powerful in building or eroding stakeholder trust. In the light of these statements, this study proposes the following propositions.

Proposition 1: Applying Language Game Theory to Sustainability Reports (SRs) reveals sector-specific language patterns unique to different industries.

Proposition 2: Identifying these sector-specific language patterns facilitates the recognition of distinct themes and focuses on industry-relevant Sustainable Development Goals (SDGs).

Proposition 3: By concentrating on specific SDGs, companies can identify actionable ways to improve their sustainability reporting practices, making them more transparent and effective.

Proposition 4: Enhanced sustainability reporting and better governance mechanisms, driven by a focus on specific SDGs, positively influence stakeholder perception, thereby increasing trust and engagement.

IMPLICATIONS AND LIMITATIONS

This study, even if in progress, shows interesting academic and practice implications.

Scholarly implications

The main contribution of this study is related to the innovative application of language game theory in SR, enriching more traditional approaches (Naciti et al., 2022; Lozano, 2015). This provides new insights into corporate sustainability communication and extends Van Beurden and Gössling's study (2008) by adding subtle nuances to the relationship between governance practice and sustainability disclosure. This study also extends Laskin and Nesova's (2022) findings by highlighting that linguistic strategies in SRs can be sector-driven. The findings uncover the existence of seven different clusters that face sustainability challenges in different ways depending on the sector, with varying attention to specific SDGs.

By applying language game theory to SR, this study advances the theoretical understanding of how language shapes and reflects corporate governance practices. Language game theory, rooted in Wittgenstein's philosophy, suggests that language is a form of social activity governed by specific rules or 'games.' This study shows that the language used in SRs is not merely descriptive but instrumental in shaping stakeholder perceptions and corporate actions. Identifying sector-specific linguistic strategies highlights how different industries employ unique language patterns to communicate their sustainability efforts, providing a richer, more nuanced understanding of corporate sustainability communication.

Additionally, by linking linguistic strategies with governance mechanisms, this study provides a framework for understanding how language in SRs can enhance or undermine the credibility and transparency of corporate governance.

The application of language game theory also contributes to stakeholder theory by highlighting the role of language in managing stakeholder relationships. Effective SR requires not only the disclosure of environmental and social performance but also the use of language that stakeholders can understand

and trust. The discrepancies between reported efforts and actual practices, as identified in this study, raise important questions about the authenticity of SRs and their role in stakeholder engagement. By advocating for standardized reporting frameworks, the study addresses the need for more reliable and consistent communication that can better serve stakeholders in evaluating corporate sustainability.

Managerial Implications

For practitioners, the findings emphasize the critical role of clear and consistent language in SR. Companies must recognize that stakeholders are increasingly scrutinizing SRs for transparency and authenticity. The study suggests that adopting standardized reporting frameworks can help improve the reliability of SRs, thereby enhancing corporate credibility. Managers should align their sustainability communication with actual practices to avoid perceptions of greenwashing and build trust with stakeholders. The sector-specific clusters identified in the study indicate that different industries face unique sustainability challenges and, therefore, require tailored reporting strategies. Managers should consider these industry-specific insights when developing their SRs to communicate their sustainability efforts effectively. By understanding their stakeholders' linguistic preferences and expectations, companies can craft more impactful sustainability messages that resonate with their audience.

Finally, the study advocates for developing clearer guidelines and standards for SR. Such guidelines should prescribe the structure and content of SRs and emphasize the importance of using language that accurately reflects a company's sustainability actions and goals. By adhering to these guidelines, companies can improve the coherence and comparability of their SRs, making it easier for stakeholders to assess their sustainability performance.

Limitations

The study's main drawback is its focus on Italian companies, which may restrict the findings' generalizability to other contexts. As these findings are preliminary and part of an ongoing work in progress, further research is needed to explore the evolving role of language in SR across different contexts and time periods.

CONCLUSION

In conclusion, this study highlights the critical role of language in sustainability reporting and its implications for corporate governance and stakeholder engagement. The findings advocate for standardized reporting frameworks and tailored communication strategies to enhance the credibility and transparency of corporate sustainability efforts.

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DOES CORPORATE REAL ESTATE INVESTMENT MATTER FOR RETAIL COMPANIES? EVIDENCE AFTER THE PANDEMIC

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ABSTRACT

Corporate real estate (CRE) represents a strategic decision for companies. The retail sector offers a unique opportunity for the evaluation of the CRE strategy due to the relationship between the value of the asset, the location of the site, and the profitability of the firm. The size of the real estate portfolio of retail firms reflects the high frequency of acquisition of existing selling points and the below the average time necessary to sell, even though the advent of technology and the digital transformation of firms is modifying the role and the functions of physical stores.

CRE affects positively the market performance of retail listed firms investing in real estate due to the higher diversification of the assets and the perceived reduced credit risk. Looking at an international sample of listed retail companies, the paper considers the performance of firms and the CRE strategy role in explaining the abnormal return achieved over the time period 2012-2021. Results show that the number of stores is increasing over time, even if the volume of online sales has increased over the last decade. CRE strategy has an impact on the stock market performance for retail companies and during the last decade, showing a better performance for firms that decreased the number of brick-and-mortar stores and increased the volume of sales online. After the pandemic, the overall impact on the performance of the retail companies is found negative, suggesting an even more efficient managing of physical stores.

Keywords: Corporate Real Estate, Location, Online sales, Abnormal performance

1. INTRODUCTION

Real estate represents a key strategic asset of the firm's balance sheet for all major corporations worldwide (e.g. Zeckhauser and Silverman, 1983) and today it represents a strategic asset for any type of corporation (Roulac, 2001).

The relevance of the corporate real estate (hereinafter CRE) is significantly affected by the sector of activity (Johnson and Keasler, 1993) and the lower is the standardization of assets used the higher will

be impact of an efficient real estate management on the firm's performance (Brounen and Eichholtz, 2005). The value of real estate properties created for a corporation is normally more relevant in the retail sector where revenues are driven by the choice of the selling point location, and the cost of renting/leasing a brick-and-mortar shop is significantly affected by the market trend and the rent perspectives (Ali et al., 2008).

The proper selection of the location allows companies to achieve production capacity and to grant business expansion and better service to customers, increasing the wealth of stockholders, among other things (Mazzarol and Choo, 2003). The retail sector represents a unique opportunity for the evaluation of the CRE strategy because the value of the asset (appraisal value and market price) is significantly driven by the location and the quality/type of other assets available in the same area (e.g. Ownbey, Dabis, and Sundel, 1994) and, on the opposite side, retail capital can determine the value of real estate assets as shown by the gentrification of the areas (Mermet, 2017). In this perspective, real estate decisions can reflect the need to diversify and develop activity or the pure response to the needs of the core business (Nourse and Roulac, 1993): regardless of the effective motivation, real estate must be managed as a part of the firm's overall portfolio coherently with the firm's strategic plan (Rodriguez and Sirmans, 1996). Retail firms are characterised by a high investment in real estate due to the high frequency of acquisition of existing selling points and the below the average time necessary for selling real estate units in that sector (Liow 1995). As a consequence, firms in the retail sector develop greater opportunities to create shareholder value through their portfolio of real estate assets. Such opportunities refer to the exercise of valuable development options, the exploitation of market information generated within the retail operations, and the utilisation of well-developed retail real estate expertise. Main retail groups have already developed strategies in order to define their real estate investment strategy for supporting the business and maximise the potential benefits related to the investment planning on the long-term horizon (Gibson and Barkham, 2001). Moreover, the retail sector seems to be one of the most relevant sectors on CRE due to the reputation advantages expected by an increase of the presence in the main retail locations (Brounen, Colliander, and Eichholtz, 2005).

Looking at more recent trends, retail real estate is affected by the megatrend of digitalisation that is emerging from the need of satisfying a vast population (Nanda, Xu and Zhang, 2021). E-commerce poses new challenges due to the evolution of the way of shopping and stimulating an intense debate on the potential effects for retail real estate, without never questioning the existence of High Street, but forecasting changes in the types of the retailers represented and the types of the services offered (Dixon and Marston, 2002). Therefore, the value of retail property becomes a combination of physical and virtual consumer space, although it requires new marketing strategies and rental models (Miller, 2000).

A higher exposure on real estate is normally considered a proxy of higher potential diversification benefits for shareholders (Liow and Nappi-Choulet, 2008) and normally the market accepts to pay a premium for investing in real estate due to the higher expected value of the guarantees provided (Yu and Liow, 2009). Even if it is clear in the literature that the value of real estate ownership is affected by its location (e.g. Roulac, 1995), there is no evidence on the impact of the characteristics of the real estate portfolio owned on the firm's value. The article collects a unique database on the characteristics of the real estate portfolio owned by the retail corporation and evaluates if changes in the real estate portfolio construction strategy affect the market value of the firm. The results obtained show that retail companies are investing in CRE jointly with the development of the online channel and they prefer to invest in the local country. The market recognizes a premium for the shares of companies that are reducing their investment in new store location and are increasing the volume of sales online, and the impact is even stronger after the Covid-19 pandemic.

2. LITERATURE REVIEW

CRE refers to the land and buildings owned or rented by companies in order to run their business and maximise the revenues related to operations. Firms that increase real estate ownership are normally characterised by above-the-average growth expectations due to the business opportunities created by real estate that may justify the choice of investing in fixed assets determining costs that are expected to be amortised only in the medium-long term (Gale and Case, 1989). The business opportunities created by real estate ownership are affected by the selection of the location that reflects both the macro- and the micro-environment. The macro environment factors include the globalization of business activities, the evolution of technology, the socio-demographic, cultural-environmental factors and, therefore, the government policy, while the micro environment reflects the type of the estate and of the business activity (Rymarzak and Siemin´ska, 2012). Such evidence are particularly appropriate for the retail sector featured by a closer connection between operating activities and real properties that are used to implement strategies orientated both to promote marketing messages, through the physical advertising in prestigious and high visible areas and the offer of services to the customers, and to increase sales attracting customers through an appropriate selection of the location and the format of the premises (Nourse and Roulac, 1993). More than considering general factors featuring the macro investment, the perceived value of each location is affected by demand-side factors dealing with the location attractiveness based on the number of consumers and their purchasing power, and supply-side factors reflecting the local conditions of the estate allowing the specific business activity (Tuselmann, 1999). Looking specifically at the demand side factors, the population characteristics and the households composition cover a critical role, while supply side factors reflect the real estate

characteristics of the local area, like the number, the size, and the growth rate of the real estate outlets, the saturation of the retail in the area, and the proximity of the transportation network and the parking facilities (Vandell and Carter, 1993).

Although the importance of location for retail activities is unquestionable, the development of technology and digital transformation are affecting the role and functions of retail spaces. After an initial scientific debate on the alternative versus complementary relationship between brick-and-mortar shops and e-commerce, the online channel has moved forward to a mainstay of the physical store at the base of a multichannel user experience (Verhagen and van Dolen, 2008), allowing retailers to extend the market coverage and drawing attention to physical stores. Under this perspective, the first function is 'showrooming', that is, the store allows the diffusion of information about products and services offered and the ability to try the product during the search, generating synergies due to the boosting effect of the physical store with respect to online revenues (Fornari et al., 2016). Additionally, the function of the store can cover the offer of in person services of the after-sale phase to assist the customer with service appointments, customer complaints, and products repair with the effect of amplifying the sensory experience of the customer (Alexander and Cano, 2020). Besides the effect on the customer experience, the adoption of the multichannel approach to sales impacts positively the profitability of the seller because the on-line channel helps reducing the operating costs (Baen, 2000), boosting the efficiency of the business (Burt and Sparks, 2000), increasing the volume of the sales through increased visibility and transparency (Hendershott and Hendershott, 2000). The adoption of the online channel in the retail sector became very urgent during the Covid-19 pandemic due to the mobility restrictions introduced by governments internationally: both grocery stores and luxury found an increase of the on-line sales due to the shifting of the customers from physical stores to on-line stores and the acquisition on new online customers, even though such shifting is not verified for the hospitality sector (Abay, Tafere and Woldemichael). More than the effects on shifting consumer demand for on-site and online shopping, the Covid-19 pandemic has accelerated the demand of tenants for the modification of retail spaces that is now more flexible in terms of lease payments and can also be for short periods (Msci and Paribas, 2019).

Despite the role of retail spaces that has been evolving over time, physical location is still a key element of the sales strategy along the consumer experience, although locational choices of retail spaces tend to be managed more efficiently at the portfolio level (Nanda, Xu and Zhang, 2021). Besides the implications for the consumer shopping experience, the management of existing properties and the choices to increase or decrease the real estate portfolio impacts also the performance of the firm in financial markets, As a matter of fact, the opening of new stores affects CRE strategy that is associated with an increase of the demand of shares in the stock market due to the

lower risk perceived by investors and the better performance expectation (Ling, Naranjio and Ryngaert, 2012). The positive effect of increasing real estate exposure is clearer in an increasing market trend with respect to a crisis market scenario (Hwa, 2007).

The existence of real estate assets owned directly by the firm attracts the attention of a corporate raider that wants to invest in the firm through an M&A. The simple analysis of the size of the exposure shows that the probability of a takeover increases but does not show any abnormal profit that may derive from the transaction in an efficient financial market (Ambrose, 1990) and normally the impact on the takeover probability is higher for inter-industry M&A (Brounen, Van Dijk, and Eichholtz, 2008). At the same time, the analysis of such type of extraordinary events shows that an excessive exposure to real estate may also cause a decrease of possible synergies and the effect is even stronger for small firms (Graham and Stiles, 2014).

An increase in the value of real estate assets implies a different ability to raise new capital due to the higher value of the collateral provided. Lower financing constraints may have a direct impact on the firm's growth perspective, and a higher exposure to real estate assets that experience an above average value increases the expectation of growth and the market share of the company (Alimov, 2016).

CRE is normally considered a source of diversification for the firm that allows stabilise the income over time and reduces the risk assumed by shareholders. Empirical evidence on the impact of the amount of exposure on the risk assumed is still limited and there is no clear evidence of the potential advantages related to reducing the risk assumed by shareholders (Seiler, Chatrath, and Webb, 2001).

The impact of real estate exposure on the value of the firm is affected by the trend and the causes of the increase / decrease in average prices. In the event of a price bubble, the negative effect on the company value is at the maximum, while if the change of the price is driven by a productivity change, the impact is limited (Cheong and Kim, 1997).

A change in the real estate exposure usually has an impact on the firm's market evaluation in the current year and in the following years. Empirical evidence demonstrated that the market response is different on the basis of the sector analysis, and the more significant reaction is related to the retail sector in which a real estate sale has a positive effect on the current stock prices (Nappi-Choulet, Missioner-Piera, and Cancel, 2009).

Firm fundamentals affect the size of the real estate exposure at corporate level and normally some business features will represent an incentive for investing in real estate assets as an alternative of renting or leasing solution. The literature shows that firms more interested in owning real estate assets have a lower level of risk profile and, normally, riskier firms are those that avoid investing in the real estate market (Zhao and Sing, 2016).

Empirical evidence shows that higher exposure on real estate implies lower average returns and greater sensitivity to systematic risk (Deng and Gyouko, 1999). The detailed analysis of real estate assets owned shows that if the attention is focused only on instrumental real estate assets, the unexpected performance of firms with higher exposures is higher than other firms (Tuzel, 2010). The impact of the real estate ownership on the stock market performance is significantly different on the basis of the overall market condition, and normally in a crisis scenario the lower performance of high CRE firms is more significant (Liow, 2004).

3. EMPIRICAL ANALYSIS

3.1 Sample

The sample considers all companies listed at the end of 2022 that are operating in the retail sector (consumer cyclical and not cyclical) and for which the Refinitiv database collects operating metrics (Figure 1).

Figure 1. Sample
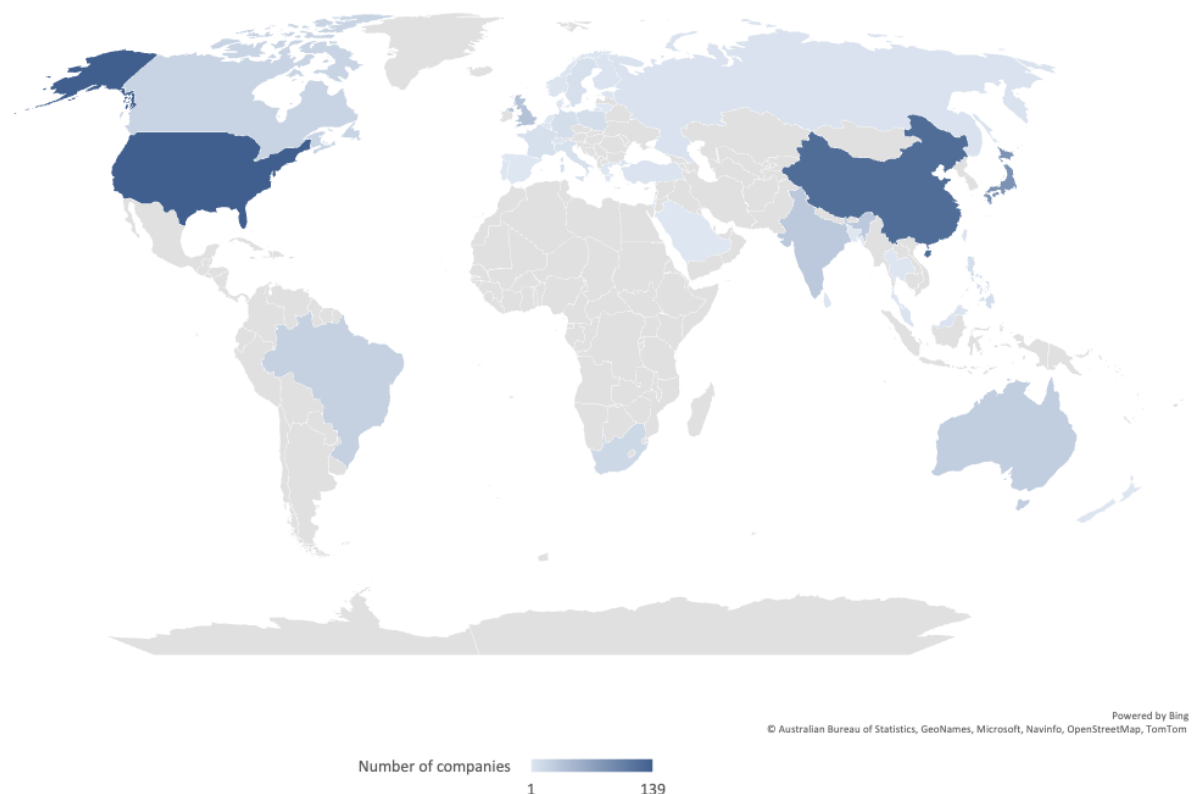
Source: Refinitiv data processed by the authors.

The selected firms are 646 from 42 different countries. The countries most represented are the United States (140), China (125), and Japan (86), and the geographical area that is less represented is Africa (only 15 corporations based in South Africa).

Operating metrics collected in Refinitiv allow one to evaluate the location strategy (n° of domestic and international stores) and the role of the online channel for the sales strategy for the period 2012-2021. Following Hernandez and Biasotto (2001) illustrating that most location decisions involve managing the existing location asset as opposed to increasing or decreasing the size of the portfolio, the CRE strategy of retail companies could be summarised by analysing the trend on the number of selling points owned or leased by corporations and the change of the strategy over time (Figure 2).

Figure 2. CRE investment of retail companies

CRE investment classified according to the number of physical stores owned	CRE strategy year-by-year and by location
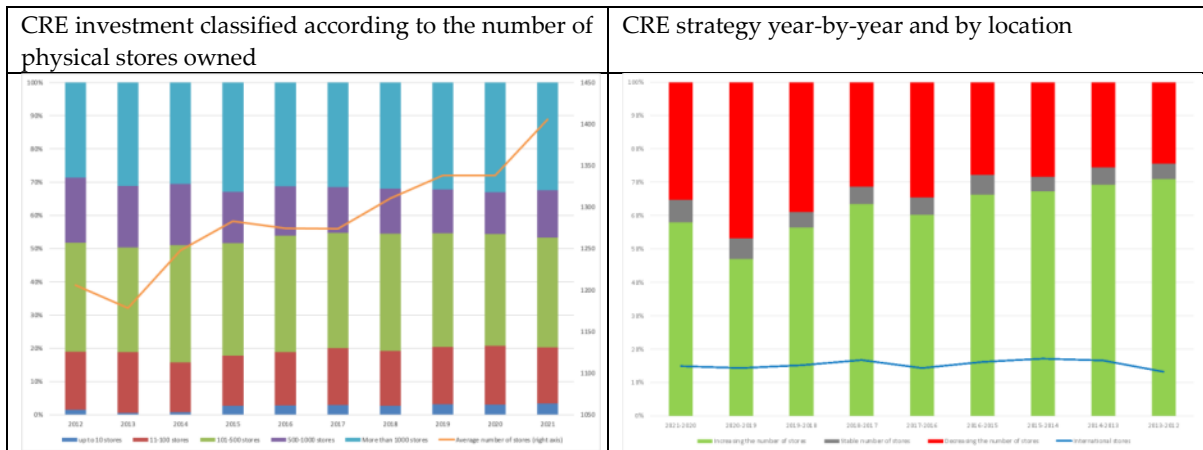
Source: Refinitiv data processed by the authors.

Over the ten years, the number of average stores used by the companies has increased from 1206 in 2012 to 1406 in 2021 and less than 20% of the firms have less than 100 selling points. Year-by-year corporations increase the number of stores owned more frequently and decrease them independently with respect to the year period selected. More than 10% of the firms have invested in brick-and-mortar stores out of the country of origin, and the role of international investment is increasing from 13% in 2012 to 14.8% in 2021.

The analysis of the sales classified based on the selling channel allows identifying some interesting trends in increasing online revenues for companies operating in the retail sector (Figure 3).

Figure 3. Revenue breakdown by selling channel

Percentage of companies with no sales online	Ratio between online and on-premise sales for companies with online sales

Source: Refinitiv data processed by the authors.

Data show that the number of companies that do not have a proprietary online selling channel is decreasing over time moving from 91% in 2012 to 82% in 2021 and the trend was only speed-up by the pandemic because in 2020 the percentage decreased by more than 3% in only one year. In 2012 companies that were both selling channels used to sell around the double of the values of items from physical stores with respect to online, while since 2020 the online sales value more than those related to the other stores.

3.2 Methodology

The analysis will consider the performance of firms and the role of the real estate portfolio in explaining the abnormal return achieved. The methodology adopted is a two-stage least squares approach constructed based on the following formulas (Park and Glascock, 2010):

$$R_{it} = ln\left(\frac{P_{t+1}}{P_t}\right) \tag{1}$$

$$_{it} = R_{it} - E(R_{it}) = R_{it} - R_{ft} - \beta_{it}^e\left(R_{mt} - R_{ft}\right) \tag{2}$$

$$_{it} = \gamma_0 + \gamma_1 PPE_{it} + \gamma_2 LEV_{it} + \gamma_3 lnMV_{it} + \varepsilon_{it} \tag{3}$$

where:

R_{it} is the yearly return of the firm i at year t computed as the ratio of the closing price at the end of the year t+1 (P_{t+1}) with respect to same price at the end of the year t (P_t);

R_{ft} is the yearly return of the risk-free rate proxied by the US treasury bill 3 months;

R_{mt} is the yearly return of a customized equally weighted index that considers all companies in the sample;

$_{it}^e$ is the beta of the share i that measures share price sensitivity to the market benchmark computed over the last two years based on weekly data.

PPE_{it} is the amount of Property, Plant, and Equipment scaled for Total assets;

LEV_{it} is the leverage policy proxied by the ratio of total debt with respect to Equity;

$lnMV_{it}$ is a proxy of the size of the firm constructed as the natural logarithm of the market value;

The model is augmented to test the following hypothesis related to the geographical diversification of corporate real estate portfolio:

Hyp 1. Does the market pay a premium for retail companies based on their CRE policy?

Hyp 2. Did Covid-19 change the role of the CRE strategy in the retail sector?

The new formulas tested are the following:

$$_{it} = \gamma_0 + \gamma_1 PPE_{it} + \gamma_2 LEV_{it} + \gamma_3 lnMV_{it} + \gamma_4 IntCRE_{it} + \gamma_5 lnStores_{it-1} + \gamma_6 \Delta Stores_{it}$$
$$+ \gamma_7 OnlineSales_{it} + \varepsilon_{it} \tag{4}$$

$$_{it} = \gamma_0 + \gamma_1 PPE_{it} + \gamma_2 LEV_{it} + \gamma_3 lnMV_{it} + \gamma_4 IntCRE_{it} + \gamma_5 lnStores_{it-1} + \gamma_6 \Delta Stores_{it}$$
$$+ \gamma_7 OnlineSales_{it} + \gamma_8 Covid_{it} + \varepsilon_{it} \tag{5}$$

$$_{it} = \gamma_0 + \gamma_1 PPE_{it} + \gamma_2 LEV_{it} + \gamma_3 lnMV_{it} + \gamma_4 Covid_{it} \times IntCRE_{it} + \gamma_5 Covid_{it} \times lnStores_{it-1}$$
$$+ \gamma_6 Covid_{it} \times \Delta Stores_{it} + \gamma_7 Covid_{it} \times OnlineSales_{it} + \gamma_8 (1 - Covid_{it})$$
$$\times IntCRE_{it} + \gamma_9 (1 - Covid_{it}) \times lnStores_{it-1} + \gamma_{10}(1 - Covid_{it}) \times \Delta Stores_{it}$$
$$+ \gamma_{11}(1 - Covid_{it}) \times OnlineSales_{it} + \varepsilon_{it} \tag{6}$$

where the new variables added in formula (4) with respect to formula (3) consider the impact of CRE policy on the extra-performance achieved by measuring the percentage of international retail shops ($IntCRE_{it}$), the natural logarithm of the number of selling points at the beginning of the year ($lnStores_{it-1}$), the percentage of stores opened or closed during the year ($\Delta Stores_{it}$), and the ratio between the online and on store sales ($OnlineSales_{it}$). The new formula allows us to test whether the CRE strategy matters in predicting the abnormal performance of a company operating in the retail sector.

Formulas (5) and (6) allow testing if the role of CRE strategy for the financial markets is changed after the pandemic by using a dummy variable ($Covid_{it}$) that assumes values 0 before 2020 and 1 otherwise. The dummy is used to test whether the event impacted the market (formula 4) and/or if the role of CRE strategy variables has changed after the pandemic (formula 5).

3.3 Results

A preliminary analysis of the performance achieved by the companies does not show a clear pattern over time (Figure 4).

Figure 4. Performance and Jensen's alpha for retail companies

Source: Refinitiv data processed by the authors.

The best years in the period considered are 2012, 2015, and 2019 for which retail companies on average outperform the expected return and achieved a positive Jensen Alpha. The expected return is increasing from 2016, but the maximum reached before the pandemic (2018) was significantly higher than in the last years of the period analysed

.

Table 1. Jensen's Alpha for retail companies classified based on the CRE investment features

Companies classified for CRE International investment											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average
With International exposure	-1.50%	-16.46%	-21.84%	4.29%	4.77%	-0.96%	-34.41%	26.20%	-7.13%	-4.58%	-5.16%
Without International exposure	4.48%	-15.53%	-12.08%	0.95%	2.68%	-1.79%	-20.72%	25.07%	-7.02%	-4.86%	-2.88%
Companies classified for the role of online revenues											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average
With online revenues	-0.83%	-18.28%	-17.72%	-0.49%	11.81%	1.70%	-22.20%	24.32%	-4.33%	-7.35%	-3.34%
With no online revenues	6.13%	-15.06%	-14.83%	1.01%	6.70%	-3.75%	-22.02%	24.50%	-8.46%	-4.18%	-3.00%
Companies classified by number of stores											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average
With more than 100 stores	3.26%	-14.70%	-16.34%	-0.85%	1.13%	-1.70%	-22.70%	22.60%	-7.96%	-3.05%	-4.03%
With less than 100 stores	4.48%	-16.12%	-12.23%	2.67%	3.87%	-1.65%	-23.03%	26.56%	-6.56%	-5.69%	-2.77%
Companies classified for the yearly change in the number of stores											
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average
Growing number of stores	-	-17.95%	-14.74%	1.59%	0.38%	-3.16%	-26.56%	23.05%	-12.06%	-10.47%	-6.66%
Stable number of stores	-	-2.73%	-18.31%	-0.37%	-3.05%	0.16%	-29.19%	31.87%	-5.95%	-1.73%	-3.26%
Decreasing number of stores	-	-9.02%	-9.03%	5.65%	14.42%	-0.58%	-17.50%	26.15%	-2.61%	3.64%	1.24%

Source: Refinitiv data processed by the authors.

The performance analysis of the companies classified by the CRE strategy allows one to identify some interesting differences among them (Table 1).

The choice of developing an international network of stores for a retail company is no longer rewarded by the market. Typically, companies with fewer stores that rationalize their investment into CRE may be characterized by higher returns concerning the others. The market no longer rewards the simple existence of an on-line channel because the number of companies that use blended selling channel is increased significantly.

A panel regression model allows one to identify the main drivers of abnormal performance for retail companies (Table 2)

Table 1. Jensen's Alpha and company characteristics

	(3)	(4)	(5)	(6)
$Intercept$	0.107**	-0.087**	0.110**	-0.039*
PPE_{it}	-0.014*	-0.0132*	-0013*	-0.014*
LEV_{it}	-0.005	-0.003	-0.003	-0.004
$lnMV_{it}$	-0.004*	-0.004**	-0.005**	-0.005*
$IntCRE_{it}$	-	0.030	0.030	-
$lnStores_{it-1}$	-	-0.007	-0.007	-
$\Delta Stores_{it}$	-	-0.002**	-0.003**	-
$OnlineSales_{it}$	-	0.074**	0.002	-
$Covid_{it}$	-	-	-0.122**	-
$Covid_{it} \times IntCRE_{it}$	-	-	-	0.038
$Covid_{it} \times lnStores_{it-1}$	-	-	-	0.004
$Covid_{it} \times \Delta Stores_{it}$	-	-	-	-0.005**
$Covid_{it} \times OnlineSales_{it}$	-	-	-	0.002*
$(1 - Covid_{it}) \times IntCRE_{it}$	-	-	-	0.001
$(1 - Covid_{it}) \times lnStores_{it-1}$	-	-	-	0.001
$(1 - Covid_{it}) \times \Delta Stores_{it}$	-	-	-	-0.002
$(1 - Covid_{it}) \times OnlineSales_{it}$	-	-	-	0.001
Years FE	☑	☑	☑	☑
Company FE	☑	☑	☑	☑
Companies	646	646	646	646
Observations	6460	6460	6460	6460
Adjusted R2	0.167	0.169	0.169	0.167

Notes: The table presents the results of a panel linear regression model (fixed effects). Independent variable is the Jensens' Alpha and independent variables are: is the amount of Property, Plant, and Equipment scaled for Total assets; is the leverage policy proxied by the ratio of total debt with respect to Equity; is a proxy of the size of the firm constructed as the natural logarithm of the market value; is the percentage of international retail shops; $_{-1}$ the natural logarithm of the number of selling points at the beginning of the year, is the percentage of stores opened or closed during the year, (is the ratio between the online and on store sales (); is a dummy variable that assumes values 0 before 2020 and 1 otherwise.

Source: Refinitiv data processed by the authors.

Retail companies that outperform the expected return invest less in property and plants and are characterized by lower market capitalization. Data do not support the hypothesis that the ownership of real estate assets for corporate real estate is recognised by the market as a value added, so retail companies that rent buildings instead of owning them must be preferred from the investors' point of view. The results are in line with previous evidence provided in literature on international retail companies (e.g. Yu and Liow, 2009)

Looking at the CRE strategy, the choice to invest in developing an international network of stores does not create value for shareholders. Companies that reduce the number of physical stores and increase the volume of online sales perform best in the stock market.

Covid-19 had a negative impact on the average performance of retail companies due to the worsening economic condition in all countries worldwide and the reduction of sales from physical stores during the lockdown periods. The most relevant impact related to Covid must be ascribed to the lower profitability of developing new stores and the greater benefits associated with increasing online sales after the pandemic.

4. CONCLUSION

Retail companies must plan their CRE strategy to maximise the benefits related to owning stores worldwide and the opportunities offered by online channels. Empirical analysis indicated that the number of stores is increasing over time, even if the volume of online sales has increased over the last decade. The international CRE strategy does not change significantly over time, and less than 15% of the selling points are based in a foreign country. CRE strategy has an impact on the stock market performance for retail companies and during the last decade, better performance was achieved by firms that decreased the number of brick-and-mortar stores and increased the volume of sales online.

After the pandemic, the overall impact on the performance of the retail companies was negative, and nowadays companies that want to outperform the market have to reduce the number of shops used even more and increase the role of sales online. The lower role of physical stores is supported by the literature that pointed out that for some customers, the online option will be preferred even after the end of the pandemic period (e.g. Szasz et al., 2022).

More empirical analysis is needed to identify whether the supply chain characteristics of retail companies may affect the CRE policy. In fact, during the pandemic, companies have experienced issues related to having a global supply chain and the impact of supply chain disruptions on companies' risk (Gibilaro and Mattarocci, 2022). The CRE investment strategy usually has to prefer to select brick-and-mortar near the main customers or suppliers instead of trying to create new selling points in areas characterised by higher uncertainty for the sales or the procurement strategy.

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THE ASYMMETRIC EFFECTS OF MULTI-ATTRIBUTES EXTRACTED FROM ONLINE REVIEWS ON HOTEL RATINGS: THE ROLE OF CULTURE

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ABSTRACT

This study aims to explore how culture induces the dynamics in the asymmetric impact of service quality attributes, extracted from hotel customers' online reviews, on customer satisfaction. The study analyses 13.653 tourists' online reviews from various European regions concerning the service they received from 4- and 5-star hotels located in the vicinity of Athens, Greece. Then, a multi-attribute model is formulated to examine, through PLS SEM, how customers' cultural background creates dynamics in the asymmetric impact of the identified hotel-related service attributes on customer satisfaction. The results indicate that customers from different cultural backgrounds assess differently the impact of certain service attributes on their satisfaction from the hotels' service package. The results of this study can be used by hotel managers for segmentation purposes of the European tourism market and for identifying which aspects of their service mix need to be customized based on the cultural group they target.

Keywords: customer satisfaction, hotels online reviews, asymmetric effects, three factor theory culture, international business

INTRODUCTION AND CONCEPTUAL BACKGROUND

Customer satisfaction has always been and still remains a core measure of successful business management and is closely related to customers' retention and firms' profitability (Kim et al., 2023; Chatterjee and Mandal, 2020; Abdullah et al., 2023; Moreno Brito et al., 2024). Customers formulate the level of their satisfaction based on what they receive from service providers in terms of service

product and service delivery. As such, it is of paramount importance for service providers to understand customer perceptions about several aspects of service mix in order to prepare an effective marketing strategy (Lin and Vlachos, 2018). The knowledge of customer preferences is crucial especially in the context of tourism, given the complexities that the tourism industry is currently facing, which have significantly changed customer behavior to such an extent that customer satisfaction is an important driver of service providers' survival (Akamavi et al., 2015; Chatterjee and Mandal, 2020; Liu et al., 2023).

During the last ten years, several studies have used online reviews as a proxy for service evaluation (e.g., Chatterjee and Mandal, 2020; Mariani and Predvoditeleva, 2019; Mariani et al., 2020; Athanasopoulou et al., 2023; Patil and Rane, 2023; Glaveli et al., 2023). The reason is the importance that online reviews have for customers as information sources in their decision process, as well as their significant effect on customers' purchase decisions (Mathwick and Mosteller, 2016) and service providers' sales and profitability (Kim et al., 2015).

On the other hand, different service attributes have been found to have asymmetric effects on customer satisfaction (e.g. Mikulic & Prebežac, 2008; Kim et al., 2016; Kim et al., 2023; Athanasopoulou et al., 2023; Zhou et al., 2023) and these effects are expected to vary according to customers' cultural background or region of residence (e.g. Banerjee & Chua, 2016; Min et al., 2018; Tsiotsou, 2019; Zhang et al., 2020; Chatterjee and Mandal, 2020; Tsiotsou, 2022; Guan et al., 2022).

Although there are several studies investigating the role of service attributes' evaluation, using online reviews, for customers from different cultures, there are no research efforts to consider the impact of service attributes asymmetric effects from online review on customer satisfaction for customers from various cultural backgrounds. Thus, the purpose of these study is to investigate whether the asymmetric effects of different hotel service attributes, extracted from online reviews, vary for customers from different European cultural clusters.

RESEARCH METHODOLOGY

The study has analyzed 13,653 online reviews extracted from Booking.com. These reviews concern European customers evaluations for 97 4- and 5-star hotels located in Athens, Greece, which has been posted between June 2022 and June 2024. As it is known, the textual content of each review in Booking.com is divided into positive and negative aspects, which provide an easier way to examine the asymmetric effects of service attributes on customer satisfaction. To extract attribute-level evaluation from text content, a content analysis was performed in order to formulate a multi-attribute model relating positively and negatively assessed service attributes and customer's overall rating or

satisfaction. More specifically, the most frequent mentioned 150 words from the textual content were extracted and then three independent coders classified the words into eight service attributes: cleanliness, location, staff, facilities, room, food, processes, and value for money. Any conflicts in the classification amongst coders were resolved by using a fourth coder with high experience in the field. As the textual content of each review consists of positive and negative evaluations of hotel services, the textual content of each review could contain up to sixteen (16) attributes (8 positive and 8 negative). The 16 independent variables, reflecting multi-attributes of hotel service mix, were constructed based the binary representation (Kim et al., 2023), in which positive (negative) service attribute number variables refer the number of each attribute-related words in pros (cons) of each review. Then, if the number of words in pros (cons) is greater than 0, then the variable becomes 1, otherwise 0. Next, the penalty-reward contrast analysis (PRCA) (Mikulic and Prebežac, 2008), and the three-factor theory of customer satisfaction (Matzler and Sauerwein, 2002), is used to investigate the asymmetric impact of different service attributes on customer satisfaction.

Based on this modeling framework, the service attributes can be categorized as: 1) basic factors, when the impact of the negative evaluation of an attribute on customer satisfaction is greater than the positive one, 2) excitement factors, when the impact of the negative evaluation of an attribute on customer satisfaction is lower than the positive one and 3) performance factors, when the impacts of both the negative and the positive evaluation of an attribute on customer satisfaction are equal. Basic factors represent the qualifiers of a service, which induce dissatisfaction when they are not present, yet they do not produce satisfaction when they are delivered. Excitement factors, produce satisfaction if they are delivered, but their absence does not lead to dissatisfaction. Finally, performance factors produce satisfaction when they perform high and dissatisfaction when they perform poorly (Mikulic and Prebežac, 2008).

Finally, based on the studies of Tsiotsou (2019, 2022), a four cross-supranational cultural study is conducted, in order to see whether the asymmetric effects of identified service attributes on overall satisfaction vary for customers from different cultural backgrounds. The four cross-supranational cultural clusters were derived by dividing all European countries into four groups (i.e., eastern, northern, southern, and western clusters) based on the geographical and cultural proximity between countries. Based on this categorization, the eastern European cluster includes Belarus, Bulgaria, Czech Republic, Hungary, GA, Poland, Moldovia, Romania, Russia, Slovakia, and Ukraine. The northern European group includes Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania, Norway, Sweden, and the UK. The southern European cluster includes Albania, Bosnia and Herzegovina, Croatia, Greece, Cyprus, Italy, North Macedonia, Malta, Montenegro, Portugal, Serbia, Slovenia, and

Spain. Finally, the western European group includes Austria, Belgium, France Germany, Luxemburg, the Netherlands, and Switzerland.

RESULTS

The distribution of online review per cultural cluster is the following: Eastern European: 1,387 (10%), Northern European: 5,394 (40%), Southern European: 4,154 (30%) and Western Europeans: 2,718 (20%). The ANOVA analysis, presented in Table 1, indicates that the Western Europeans are significantly more satisfied than the customers from the other clusters.

Cultural Cluster	Mean	Std. Dev.
EE	8.186	1.672
NE	8.190	1.603
SE	8.209	1.663
WE	8.371	1.615
Total	8.267	1.635

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	97.474	3	32.491	12.180	.000
Within Groups	36409.669	13649	2.668		
Total	36507.143	13652			

Note: Eastern European (EE); Northern European (NE); Southern European (SE); Western European (WE)

Table 1. ANOVA results

The PLS SEM was used to test the asymmetric effects of service attributes on customer satisfaction and a permutation test (randomization test) was performed the assesses the differences of the previous relationships between the four supranational cultural clusters (Chin, 2009). The results are presented in Table 2.

Independent variable	Whole Sample		Eastern Europe		Northern Europe		Southern Europe		Western Europe	
	Value	t-stat	Value	t-stat	Value	t-stat	Value	t-stat	Value	t-stat
Cleanliness+	0.034	5.308	0.025	1.264	0.019	1.882	0.064	5.360	0.018	1.262
Location+	0.088	13.814	0.109	5.582	0.093	9.189	0.061	5.186	0.111	7.786
Staff+	0.159	24.289	0.124	6.053	0.163	15.705	0.162	13.327	0.159	11.021
Facilities+	0.077	12.077	0.062	3.176	0.075	7.379	0.061	5.161	0.098	6.901
Room+	0.136	21.000	0.144	7.258	0.127	12.389	0.154	12.958	0.123	8.527
Food+	0.071	10.985	0.057	2.852	0.068	6.549	0.063	5.250	0.099	6.837
Processes+	0.046	7.183	0.067	3.434	0.043	4.262	0.050	4.281	0.032	2.286
Value+	0.027	4.226	0.081	4.195	0.016	1.584	0.029	2.494	0.020	1.431
Cleanliness-	-0.219	-34.168	-0.237	-12.163	-0.208	-20.364	-0.226	-19.250	-0.213	-14.839
Location-	-0.130	-20.452	-0.161	-8.316	-0.149	-14.680	-0.096	-8.206	-0.126	-8.900
Staff-	-0.197	-30.257	-0.169	-8.496	-0.211	-20.350	-0.200	-16.691	-0.181	-12.497
Facilities-	-0.135	-21.268	-0.087	-4.492	-0.142	-13.997	-0.141	-12.041	-0.130	-9.162
Room-	-0.297	-46.469	-0.282	-14.522	-0.299	-29.351	-0.284	-24.149	-0.314	-22.040
Food-	-0.097	-15.121	-0.134	-6.824	-0.083	-8.197	-0.099	-8.391	-0.102	-7.141
Processes-	-0.144	-22.140	-0.176	-8.790	-0.160	-15.339	-0.118	-9.898	-0.142	-9.771
Value-	-0.119	-18.720	-0.114	-5.790	-0.108	-10.581	-0.130	-11.113	-0.140	-9.812
R^2	0.457		0.501		0.458		0.443		0.468	

Table 2. PRC Analysis results per cultural group

The results indicate that, for the whole sample, all service attributes are categorized as basic factors, given that the implementation of the Wald-test (Cheung and Lee, 2009) has shown that the impact of positive evaluations on customer satisfaction are much lower than the respective negative evaluations. The same analysis conducted for each cultural group reveals that all service attributes remain basic factors, except of location, staff, and food for the customers of the Westen European cluster, which categorize these attributes as performance factors. These results validate, to a large extent, the asymmetric impact of service attributes' evaluation on customer satisfaction. The results of the multi-group analysis for the four supranational cultural clusters are presented in Table 3.

The comparison between Eastern and Northern European clusters indicates that for Northern Europeans, the negative evaluation of hotel facilities has a greater impact on customer satisfaction than for the Eastern Europeans, while positive evaluation of value for money matters more for Eastern Europeans.

EE vs. NE	EE vs. SE	EE vs. WE	NE vs. SE	NE vs. WE	SE vs. WE
Facilities-	Location- Facilities- Processes-		Location- Processes-		
Value+	Cleanliness+ Location+ Value+	Value+	Cleanliness+ Location+ Room+		Cleanliness + Location + Room+ Facilities +

Note: Eastern European (EE); Northern European (NE); Southern European (SE); Western European (WE)

Table 3. Cultural groups differential effects of service evaluation of customer satisfaction

The comparison between Eastern and Southern European clusters shows that the negative evaluation for attributes like location and processes are of greater value for Eastern Europeans while facilities are of greater value for Southern Europeans. On the other hand, the positive evaluation for attributes like cleanliness and value for money matter more for Southern Europeans, while the positive evaluation of locations matters more for Eastern Europeans.

The comparison between Eastern and Western European clusters revealed that the positive evaluation of value for money matters more for Eastern Europeans.

The comparison between Southern and Western European clusters revealed that the positive evaluation for cleanliness and room matter more for Southern Europeans, while those for location and facilities matter more for Western Europeans.

The comparison between Northern and Western European clusters has not revealed any attribute that their positively and negatively evaluations differently affect customer satisfaction

CONCLUSIONS, LIMITATIONS, AND FURTHER RESEARCH

The purpose of this study was to validate the asymmetric effects of service attributes, extracted from online reviews for 4- and 5-star hotels of Athens, on customer satisfaction and further examine the differences of these asymmetric effects for four supranational cultural clusters. The results revealed that service attributes evaluation have an asymmetric effect on customer satisfaction as all extracted attributes operate as qualifiers for customer satisfaction level determination. The multi-group analysis between diverse European cultural groups disclosed that for certain hotel service attributes the impact of positive or negative evaluation on customer satisfaction varies between them.

Hotel managers can use these results to customize their service mix according to customers they target in their marketing strategies. These tailor-made strategies will lead to better online ratings which will then positively affect customer acquisition, through positive e-WOM, customer relationships management activities and finally hotels' profitability.

To understand how customers' cultural background moderates the relationship between multi-attributes and customer satisfaction, online reviews posted for hotels in Athens were analyzed. Findings related to further customers' heterogeneity would provide hotel managers with more diverse implications about how to develop and implement their marketing strategies. For example, cultural background could have differential impacts on customer satisfaction contingent on customers' travel purposes (leisure vs. business). Thus, further research should consider more customer characteristics.

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ALIGNING HOSPITALITY: THE CONTRIBUTION OF HOTELS TO SUSTAINABLE ECONOMIC GROWTH AND DECENT WORK IN SPAIN

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ABSTRACT

This research aims to identify the key factors influencing hotels' commitment to upholding 'labour rights protection' within the framework of Sustainable Development Goal 8, focusing specifically on targets 8.1, 8.2, and 8.9. Through the application of stepwise multiple linear regressions, the study attempts to forecast the variable of 'Economic Profitability' (EP) across two datasets. The primary objective is to ascertain whether EP, as a representation of SDG 8 under target 8.8, can be accurately predicted, thereby indicating the extent of hotels' dedication to safeguarding labour rights and fostering safe, secure working environments.

The results reveal that economic growth, financial stability, and economic productivity within the Spanish hotel industry serve as predictors of the inclination to protect labour rights. Conversely, governmental and associative support for socio-economic sustainability does not significantly influence hotels' commitment to labour rights protection.

This research offers valuable insights to facilitate meaningful collaborations to drive economic advancement, promote social inclusivity, and ensure the protection of labour rights within the hospitality sector.

Keywords: SDGs, SDG08, sustainability, hotel industry, Spain, labour rights, economic growth

1. INTRODUCTION AND LITERATURE REVIEW

The United Nations has launched the 2030 Agenda in 2015, and this was an important initiative that attracted businesses, from which ones in the hospitality and tourism industry to be involved. This agenda shaped an inclusive global strategy aimed at addressing key challenges, including poverty eradication, environmental preservation, and enhancing living standards. Subsequently, in 2017, the UN General Assembly further bolstered the efficacy of the Sustainable Development Goals (SDGs) by delineating 169 precise targets, thereby fortifying the roadmap towards realising these ambitious objectives.

As the efficacy of targets hinges on their measurability, the imperative arises to discern indicators reflecting the degree of success or failure. The inaugural SDGs global indicator framework, crafted by the Inter-Agency and Expert Group on SDG Indicators (IAEG-SDGs), stands as a pivotal milestone (UN Statistical Commission, 2016). This comprehensive framework encompasses 230 indicators intricately linked to the diverse array of SDG goals and targets. Annual refinements of indicators are included in the indicator framework as they occur. In line with the group's mandate, the IAEG-SDGs proposed 36 major changes to the framework in the form of replacements, revisions, additions, and deletions as part of the 2020 Comprehensive Review, which the 51st Statistical Commission approved in March 2020. From this primary list of indicators for evaluating SDGs' implementation, different organisations worked on adjusting SDGs indicators to specific realities (references….). There exist measurements on SDGs implementations at the country levels such as the SDG Index and Dashboard of UN Sustainable Development Solutions Network (UN-SDSN), which propose a large number of indicators to measure companies' progress towards the DSGs and their 169 associated targets. It is also worth pointing out the measurements of the implementation of SDGs by the private sector. The World Business Council for Sustainable Development (WBCSD), together with the Global Reporting Initiative (GRI) and the UN Global Contact, published a guide for businesses to implement and measure their contribution to SDG.

Once the operational bases of the 2030 Agenda have been raised, the question lies in identifying the role that hospitality and tourism actors play as active stakeholders in developing the actual Agenda and in achieving its objectives and targets. The latter framework encompasses a call to businesses with the potential to participate in the achievement of the seventeen sustainable development goals. Despite some asserting that the private sector will become an active agent in favour of the SDGs (Institute for Human Rights and Business, 2015), the need for a responsible entrepreneurial commitment and engagement towards SDGs is essential. The literature on the role of the private sector, and mainly the hospitality and tourism one , in achieving the SDGs is quite extensive (Corporate Citizenship, 2015; World Tourism Organization and the United Nations Global Compact Network Spain, 2016; Jones et al., 2017; Jones et al., 2019; Rashed & Shah, 2021).

The integration of hotels into the advancement of Sustainable Development Goals (SDGs) reflects a strategic approach embraced by the industry, as addressed by Jones and Comfort (2019). Rather than explicitly targeting individual SDGs, hotels incorporate them into their corporate social responsibility (CSR) strategies. This integration emphasises a significant convergence between SDGs and the CSR targets (Buhmann et al., 2019; Rashed and Shah., 2021). CSR initiatives are deeply rooted within the operational framework of the private sector, encompassing economic, social, and environmental

sustainability requirements (Kumi et al., 2019). As a result, CSR serves as a cornerstone for sustainability, economic competitiveness, and innovation, all vital components for achieving the SDGs. In this context, the United Nations World Tourism Organization (UNWTO) and the United Nations Private Sector Development Network (UPDN) emphasise the critical importance of aligning CSR strategies with the broader SDGs agenda and state that:

"some major companies, including NH Hotel Group and Marriott International, are starting to align their corporate social responsibility (CSR) strategies with the SDGs and to work together with the United Nations Global Compact, the International Tourism Partnership (ITP) and other important players in support of the Goals. These are encouraging signals, indicating that the private sector is willing to take on the opportunities and responsibilities to achieve the SDGs". (UNWTO and UPDN, 2018:41).

CSR reports serve as valuable resources for understanding the tourism sector's impact on SDGs. Particularly, tourism frequently emerges in discussions related to SDGs 8, 12, and 17, as highlighted in Voluntary National Reviews on the SDGs (UNWTO and UPDN, 2018:11). Within the accommodation sector, major hotel chains routinely release their progress toward strategic objectives in annual reports. These reports serve as primary sources for academic research, enabling scholars to explore the role of hotels in advancing SDGs (Bacari et al., 2021; Jones & Comfort, 2019; Pattanaro & Donato, 2018; Jones et al., 2017; Jones et al., 2014).

Academic investigations often rely on secondary sources, particularly CSR reports, for data collection. For instance, Jones and Comfort (2019) utilised corporate websites to gather information by searching for "Sustainable Development Goals" along with the names of specific hotel groups. Similarly, UNWTO and UPN (2018) conducted content analyses of CSR reports from 60 global tourism companies, including those in the accommodation sector. Pattanaro and Donato (2018) offer a unique perspective by examining the potential benefits of SDG implementation for the tourism industry, presenting an original approach to studying the SDG-tourism relationship.

In terms of the analysis scope, the majority of the research studies tend to adopt a broad perspective when examining Sustainable Development Goals (SDGs) (Apostolopoulos et al., 2018; Jones & Comfort, 2019; Wynn & Jones, 2019; Álvarez-Risco et al., 2020; Dube, 2021). However, a notable difference exists from this general trend, with a few studies probing specific SDGs. Among notable studies in the field, Nwokorie and Obiora (2018) examined sustainable development practices across 15 hotels, focusing on the interrelation with SDGs 3, 4, 6, and 7. Similarly, Dube (2021) research focused on the implementation of SDGs 12, 13, and 15 within the hospitality sectors of Botswana and

Zimbabwe. Other studies placed emphasis on SDGs 8, 12, and 14, directly involving tourism and applying a significant multiplier effect on various other developmental goals, as highlighted by the SDG Knowledge Hub (2016).

Despite the numerous publications providing advancements in Sustainable Development within the hospitality and tourism sector, a significant knowledge gap must be addressed to reach anticipated viable outcomes. This gap underlines the hotel industry's sensitive focus on employees' well-being and actively contributing to global sustainability efforts (Álvarez-Risco et al., 2020).

This paper focuses on SDG number 8: "to promote inclusive and sustainable economic growth, employment and decent work for all. Sustained and inclusive economic growth can drive progress, create decent jobs for all and improve living standards".

UNWTO (2015) asserts that facilitating access to decent work opportunities within the tourism sector can be particularly advantageous for society, especially for youth and women, leading to enhanced skills and professional growth. Moreover, tourism stands as a cornerstone of global economic expansion, currently accounting for 1 in 11 jobs worldwide. Specifically, accommodation companies play a vital role in advancing SDG 8 by forging connections within local destination value chains, thereby generating employment opportunities and supporting local economies by procuring goods and services. By fostering awareness and bolstering the capacity of local populations and enterprises, these companies contribute to workforce engagement and enable communities to leverage tourism inflows for mutual benefit. Some operators have initiated programs to increase local employment and provide industry training, further enhancing the sustainability of their operations. (UNWTO and UPDN, 2018).

Goal 8 includes twelve targets associated with sixteen indicators (See Appendix 1). Among all the targets, UNWTO specifically recognises the tourism sector's contribution to job creation in Target 8.9: "By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products" (UNWTO, 2017a, p.99).

2. METHODOLOGY

2.1. Proposed indicators for measuring impacts of hotels' engagement in SDG.08

Unlike previous studies and as previously explained, this article does not seek to focus into the evaluation of SDGs implementation by hotels, but rather aims to predict the main variables impacting

hotels' engagement with "protection of labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment" (Target 8.8). Those variables are closely connected to SDGs' targets 8.1, 8.2, and 8.9. (Table 1).

2.2. Targets and indicators and variables under study

Although tourism is specifically named within Target 8.9, the authors defend that the tourism contribution, and more specifically the hospitality sector, to "decent work and economic growth" are not only related to Target 8.9. Together with Target 8.9, *"By 2030, devise and implement policies to promote sustainable tourism that creates jobs and promotes local culture and products"*, authors propose to take into consideration three more targets (refer to Table 1).

Table 1.

TARGET	INDICATOR	SOURCE	
		United Nations Statistical Commission (2016)	UNWTO
8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants and those in precarious employment	8.8.1 Frequency rates of fatal and non-fatal occupational injuries, by sex and migrant status	√	
	8.8.2 Increase in national compliance of labour rights (freedom of association and collective bargaining) based on International Labour Organization (ILO) textual sources and national legislation, by sex and migrant status	√	
8.1. Sustain per capita economic growth in accordance with national circumstances and, in particular, at least 7 per cent gross domestic product growth per annum in the least developed countries	8.1.1 Annual growth rate of real GDP per capita	√	
8.2. Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value-added and labour-intensive sectors	8.2.1 Annual growth rate of real GDP per employed person	√	
8.9 By 2030, devise and implement policies to promote sustainable	8.9.1 Tourism direct GDP as a proportion of total GDP and in growth rate	√	√

tourism that creates jobs and promotes local culture and products	8.9.1: Tourism Direct Gross Domestic Product		√
	8.9.2 Number of jobs in tourism industries as a proportion of total jobs and growth rate of jobs, by sex (2016)	√	√
	8.9.2. Proportion of jobs in sustainable tourism industries out of total tourism Jobs (2017)		√

This study considers that to measure the impacts of hotels' engagement on SDG number 8, the Dependent variables (Y1 and Y2) = Implicit costs, understood as economic profitability (including direct and indirect costs) - financial profitability (only including revenues and explicit costs). Besides, the independent variables are related to targets 8.9, 8.1 and 8.2 (refer to Table 2).

2.3. Data collection and cleaning

The study uses secondary data from Sabi (2021), encompassing 2.6 M Spanish and 0.8 M Portuguese companies. Different steps have been followed to collect the data (1) considering hotels in Spain totaling 5253, then (2) applying ten extra filters, considering the period of 2011-2019, and data collected yearly. The data from the years 2020 to 2023 has been excluded due to the lack of data resulting from the COVID-19 crisis impact in 2020 and 2021, thereby creating a gap in the data. The filters are as presented in Figure 1.

Figure 1.
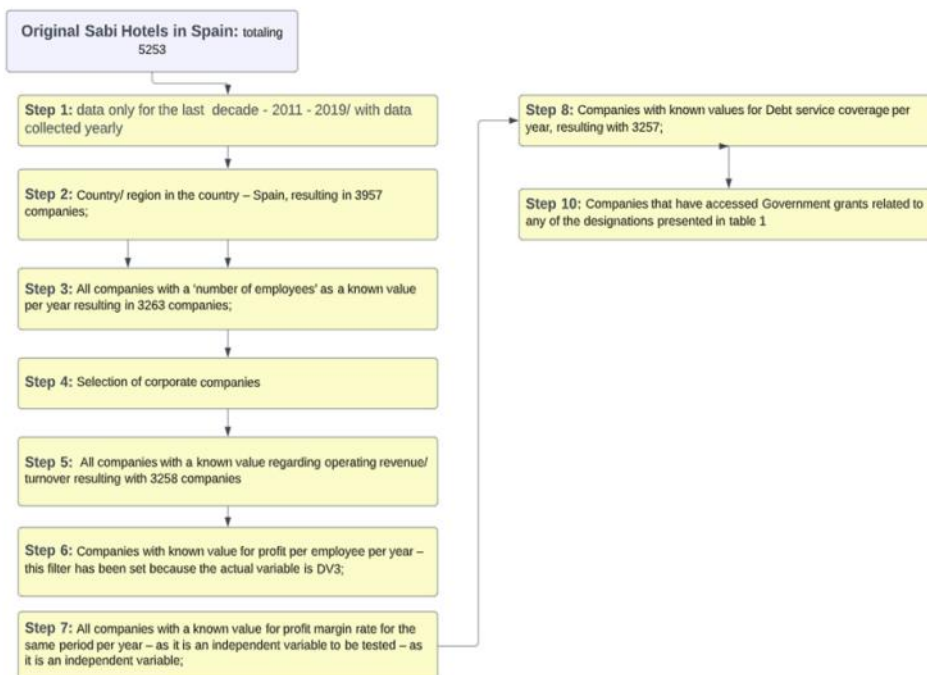
The final database for the study encompassed 1496 hotel companies all over Spain. However, following the study objectives, although keeping the former database, the authors have processed another refinement and selected uniquely companies with grants related to the 3 following types: (1) Employment promotion, (2) Unemployment support and (3) Social services and social promotion. The second database comprises 241 hotel companies, each of which has sought and obtained loans related to social responsibility. These loans are intended to provide support to their employees, either socially, financially, or both, during a specific period of time (Table 2).

Table 2. *Grants types and coding*

Designation	Frequencies	Codes
Trade, tourism, and SMEs	472	1
Other grants (grouped amounts or not classified)	322	2
Employment promotion	190	3
Industry and energy	136	4
Other economic interventions	123	5
Infrastructures	89	6
Agriculture, fishing, and food	40	7
Research & development & innovation	33	8
Unemployment	32	9
Other economic benefits	21	10
Social services and social promotion	19	11
Culture	9	12
International development and cultural cooperation	3	12
Transport subsidies	3	13
Education	2	14
Access to housing and building promotion	1	15
Health care	1	16
Total	1496	

2.4. Variables definition and data analysis

The study applies 2 stepwise multiple linear regressions to test the hypothesis and to predict the dependent variables 'Economic profitability' (EP) for Dataset 1, and Dataset 2. The aim is to verify whether we could predict the DV representing SDG 8 under target 8.8 to protect labour rights and promote safe and secure working environments with a high level of accuracy. EP1 and EP2 are the DVs, representing the accounting profitability less the implicit cost. The latter is regarded as the opportunity cost and leads to a lower income for the company. It also refers to the unseen money that

would have come into the firm if it had produced something else but not recorded in the balance sheet. Thus, in the article's framework, the EP is assumed to be the primary indicator of hotels' engagement in supporting employees and labour rights. The study hypothesis are the following:

- H1: Economic growth of hotels in Spain is a predictor of protection of labour rights (X2 = Target 8.1)

- H2: The financial situation of hotels in Spain impacts their willingness to protect labour rights (X1 - target 8.9)

- H3: Economic productivity of hotels in Spain is a predictor of protection labour rights (X3 = Target 8.2)

- H4: Government and associative support to socio-economic sustainability impacts on hotels' involvement in protecting labour

Table 3. *Models descriptions and variables definition*

Variables					
Dependent variables – DV1, DV2, and DV3					
DV1 (Y1) EP *				Economic profitability (%) 2019 for 1497 cases, assuming that it encompasses the implicit costs	Continuous
DV2 (Y2) EP **				Economic profitability (%) 2019 for 241 cases, assuming that it encompasses the implicit costs	Continuous
Predictors and covariates					
Predictors and covariates	Target	Indicators	Codes	Designations	Types
			C1	City	Categorical
Covariates			C2	Region	Categorical
			C3	Peer Group Size	Continuous
P1	8.9	8.9.1	IV1	Indebtedness (%) 2019	Continuous
			IV2	Long-term debt (Th.) EUR 2019	Continuous
		8.9.2	IV3	Number of employees 2019	Continuous
			IV4	Distribution by sexes - Women 2019	Continuous
			IV5	Distribution by sexes - Men 2019	Continuous
		8.b.1	IV6	Grant type/dummy coded for Model 2	categorical

			IV7	Year grant	Categorical
P2	8.1	8.1.1	IV8	Return on Capital Employed (%) 2019	Continuous
			IV9	Net income th EUR 2019	Continuous
			IV10	Profit Margin (%) 2019	Continuous
P3	8.2	8.2.1	IV11	Profit per Employee (Th.) 2019	Continuous
			IV12	Oper. Rev. per Employee (Th.) 2019	Continuous
			IV13	Costs of employee / Oper. Rev. (%) 2019	Continuous
			IV14	Work. Capital per Employee (Th.) 2019	Continuous
			IV15	Total Assets per Employee (Th.) 2019	Continuous
*N1			1497 cases		
**N2			241 cases		

There are three categories of predictors considered in the studyP1, P2, and P3, all related to SDG 8 (refer to Table 3) (1) P1- are 7 variables (IV1◉IV7, refer to table 1) under target 8.9 and 8.b and encompassing 3 indicators, 8.9.1, 8.9.2, and 8.b.1 (2) P2 – 3 variables under target 8.1, and indicator 8.1.1, (3) P3- 5 variables under target 8.2 and indicator 8.2.1. Besides, 3 categorical variables are used as covariates describing the DVs (C1◉ C3)

In addition, one of the variables is dummy coded 'Grant Type' into a binary one, with '0' companies with no grants related to employees' social-related assistance, and '1' companies which have had, at a period of time, grants for either of the following (1) employment promotion, (2) unemployment, and (3) social promotion. To verify the division of the grants into binary, as mentioned previously, the authors have gone manually through the description of the grant types provided in the database by SABI (2020) to eliminate the remaining categories.

The stepwise is that spss looks at the parametric metrics and chooses the independent variable with the most considerable Pearson correlation with the dependent variable in model 1. Then sequentially goes back to the semi-partial correlations and looks for the next most significant predictor until it stops with a non-significant predictor. Although critics exist related to the stepwise method (Thayer, 2002; Thompson, 1995), most are related to analysing or choosing the best-fit model.

Besides, the regressions' assumptions of multicollinearity, homoscedasticity, normality of distribution, and non-significance of outliers will be tested through SPSS. Thus, In the statistics chosen, to test the assumption of heteroscedasticity present when the variance associated with the residual of the

dependent variable are not homogeneous across levels of the independent variables, the strength of the prediction of the regression equation should be equally strong across all levels of the independent variables. Thus to verify this, the authors will plot the Zresidual (as Y-axis) and the Zpred (as X-axis) (refer to figure…). To check the assumption of multicollinearity, through the correlations table, the authors will study the relationship of the independent variables to each other, verifying both the tolerance and the variance inflation factors (VIF) (Aguinis et al., 2013; Mansfield & Helms, 1982; Thayer, 2002; Thompson, 1995).

3. RESULTS AND DISCUSSION

3.1. Assumptions testing

In assessing the multicollinearity assumption, which examines the relationships among independent variables, it's important to consider tolerance values and Variance Inflation Factors (VIFs). In both regression analyses, tolerance exceeds 0.1. The VIFs fall within the ranges of [1.097–1.259] for regression 1 and [1.044–1.114] for regression 2. These values, falling between 1 and 10, as suggested by Aguinis et al. (2013), indicate the absence of multicollinearity. Consequently, there's no evidence of a significant correlation among the independent variables in either of the stepwise models within the two regressions.

Regarding the assumption of normality, according to the Normal pp plots (Figure 2), the dots are pretty much close to the line, for both regressions, which confirms the data and residuals are approximately normally distributed. The latter result is once more confirmed with the residuals' distribution. The Normal pp plots (Figure 2) indicate a close alignment of the data points with the reference line for both regressions. This alignment suggests that both the data and residuals follow approximately normal distributions. Additionally, confirmation of this result is found in the distribution of residuals, which further supports the conclusion of approximate normality.

Figure 2. *Normal P-P plots of Regression Standardised Residual EP1Datasets 1 &2*
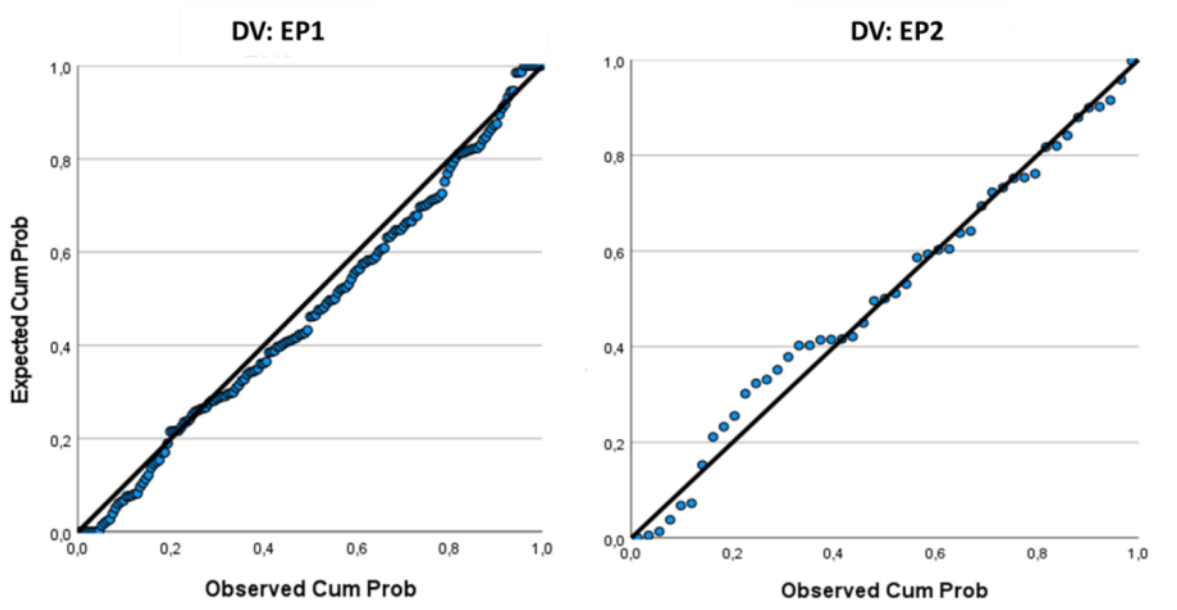
Moreover, concerning heteroscedasticity, the scatterplots reveal a lack of outliers near the axis, indicating a favourable distribution. Points are evenly dispersed both above and below zero on the X-axis and to the left and right on the Y-axis. Hence, the data exhibits homoscedasticity, as illustrated in Figure 3.

Figure 3.
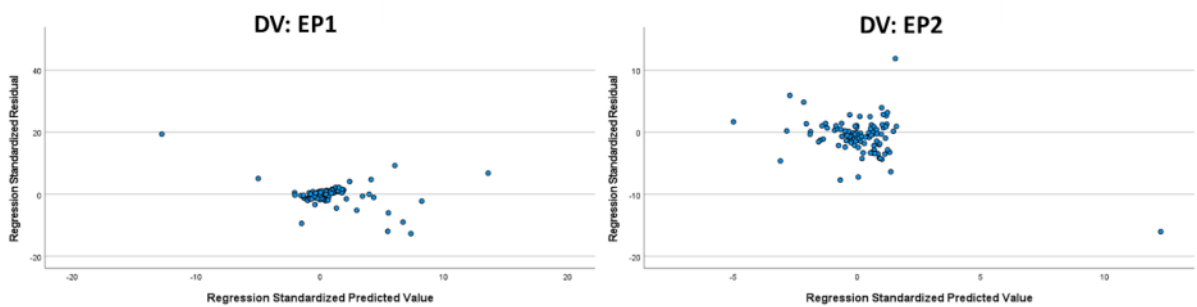
3.2. Stepwise regressions analysis

The stepwise regression with DV1 has ended up with 6 models (refer to table 4). They are all statistically significant (refer to table 3). Regarding model 6, there is an F value of 98.226 with 87 degrees of freedom in the residual and $p<0.001$, thus the R^2 value of model 6 is statistically significant. From the 14 independent variables, only 6 are predictors of Y1, and 8 are left out of the analysis.

According to table 4 Model 1, the 6 variables are significant predictors of the Y1. The ANOVA of the 6 models, with a focus on model 6 is significant with p<0.001 (refer to table 5).

The first model with an R2=0.793 assumes a 79.3 percent of correlation between the economic profitability and the return of capital employed. The last model, considered as the main result of the current regression, has a strong R2=0.856. Thus, 85.6 percent of DV2 variance is explained by 'Return on Capital Employed', 'Indebtedness', 'Grant type', 'cost of employees', 'Distribution by sexes – Women work', and 'Capital per employee'. The latter variables under targets 8.1, 8.2, 8.9, and 8.b are predictors of economic profitability. Hypothesis 1 is accepted.

Table 4. *Stepwise Regressions Models and Coefficients*

DVs and Steps		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Zero-order	Partial	Part	Tolerance	VIF
DV 1											
1	(Constant)	1745,439	439,314		3,973	<,001					
	IV8	0,54	0,029	0,892	18,788	<,001	0,892	0,892	0,892	1	1
2	(Constant)	4130,793	795,527		5,193	<,001					
	IV8	0,519	0,028	0,857	18,693	<,001	0,892	0,892	0,837	0,953	1,049
	IV1	-0,047	0,013	-0,161	-3,512	<,001	-0,346	-0,347	-0,157	0,953	1,049
3	(Constant)	4035,412	777,21		5,192	<,001					
	IV8	0,514	0,027	0,848	18,905	<,001	0,892	0,895	0,825	0,947	1,056
	IV1	-0,053	0,013	-0,182	-3,998	<,001	-0,346	-0,39	-0,175	0,915	1,093
	IV6 B	1693,149	718,78	0,105	2,356	0,021	0,103	0,242	0,103	0,959	1,043
4	(Constant)	4207,582	758,066		5,55	<,001					
	IV8	0,49	0,028	0,809	17,498	<,001	0,892	0,881	0,742	0,841	1,189
	IV1	-0,054	0,013	-0,187	-4,214	<,001	-0,346	-0,41	-0,179	0,914	1,094
	IV6 B	1842,63	700,736	0,114	2,63	0,01	0,103	0,27	0,112	0,952	1,051
	IV13	8,13E-12	0	0,113	2,514	0,014	0,384	0,259	0,107	0,883	1,132
5	(Constant)	4005,516	749,402		5,345	<,001					
	IV8	0,503	0,028	0,83	17,887	<,001	0,892	0,887	0,744	0,802	1,246
	IV1	-0,052	0,013	-0,179	-4,096	<,001	-0,346	-0,402	-0,17	0,907	1,103
	IV6 B	2065,389	695,076	0,128	2,971	0,004	0,103	0,304	0,124	0,93	1,075
	IV13	7,65E-12	0	0,107	2,407	0,018	0,384	0,25	0,1	0,879	1,138

		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	VIF
	IV4	-0,151	0,071	-0,092	-2,126	0,036	0,077	-0,222	-0,088	0,922	1,084
6	(Constant)	3947,079	737,106		5,355	<,001					
	IV8	0,509	0,028	0,84	18,31	<,001	0,892	0,892	0,748	0,794	1,259
	IV1	-0,049	0,012	-0,17	-3,944	<,001	-0,346	-0,391	-0,161	0,898	1,114
	IV6 B	2417,721	705,135	0,15	3,429	<,001	0,103	0,347	0,14	0,873	1,145
	IV13	7,53E-12	0	0,105	2,41	0,018	0,384	0,252	0,099	0,879	1,138
	IV4	-0,166	0,07	-0,101	-2,367	0,02	0,077	-0,247	-0,097	0,912	1,097
	IV14	-1,21E-05	0	-0,086	-2,016	0,047	-0,006	-0,212	-0,082	0,911	1,097
DV2											
1	(Constant)	5289,531	1414,877		3,739	0,001					
	IV8	0,249	0,056	0,683	4,49	<,001	0,683	0,683	0,683	1	1
2	(Constant)	15596,648	2321,981		6,717	<,001					
	IV8	0,209	0,04	0,573	5,222	<,001	0,683	0,744	0,561	0,958	1,044
	IV1	-0,172	0,035	-0,54	-4,917	<,001	-0,657	-0,724	-0,528	0,958	1,044
3	(Constant)	10984,883	2592,085		4,238	<,001					
	IV8	0,188	0,036	0,515	5,275	<,001	0,683	0,755	0,493	0,916	1,091
	IV1	-0,155	0,031	-0,486	-4,999	<,001	-0,657	-0,737	-0,467	0,923	1,084
	C2	493,15	173,668	0,279	2,84	0,01	0,52	0,527	0,265	0,904	1,106
4	(Constant)	8426,617	2446,93		3,444	0,003					
	IV8	0,176	0,031	0,482	5,603	<,001	0,683	0,782	0,457	0,899	1,113
	IV1	-0,154	0,027	-0,483	-5,687	<,001	-0,657	-0,786	-0,464	0,923	1,084
	C2	457,84	152,16	0,259	3,009	0,007	0,52	0,558	0,246	0,898	1,114
	IV6	651,992	237,239	0,228	2,748	0,012	0,373	0,524	0,224	0,964	1,037

The regression with DV2 shows 4 models, all statistically significant. The ANOVA of the 4 models, is significant with $p<0.001$ (refer to table 5). R2 of the first model is equal to 0.467, assuming that 46.7% of the variance of the EP2 is explained by the return on capital employed. Furthermore, model 4 has an R2=0.867, assuming 86.7% of the variance of EP2 Is explained by 'the return on capital employed', 'Indebtedness', 'location of the company,' and 'grant type'.

Table 5. *Models' summary*

DVs and Steps	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df 1	df 2	Sig. F Change	Durbin-Watson
DV1										
1	,892a	0,795	0,793	3228,116	0,795	352,994	1	91	<,001	
2	,905b	0,82	0,816	3044,077	0,025	12,336	1	90	<,001	
3	,911c	0,83	0,825	2969,948	0,011	5,549	1	89	0,021	

4	,917d	0,842	0,835	2884,953	0,011	6,321	1	88	0,014	
5	,922e	0,85	0,841	2828,944	0,008	4,519	1	87	0,036	
6	,925f	0,856	0,846	2780,376	0,007	4,066	1	86	0,047	1,949

a Predictors: (Constant), X2 Return on Capital Employed (%) 2019
b Predictors: Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019
c Predictors: Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019, Grant Type B
d Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019, Grant Type B
e Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019, Grant Type B, Cost of employees th EUR 2019, Distribution by sexes - Women 2019
f Predictors: Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019, Grant Type B, Cost of employees th EUR 2019, Distribution by sexes - Women 2019, Work. Capital per Employee (Th.) 2019

DV2										
1	,683a	0,467	0,444	5929,339	0,467	20,156	1	23	<,001	
2	,864b	0,746	0,723	4184,716	0,279	24,175	1	22	<,001	
3	,904c	0,817	0,79	3640,862	0,07	8,063	1	21	0,01	
4	,931d	0,867	0,84	3178,559	0,05	7,553	1	20	0,012	1,953

a Predictors: (Constant), X2 Return on Capital Employed (%) 2019
b Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019
c Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019, Regions
d Predictors: (Constant), X2 Return on Capital Employed (%) 2019, Indebtness (%) 2019, Regions, Grant Type

The results confirm that the significant EP1 predictors are IV1, IV4, and IV6 under P1, IV8 under P2, and IV13 and IV14 under P3. Therefore, the company's financial situation in terms of indebtedness and return on capital employed impacts the company's economic profitability and, thus, the willingness of hotels to adopt the protection of labour rights. The more companies employ women and the less indebted they are, the more aware they are of labour protection and rights. Similarly, IV1 and IV6, under P1, and IV8, under P2, are the major predictors of EP2. However, in model 2, all the P3 variables are excluded for non-significance, leading to a statement that for companies that had grants related to employees' social-related assistance, all the variables about employees profit, operating revenue, assets and work capital do not impact on their willingness to adopt protection of labour rights. Thus, hypotheses 1 and 2 are accepted, and hypothesis 3 is rejected. Besides, the regions of the companies are also predictors of EP2. The results show that the grant types impact the EP. Thus, hypothesis 4 is accepted.

Table 6. *ANOVA*

Models a		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3678454794	1	3678454794	352,994	<,001b
	Residual	948286911	91	10420735,29		
	Total	4626741705	92			
2	Regression	3792765202	2	1896382601	204,651	<,001c
	Residual	833976503	90	9266405,592		
	Total	4626741705	92			
3	Regression	3841708913	3	1280569638	145,18	<,001 d
	Residual	785032792	89	8820593,167		
	Total	4626741705	92			
4	Regression	3894321728	4	973580431,9	116,975	<,001e
	Residual	732419977	88	8322954,289		
	Total	4626741705	92			
5	Regression	3930487077	5	786097415,4	98,226	<,001f
	Residual	696254628	87	8002926,76		
	Total	4626741705	92			
6	Regression	3961919348	6	660319891,3	85,418	<,001g
	Residual	664822357	86	7730492,526		
	Total	4626741705	92			

a Dependent Variable: Y1
b Predictors: (Constant), IV8
c Predictors: (Constant), IV8, IV1
d Predictors: (Constant), IV8, IV6, IV1
e Predictors: (Constant), IV8, IV1, IV6, IV13
f Predictors: (Constant), IV8, IV1, IV6, IV13, IV4
g Predictors: (Constant), IV8, IV1, IV6, IV13, IV4

Models h						
1	Regression	708623430	1	708623430,3	20,156	<,001i
	Residual	808612429	23	35157062,14		
	Total	1517235859	24			
2	Regression	1131975157	2	565987578,3	32,32	<,001j
	Residual	385260703	22	17511850,13		
	Total	1517235859	24			
3	Regression	1238862420	3	412954140	31,153	<,001k
	Residual	278373439	21	13255878,07		
	Total	1517235859	24			
4	Regression	1315171156	4	328792788,9	32,543	<,001l
	Residual	202064704	20	10103235,19		
	Total	1517235859	24			

h Dependent Variable: Y2

i Predictors: IV8
j Predictors: (Constant), IV8, IV1
k Predictors: (Constant), IV8, IV1, C2
l Predictors: (Constant), IV8, IV1, IV6, C2

4. CONCLUSION AND IMPLICATIONS

The study emphasises the importance of SDGs and CSR in influencing the priorities of businesses, particularly within the tourism and hospitality industry. The literature has noticed the proactive alignment of CSR strategies by major hotel chains such as NH Hotel Group and Marriott International with SDGs, underscoring a burgeoning dedication within the private sector towards fostering sustainable development.

Hotels are pivotal contributors to job creation and economic vitality, especially within local destination networks, thus, nurturing economic progress and bolstering community welfare. Through rigorous regression analysis, notable predictors emerge that influence hotels' commitment to Sustainable Development Goal 8, notably Target 8.8, which prioritises safeguarding labour rights and ensuring secure work environments. Hence, a company's economic profitability, as reflected in its level of indebtedness and return on capital employed, directly influences its economic profitability. Consequently, this financial standing significantly influences hotels' inclination towards the implementation of labour rights protection. Moreover, companies demonstrating a higher proportion of female employees and lower levels of indebtedness exhibit heightened awareness and commitment towards labour protection and rights. Interestingly, for companies benefiting from grants associated with employee social assistance, traditional financial metrics such as employee profit, operating revenue, assets, and working capital do not exert a notable influence on their propensity to prioritize labour rights protection. Furthermore, the findings underscore the substantial impact of grant types on economic profitability, thereby highlighting the significance of external financial support in shaping hotels' engagement with labour rights protection initiatives.

While the study has made valuable contributions to our understanding, it is imperative to recognise its inherent limitations. Future investigations may probe in depth unexplored variables influencing hotels' sustainability and their impact on SDGs. The use of the longitudinal approaches could offer nuanced insights into the evolving relationship dynamics among hotels, CSR initiatives, and the attainment of SDGs across different panels. Moreover, incorporating qualitative methodologies alongside quantitative analyses could enrich our comprehension of the complex relationship between firms' strategies, societal needs, and environmental necessities. Therefore, future research could

encompass interviews with hotel businesses to pinpoint more valuable qualitative data enriching such studies.

The study's outcomes propose considerable implications for policymakers, industry stakeholders, and hotel managers. Regarding policymakers, they are encouraged to develop supportive frameworks that facilitate business alignment with SDGs, fostering environments that foster sustainable practices. Meanwhile, hotel managers can use these findings to refine their CSR strategies, prioritising the protection of labour rights, enhancing employees' well-being, and adopting sustainable practices throughout their operations.

The study contributes to the existing literature by investigating the complex relationship between hospitality and tourism, CSR, and SDGs. It stresses private sector engagement's pivotal role in driving sustainable development initiatives. By identifying the important factors shaping hotels' commitment to SDG 8, the study provides stakeholders with valuable insights to foster effective collaboration to drive economic growth, promote social inclusivity, and protect labour rights within the hospitality industry. Consequently, the study's findings extend beyond sectoral sustainability, positively impacting broader societal well-being and contributing significantly to the realisation of sustainable development objectives on a global scale.

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BEYOND CASH: ANALYZING COVID-19'S INFLUENCE ON US DIGITAL PAYMENT ADOPTION

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ABSTRACT

The COVID-19 pandemic significantly altered consumer behaviour around the world, particularly in the realm of payment methods. This study aims to evaluate the impact on consumer payment habits in the United States. A survey conducted by Dynata between December 2021 and January 2022, involving 736 U.S. residents, served as the primary data source. Using structural equation modeling (SEM), the analysis highlighted that concerns about COVID-19 and media-induced fear were crucial in accelerating the adoption of cashless payment systems. These findings are crucial for businesses and policymakers as they navigate the post-pandemic environment and adapt to evolving consumer preferences. Originality lies in its timely assessment of payment behaviour during a significant global event, offering valuable insights for future strategies.

Keywords: Digital payment, Payment behaviour, Cashless society, consumer habits, Behavioural economics, SEM.

1. INTRODUCTION

"Change is the law of life. And those who look only to the past or the present miss the future." (John F. Kennedy).

Recent years have witnessed significant changes in consumer behaviour, particularly in payment methods. This article aims to investigate the variables influencing consumer attitudes towards cashless payments in the United States, focusing on the period between December 2021 and January 2022. The objectives of this study are twofold: (a) to examine the relationship between health-related concerns and attitudes toward cashless payments, and (b) to investigate how media-induced fear influences individuals to adopt cashless payment methods.

Various factors have propelled a transition towards digital and contactless payments. For example, a survey by the National Retail Federation in 2020 revealed a preference for contactless payment methods among 67% of consumers, citing concerns about touching common surfaces. Additionally, the Federal Reserve reported a decline in cash transactions during the same period. Contactless

payments, which offer security and convenience, have gained popularity, with 79% of consumers worldwide adopting them, according to Mastercard. Furthermore, mobile payment usage in the US increased by 29% as consumers sought alternatives to traditional cash or card payments.

This article reports the findings of a survey conducted among 736 US residents, providing valuable information on the emotional and financial factors driving behaviour during periods of increased concern. The structure includes a review of the current literature on payment decisions, followed by a discussion of research hypotheses. Subsequently, the methodology, results, and conclusions are presented, including findings, limitations, and future research directions.

This study aims to provide valuable information on the ongoing transformation of payment practices. The findings of this research are crucial for businesses and policymakers as they navigate the evolving landscape of consumer preferences and adapt to new payment behaviours.

2. REVIEW OF THE LITERATURE AND DEVELOPMENT OF RESEARCH HYPOTHESES

2.1 The Impact of External Shocks on Payment Decisions

Consumer payment behaviour significantly impacts the real economy and the efficiency of the payment system (Humphrey et al., 2006; Zhang et al., 2019). Research in this area has been steadily growing since the 1980s, with Boeschoten and Fase's seminal work in 1989 marking its inception (Wisniewski et al., 2021). The COVID-19 pandemic offers a unique lens for exploring how external shocks, coupled with government, bank, and retailer interventions, influence changes in payment behaviour and preferences (Jonker et al., 2022).

Brown et al. (2022) studied the quasi-random and staggered introduction of contactless debit cards by a retail bank. Using account-level data and comparing transactions eligible for contactless authentication among those who are not eligible, they found a significant convenience effect in the use of debit cards at the intensive margin. In particular, comfort elasticity seems to be stronger in younger clients. Furthermore, the impact of the treatment increased over time, coinciding with increasing merchant acceptance, and the impact on cash demand is economically small and not statistically significant.

Moreover, Chen et al. (2023) conducted a study to analyse the primary variable "intention to use" the Apple Wallet mobile payment system in the United Arab Emirates (UAE) and to evaluate various factors influencing its use. The study focused on several key variables: user skillfulness, perceived usefulness, convenience of the system, perceived risk, and intention to use. Using structural equation modeling, the study surveyed 422 respondents. The findings revealed that user skillfulness had the most significant impact on the intention to use the payment system, followed by perceived usefulness

and convenience. Perceived risk had a weak negative effect on the intention to use, likely mitigated by the UAE's high cybersecurity index.

Elsotouhy et al. (2023) investigated how perceived value and trade-offs affect customer satisfaction with mobile payment services. Through structural equation modeling and data from 430 Egyptian bank customers, they demonstrated that perceived value enhances user satisfaction, while trade-offs diminish it. Additionally, user satisfaction significantly influences intentions to continue using the service, shopping efficiency, overall quality of life, and loyalty to mobile payment services.

Graziano et al. (2023) conducted an empirical study aimed at identifying the drivers affecting consumers' payment behaviour in Italy during the COVID-19 lockdown. They collected data from 2,872 consumers between May 2020 and June 2020 using computer-assisted web interviewing methodology. Structural equation modeling and ordinary least squares regression analysis were employed for analysis. The study found a significant positive effect of COVID-19 concerns on consumer payment behaviour. This work stands out for its creative approach to investigating the financial and social consequences of the COVID-19 crisis, as well as proposing solutions to encourage the adoption of innovative payment tools.

He et al. (2023) examined the effects of adoption of mobile payments on household expenditure and subjective well-being using data from the 2017 Chinese General Social Survey. Using the Augmented Inverse Probability Weighting estimator to control for selection bias, they found that higher education levels, car ownership, social interaction, internet penetration, and residential location positively influenced mobile payment adoption. The adoption of mobile payments increased spending on consumer goods and cultural and leisure activities, but did not influence spending on clothing and durable goods.

Alaimo et al. (2022) examined customer satisfaction with online food ordering in Italy amidst the pandemic. Using an online questionnaire, the study measured two dimensions of customer satisfaction. The findings suggest that online purchases could mitigate food waste and introduce a satisfaction metric that impacts e-commerce sales strategies.

Finally, Ramos de Luna et al. (2023) discovered that perceived safety, perceived usefulness, perceived compatibility, and subjective norms significantly influence intention to use, with subjective norms being particularly important when a user has the option of mobile payment and adequate information.

These issues lead to Hypothesis 1.

H1: The adoption of cashless payments is affected by concerns that arise in the aftermath of the pandemic.

2.2 Influence of post-pandemic social media anxiety on attitudes towards cashless payments

The global health crisis and the subsequent measures taken to combat it have left a profound mark on everyday life. Recent research by the Pew Research Center, tracking the responses of Americans over time, indicates that a significant portion of the population, about four in ten adults in the US (41%) have experienced higher levels of psychological distress since the emergence of the coronavirus pandemic. The anxieties that stem from the virus itself, coupled with the stresses and uncertainties caused by lockdowns and social distancing mandates, have all contributed to exacerbating mental health problems across society (Mertens et al., 2020).

The dissemination of misinformation surrounding COVID-19 has further compounded these challenges, with narratives such as the "Chinese virus" and misguided suggestions about the use of disinfectants as a cure (Wen et al., 2019; Zheng et al., 2020) contributing to people's concerns about health and well-being.

Turangan et al. (2022) examined whether existing technology anxiety and social influence factors will influence the Indonesian population's intention to continue using mobile payments. Interviewing 140 people and using the PLS-SEM technique and the Smart PLS analysis tool version 3.0, they found that technological anxiety and social influence the intention of the Indonesian population to continue using mobile payments.

Moreover, Chaudhuri et al. (2023) delved into the impact of consumer privacy concerns on their willingness to share online information, while also examining the role of government regulations in shaping these dynamics. Through a comprehensive review of the existing literature and theories, the researchers constructed a theoretical framework. This framework was then validated using data collected from 309 participants, using the method of least squares structural equation modeling method. The study revealed that individuals' awareness of privacy, their past experiences, personal characteristics, and cultural backgrounds all significantly contribute to their concerns regarding privacy, subsequently influencing their decisions regarding information sharing. Moreover, the research underscored the influence of government regulations on individuals' choices regarding the disclosure of information.

Finally, the research conducted by Wang et al. (2021) scrutinised the effects of social media on people in China, highlighting the tendency of users to be negatively influenced by sensational news. Specifically, the study investigated how social media anxiety negatively impacts employee performance, while also exploring the role of COVID-19 vaccination in moderating this relationship. These issues lead to Hypothesis 2.

H2: Fear and anxiety generated by COVID-19 media coverage directly impact consumer payment behaviour.

3 METHODOLOGY

3.1 Data collection

Data for this study were analysed through a survey conducted in the United States between December and January 2022. The data collection was facilitated by the reputable American market research company "Dynata". Utilising the services of "Dynata" ensured the quality and reliability of the data collected, given their expertise and established methodologies in market research. The survey was distributed to approximately 1,000 individuals, resulting in 760 responses. Participants received an anonymous questionnaire to guarantee the confidentiality and privacy of their responses. This questionnaire originally consisted of a total of 40 questions. However, to conduct a more focused and efficient analysis for this study, 20 questions were selected and distributed in three subject areas in a weighted manner. This reduction was implemented to gather information more aligned with the study objectives, ensuring robustness and validity in the results obtained.

In addition to survey processing, structural equation modeling (SEM) was employed to further investigate the relationships between the variables. SEM was chosen as the analytical technique due to its ability to simultaneously examine multiple dependent and independent variables, providing a comprehensive understanding of complex relationships within the dataset. Moreover, SEM allows for the examination of latent constructs, providing insights into underlying factors that may not be directly observable. This approach was deemed suitable for the study's objectives, as it enabled the exploration of various factors influencing consumer attitudes towards cashless payments in the post-pandemic era, offering a robust analytical framework for hypothesis testing and model validation.

3.2 Survey results

The first of the areas described above is related to concerns about COVID-19. In this section, we have included some of the questions used by the World Health Organisation (WHO) in the months following the beginning of 2019. The version of the questionnaire used is the "Survey Tool and Guidance: Behavioural Insights on COVID-19." From this original version, we have selected only a few questions that we find particularly useful for the purposes of our work. This section consists of four questions, shown in Figure 1, with responses recorded using a 7-point Likert scale, where 1 represents "not at all concerned" and 7 represents "very concerned".

Figure 1. COVID-19 Worries Questions

Questions	How often do you seek information about COVID-19 in the media?	How reliable do you consider media reports (TV, newspapers, etc.) on COVID-19 to be?	How worried are you about getting infected with COVID-19?	How worried are you that someone close to you may get sick from COVID-19?
AVERAGE	4,29	4,11	4,41	4,79
MEDIAN	5	5	5	5
RANGE	1-7	1-7	1-7	1-7

Source: World Health Organisation (WHO) (2020)

The results indicate that more than half of the respondents regularly seek information about COVID-19 in the media and consider it highly reliable. Furthermore, the average of the last two responses is relatively high. Respondents expressed concern about contracting the virus themselves and about the possibility that their loved ones would become infected.

Furthermore, Figure 2 shows the results of a survey designed to assess the payment preferences of respondents, irrespective of the possession of payment instruments. Preferences are expressed on a Likert scale from 1 to 7. Cash emerges as the most preferred payment method with a score of 5.20. It is closely followed by the debit card with 5.13 and then the credit card and payment apps, both with a score of 4.81. Contactless payments have a slightly lower score of 4.66. Question Q20, which assesses the influence of the Covid-19 pandemic on the preference for digital payments over cash, scored an average of 4.60, indicating that the pandemic had a moderate impact in driving people towards digital payments over the use of banknotes. In summary, traditional payment methods such as cash and debit cards are still popular, but there is also good acceptance for digital payments, partly influenced by the pandemic.

Figure 2. Payment preferences questions

	Coding	Questions	Options/Range	Average/Range
Payment preferences	**Q15-Q19**	How do you rate these various means of payment independently of whether you own them or not?	a. Cash (1-7) b. Credit Card (1-7) c. Debit Card (1-7) d. Contactless (1-7) e. Payment App (1-7)	Answer A = 5.20 Answer B = 4.81 Answer C = 5.13 Answer D = 4.66 Answer E = 4.81
	Q20	From 1 to 7, how has the Covid-19 pandemic led you to prefer digital payment instruments over banknotes?	4.60	4.60

Source: Van der Cruijsen et al. (2017), Rocco, G. (2019), and the authors' elaboration

In addition, we add another section to capture sociodemographic data of the sample such as age, gender, marital status, region of residence, size of community of residence, education level, occupation, net income, and number of online purchases per month. These variables are crucial to understanding the diverse backgrounds and behaviours of the participants. Analysing these data will allow for more accurate and comprehensive insights into how different sociodemographic factors influence online purchasing habits.

Figure 3. Descriptive Results

Variables	Options	No	Percentage %
Range Age	18 – 25 years old	146	19,2%
	26 – 35 years old	171	22,5%
	36 – 45 years old	173	22,8%
	46 – 55 years old	102	13,4%
	56 – 65 years old	64	8,4%
	66 – 75 years old	80	10,5%
	> 75 years old	24	3,2%
Gender	Male	377	49,6%
	Female	379	49,9%
	Prefer not to say	4	0,5%
Ethnicity	Black or African American	132	17,4%
	White	533	70,1%
	Hispanic	61	8,0%
	Asian	22	2,9%
	Other	12	1,6%
Civil Status	Married	316	41,6%
	Single/Unmarried	322	42,4%
	Divorced/Separated	94	12,4%
	Widowed	28	3,6%
Region of living	North-East	135	17,8%
	Midwest	154	20,3%
	South	122	16,1%
	West	349	45,8%
Number of inhabitants where you usually work	Less than 5.000	92	12,1%
	Between 5.000 and 15.000	115	15,1%
	Between 15.000 and 50.000	179	23,6%
	Between 50.000 and 200.000	163	21,4%
	Between 200.000 and 500.000	68	8,9%
	More than 500.000	143	18,9%

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Source: Authors Elaboration

Figure 4. Descriptive Results

Variables	Options	No	Percentage %
Education	Elementary school	2	0,3%
	Middle school	8	1,1%
	High school	306	40,3%
	Undergraduate studies	237	31,2%
	Graduate Schools	157	20,7%
	PhD	25	3,3%
	Other: specify	25	3,1%
Work Status	Full-Time Work	330	43,4%
	Part- Time Work	98	12,9%
	Students	35	4,6%
	Unemployed	75	9,9%
	Stay at Home	57	7,5%
	Retired	115	15,1%
	Disabled or Unable to work	46	6,1%
	Other: Specify	4	0,5%
What was your net income last year?	Less than $9.999	63	8,3%
	$10.000 - $24.999	132	17,4%
	$25.000 - $39.999	151	19,9%
	$40.000 - $69.999	186	24,5%
	$70.000 - $100.000	96	12,6%
	$100.000 or more	100	13,2%
	Prefer not to say	32	4,1%
How many times in a month do you buy goods or use services online?	0 times	80	10,5%
	From 1 to 3	381	50,1%
	From 4 to 7	174	22,9%
	More than 7 times	125	16,5%

Source: Authors Elaboration

4 RESULTS

This section discusses the results of the multivariate analysis, focusing on the structural equation modeling (SEM) technique employed to investigate the factors determining consumers' payment preferences. The methodology involved several steps to ensure the robustness and validity of the model. First, only a subset of the questionnaire is included in the analysis. SEM was estimated using the R package lavaan. Second, only items that were measured with a 7-point Likert scale were considered, which was then reduced to 3 points to avoid calculation problems due to data scatter. Then, only significant variables were retained for the model. The variables included, their dimension of affiliation in the questionnaire and their expressions are shown in Figure 5.

Figure 5. List of variables included in the model

DIMENSION	ITEM	VARIABLE IN THE MODEL	STATES
COVID-19 WORRIES	Q11	How often do you seek information about COVID-19 in the media?	from 1 to 3
	Q12	How reliable do you consider media reports (TV, newspapers, etc.) on COVID-19 to be?	from 1 to 3
	Q13	How concerned are you about contracting COVID-19?	from 1 to 3
	Q14	How worried are you that someone close to you may become ill from COVID-19?	from 1 to 3
PAYMENT PREFERENCES	Q16	How do you rate payment by credit card?	from 1 to 3
	Q17	How do you rate contactless payment?	from 1 to 3
	Q19	How do you rate payment by mobile app?	from 1 to 3
	Q20	How has the COVID-19 pandemic influenced your preference for digital payment methods over cash?	from 1 to 3

4.1 Measurement Model Results

In an SEM, the measurement model is a confirmatory factor analysis (CFA), which tests the relationships between observed variables (indicators) and latent factors (dimensions of the questionnaire). To ensure the validity of the measurement model, items with standardised factor loadings greater than 0.5 and R^2 values greater than 0.4 were considered significant.

The resulting measurement model confirmed the validity of latent factors, including concerns about COVID-19, anxiety over social media, and attitudes towards cashless payments.

Reliability analysis revealed satisfactory Cronbach's alpha values, indicating good internal consistency among the items within each latent factor. The status of the measurement model is shown in Figure 6.

Figure 6. Measurement Model Results

Latent Factor (alpha=0.73)	Items	Estimate	Std. Err	z-value	P(>|z|)	Std. lv	Std. all	R^2
Covid_Worries (alpha=0.84)	Q11	1.000				0.974	0.974	0.948
	Q12	0.885	0.033	26.936	0.000	0.862	0.862	0.743
Social_media_Anxiety (alpha=0.84)	Q13	1.000				0.807	0.807	0.651
	Q14	1.007	0.038	26.520	0.000	0.813	0.813	0.661
Cashless_Payment_attitude (alpha=0.63)	Q16	1.000				0.458	0.512	0.410
	Q17	1.416	0.133	10.619	0.000	0.648	0.648	0.420
	Q19	1.774	0.157	11.317	0.000	0.812	0.812	0.660
	Q20	1.692	0.153	11.094	0.000	0.775	0.775	0.600

The observed items related to COVID concerns and social media anxiety are statistically significant (p-value < 0.05), with standardised factor loadings greater than 0.5 and R^2 values greater than 0.4. Thus, these elements contribute to the construction of the corresponding latent factors. Therefore, we consider the confirmed measurement model. The resulting collection of latent components states the following:

- Worries about virtual reality are mostly related to getting sick, while social network anxiety is caused by communication. Two different latent variables were examined for inclusion in the same dimension of the survey.

- The attitude towards cashless payment is a subset of questions that capture the function and relevance of cashless payment.

In addition, Figure 6 shows the reliability values for each latent factor. Reliability can be interpreted as internal consistency, i.e. the extent to which a set of items is coherent in measuring the same construct. Usually, internal consistency is measured by Cronbach's alpha. Following Hair et al. (2019), we interpret a very good set of items with an alpha greater than 0.8 and as moderately coherent a set of items where the alpha is greater than 0.6. After estimating the measurement model, the research hypotheses were tested by implementing the structural model as described below.

4.2 SEM Results

The SEM structural model was used to compare latent variables and reveal the underlying relationships between concepts in the data set. Fit indices, including Chi square, root mean square error of approximation (RMSEA), standardised root mean square of the residuals (SRMR), goodness-of-fit index (GFI), comparative fit index (CFI), and Tucker-Lewis index (TLI), were used to assess the fit of the model. The Chi-square ($X2$) calculates the difference between the proposed covariance matrix of the model and the original covariance matrix; a p-value greater than 0.5 indicates a best fit.

According to some authors, the index may fail when the sample size is large (Bentler & Chou, 1990; Marsh, Balla, & McDonald, 1988), as in our case. The root mean square error of approximation (RMSEA) evaluates the difference of the model per degree of freedom. In general, a value of 0 indicates a best fit, a value between 0.05 and 0.08 indicates a small error, and a value greater than 0.08 indicates that the model can be discarded. The standardised root mean square of the residuals (SRMR) assesses the amount of variation included in the covariance matrix. A value < of 0.06 indicates optimal fitting. The goodness-of-fit index (GFI) calculates the proportion of observed variation that can be explained by the predicted model. The closer to 1, the better the fit. The amount of variation contained in a covariance matrix is represented by the comparative fit index (CFI). If the index is 0.95, the model is good. The Tucker-Lewis index (TLI) is a non-normalised fit index that does not depend on the sample size. It is acceptable to use a model with a TLI of 0.90. The GOF indices for the structural model tests presented in Figure 7 meet the usual thresholds with a significant chi-square test. Furthermore, the low values of RMSEA and SRMR indicate an optimal fit of the structural equation modeling.

Figure 7. SEM GOF Results

Index	Value
Chi-Squared (2)	0.000
Root Mean Square Error of Approximation (RMSEA)	0.050-0.065
Standardized Root Mean Square Residual (SRMR)	0.058
Goodness-of-Fit-Index (GFI)	0.996
Comparative Fit Index (CFI)	0.992
Tucker-Lewis Index (TLI)	0.990

The status of the hypothesis is assessed using the coefficient estimates in the SEM model shown in Figure 8.

Figure 8. Status of the Hypothesis

Predictor	Dependent	Estimate	SE	p-value	Status
Covid-19_Worries	Cashless_Payment_Attitude	0.150	0.167	0.000	H1 supported
Social_Media Anxiety	Cashless_Payment_Attitude	0.055	0.035	0.000	H2 supported

As illustrated, the first row of Figure 8 indicates a positive correlation between COVID-19 concerns and the adoption of cashless payments, with a coefficient of 0.150. This implies that people who have heightened concerns about COVID-19 are more likely to prefer cashless payment methods. This association can be attributed to various factors, including the desire to minimise physical contact with surfaces and individuals, concerns about virus transmission through cash handling, and an increased reliance on digital transactions for safety and convenience amidst the pandemic. Consequently, the findings confirm Hypothesis H1, underscoring a significant and meaningful association between COVID-19 concerns and the inclination towards cashless payment methods.

In the second row of the figure, a positive relationship is observed between social media anxiety and attitudes towards cashless payments, although this correlation is weaker compared to the association between COVID-19 concerns and attitudes towards cashless payments. This indicates that individuals experiencing higher levels of anxiety from social networks may still exhibit a tendency toward embracing cashless payment methods, although to a lesser extent than those influenced by COVID-19 concerns. Therefore, the findings support Hypothesis H2, indicating a significant relationship between social media anxiety and attitudes towards cashless payments.

In general, the results suggest that both COVID-19 concerns and anxiety related to social media play a role in shaping individuals' perceptions of cashless payments. However, it is evident that COVID-19 concerns have a more pronounced impact on attitudes toward cashless payments compared to anxiety related to social media.

5 DISCUSSION AND CONCLUSIONS

The findings of this research underscore the significant influence of the COVID-19 pandemic on consumer payment choices in the United States, particularly in accelerating the adoption of electronic payment methods. This change was mainly driven by increased anxiety and concerns about security, both originating from the pandemic itself and spreading through social media channels. Despite pre-

existing familiarity with digital payments among Americans, the pervasive fear surrounding cash usage during the health crisis further solidified the trend towards digital payment adoption.

From a theoretical point of view, these findings emphasise the role of external events, such as a global pandemic, in accelerating changes in consumer behaviour, even within well-established industries such as payments. This highlights the importance of considering situational and contextual factors to gain insight into consumer behaviour and develop effective marketing strategies and public policies.

Practically, these findings signal the imperative for financial institutions and payment firms to continue investing in the development and promotion of digital payment solutions to meet the evolving needs and preferences of consumers. Furthermore, policymakers and regulators could explore policies aimed at further incentivising the adoption of digital payments, thus fostering a safer and more efficient environment for consumers.

Addressing the concern about the relevance of the findings in the post-COVID era is crucial. Although the study primarily investigates the impact of the pandemic on consumer payment behaviour, its implications extend beyond the immediate crisis period. Despite transitioning into a post-COVID era, the behavioural changes observed during the pandemic continue to resonate in consumer preferences and habits.

The findings shed light on broader trends in consumer payment behaviour, which are likely to persist beyond the pandemic (Graziano et al., 2023; Turangan et al., 2022; Chaudhuri et al., 2023; Wang et al., 2021). The accelerated adoption of digital payment methods and heightened concerns about security and hygiene reflect enduring shifts in consumer preferences that transcend the immediate context of the pandemic (Graziano et al., 2023). Therefore, while the study's data collection occurred during the pandemic, its insights remain relevant for understanding ongoing changes in consumer behaviour. Furthermore, as societies adapt to the post-pandemic landscape, the implications offer valuable guidance to businesses, policymakers, and researchers who navigate the evolving consumer landscape. Understanding the factors driving digital payment adoption and addressing lingering concerns about security and hygiene remain pertinent considerations for stakeholders across various sectors.

In essence, while the study's findings are rooted in the context of the COVID-19 pandemic, their relevance extends into the post-pandemic era, providing valuable insights into enduring shifts in consumer behaviour and informing strategic decision-making in a rapidly evolving digital economy.

5.1 Limitations and future lines of research

Despite the valuable information collected, this study is not without limitations. First, survey data are based on a specific period of the pandemic and may not fully capture the nuanced shifts in consumer preferences over the long term. Furthermore, more research is warranted to dive into the specific

factors that influence the adoption of digital payments and assess the enduring impacts of these changes on the financial ecosystem and society at large.

Moving forward, future research efforts could delve into analyzing the dynamics of digital payment adoption in the post-pandemic era, as well as devising effective strategies to address challenges and seize opportunities arising from this transformation of consumer behavior. Leveraging available survey data, such as employing Bayesian network models, offers a promising avenue to deepen our understanding of these phenomena and facilitate the expansion of knowledge in this domain.

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ARE GEN Z TRAVELLERS REALLY SUSTAINABLE? THE PERCEPTION OF SUSTAINABILITY IN HOTEL CHOICES

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ABSTRACT

This study aims to explore the role of sustainability in the hotel choice of individuals belonging to Generation Z. The research starts with a theoretical framework on the perceptions of Generation Z regarding sustainability, focusing on the impact of this element on hotel preferences and the role of sustainability for hotel choice. A questionnaire was administered to a sample of 636 respondents from the Z-generation to investigate their perceptions about sustainability. The data analysis is based both on descriptive and inferential statistical methodologies. Shifting on the findings, this research found that Generation Z shows a moderate level of interest in sustainability as a driver of hotel choice, as reflected by the almost equal division in the survey respondents. Being sustainable does not necessarily reflect in actual practices and engagement. Finally, there are important differences in the averages across the three sustainable dimensions, highlighting a particular focus of Gen Z on social and environmental dimensions.

Keywords: Gen Z, sustainability, hotel attributes, hotel choice, hospitality, tourism

INTRODUCTION

The global COVID-19 has dramatically changed businesses operations and consumers' behavior (Donthu & Gustafsson, 2020; Pantano et al., 2020), creating more interest in sustainability issues (Pelikanova et al. (2021). Travelers consider increasingly environmentally attributes in their choices (Robinot & Giannelloni, 2010). Therefore, hospitality companies should comprehend which are the perceptions and attitudes of their consumers concerning sustainability to be able to develop specific services and define future strategies. In the same vein, future academic tourism research should investigate tourists' perceptions of sustainability as a driver of hotel choices (Madar & Neaşu, 2020) to provide remarkable theoretical contributions and supportive managerial implications. Despite the

increasing interest on sustainability in research, few studies focus on travelers' perceptions of sustainability practices (Lin, 2017; Sanchez-Fernandez et al., 2019).

This paper aims to explore how travelers' growing emphasis on sustainable factors influences their choice of accommodations. Moreover, the work seeks to address the gap in academic research regarding tourists' views on sustainability in hotel selection with a specific focus on Gen Z, known for its environmental awareness, this study aims to enrich the literature on sustainability-driven hotel choices (Monaco, 2018).

CONCEPTUAL FRAMEWORK

Gen Z and perception of sustainability

Recent research found that some specific socio-demographic factors can be determinants of environmental attitudes (Yeoman and McMahon-Beattie, 2019; Smith & Kingston, 2021). Especially the generation is considered a predictor of environmental behaviors (Kafkovà, 2019). Therefore, understanding sustainability perceptions and behaviors of different generations is nowadays of paramount importance (Haddouche & Salomone, 2018). According to the generational theory (Strauss & Howe, 1997) various groups of people, differentiated by the birth years, can have diverse perceptions and behaviors towards the environmental issues (Li et al., 2013). Some studies underline that especially Gen Z consumer behavior and lifestyle differ from those of the other previous generations (Prayag et al. 2022; Seyfi et al. 2023; Sharma et al., 2023). Previous research about sustainability found that Gen Z (iGen, or Centennials: Born approximately 1996 – 2015) adopt sustainable practices (Dabija et al., 2020; Prayag et al. 2022), showing also a higher willingness to pay for environmentally sustainable products (64%) (Deloitte, 2022). Already in 2019, Booking.com found a high interest of Gen Z in eco-friendly travel, sustainable hotel practices and contributions to local communities. Ribeiro et al. (2023) found that Gen Zers has a high pro-environmental travel behaviors and demonstrate a high environmental concern and engage. However, from other studies emerge that Gen Z have strong environmental values and attitudes but limited engagement in actual sustainable practice (Giachino et al., 2022; Parzonko et al., 2021; Pinho & Gomes, 2023). The ongoing discussion, and sometimes contradicting results about Gen Z sustainability perceptions and behaviors, highlights the importance of extending the research about this topic. With this in mind, the objective of this paper is to analyze Gen Z perceptions of sustainability. Is Gen Z really more sustainable and is there a relationship between being sustainable and active sustainable hotel choices?

Gen Z and sustainability for hotel choices

Previous literature studied the importance travelers give to different hotel attributes during the choice process identifying mainly cleanliness and location (Dolnicar and Otter, 2003), price (Lockyer, 2005) and value for money (Caber and Albayrak, 2014) as main drivers of choice. More recent studies underline the importance of sustainability (Bohdanowicz 2005; Lee et al. 2010; Han et al. 2011; Millar and Baloglu 2011) among other attributes (Verma and Chandra, 2018). However, the concept of sustainability in previous literature is strongly associated with the environmental dimension (Franco et al. 2021). Few studies consider also the social and economic dimensions of sustainability (Tölkes, 2018, Franco et. al. 2021), for example local products and craft, tangible and intangible attractions (Noonan and Rizzo, 2017). Moreover, few studies consider Gen Z perceptions of sustainability in hotel choices. D'Arco et al. (2023) investigated pro-environmental behavioral intention of Generation Z in the tourism context, especially concerning transportation services. Prayag et al. (2022) studied environmental attitudes, travel behaviors and sustainability practices of Gen Z tourists to Canterbury, New Zealand. Rasheed and Balakrishnan (2023) analyzed Gen Z green brand loyalty. Wee (2019) pointed out that Gen Zers are generally socially and ecologically conscious in their sustainable practice. To the best of our knowledge, previous research doesn't cover the sustainability perceptions and importance as a driver of hotel choice in all its dimensions (environmental, economic, and social). Therefore, the paper wants to contribute to existent literature about sustainability in hospitality, replying to the following research questions: RQ1: Which is the importance of sustainability for Gen Z hotel guests among various hotel attributes? RQ2: Which are the most important dimensions of sustainability (environmental, economic, and social) for Gen Z travellers?

METHODOLOGY AND SURVEY

An exploratory survey (for more information on this technique, please refer to Mutepfa and Tapera, 2019) was conducted to address the research questions presented in the previous section. Data for the study, focusing on the Z-Generation, were collected in May 2023 using a questionnaire divided into three parts. Surveys play a fundamental role in social and economic research, allowing researchers to rapidly collect data from a diverse range of individuals. This data covers various aspects including opinions, behaviors, and demographics, providing a comprehensive view of current trends and public perspectives (Young, 2016). Surveys are valued for their cost-effectiveness and efficiency, making them invaluable tools for researchers (Gideon, 2012). The first part focuses on the socio-demographic characteristics of participants. The subsequent part delves into purchase channels, booking frequency, and reasons for travel. The final part examines the attributes considered by travelers when selecting hotels, with a specific emphasis on assessing the importance they place on sustainability across all dimensions, as well as their opinions and ideas regarding the adoption of sustainable practices by

hotels. In summary, the decision to use a survey is linked to its utility in shaping hypotheses, guiding decision-making processes, and contributing to a deeper understanding of the analyzed phenomena. Regarding the methodology employed in this study, both descriptive and inferential statistical analyses were utilized (Sirkin, 2006), with the aim of providing a comprehensive overview of the respondents. It's crucial to profile the respondents and have a clear overall picture of the sample. Additionally, understanding demographic variables and socio-economic characteristics is essential for evaluating the representativeness of the sample.

RESULTS

The sample consisted of 636 respondents from the Z-generation, composed by 432 women, 200 men, and 4 that have decided to not specify their gender. More than 90% of the participants identified as students, with a close to 0.5% having children. Travel companions primarily included friends, partners, and family members. In terms of education, 77% held a high school degree, and 10% had completed lower secondary education, aligning well with the age distribution of the sample and, considering their personal status, about 72% reported being single, while 27% affirmed to have a relationship. Furthermore, other variables were investigated, such as average expenditure, travel frequency, and accommodation preferences. When splitting the sample between those who prioritize sustainability and those who do not (314 and 322 responses, respectively), it was found that the average annual expenditure is similar and mainly falls within the ranges of €501-€1,000 and less than €500. Examining accommodation preferences, there is a consensus between the two groups, with hotels and apartments being the most utilized. However, when assessing travel frequency, a distinct difference emerges. While the modal frequency remains "once a year" for both groups, 58% of sustainable travelers, compared to 48% of non-sustainable travelers, took vacations two or more times. Shifting focus to the average length of stay, it remains consistent at around 4 nights for both categories. Lastly, the most frequently chosen hotel category is 3-star accommodations. The most common reasons for travel, as reported by respondents, were to discover the local culture, seek relaxation and well-being, and entertainment and leisure activities and these reasons are similar for the two parts of the sample, there are not relevant differences from a percentage point of view. For the booking process, as expected, the two categories of respondents use the same two instruments that are Web Specialized Portals and Websites, and the two instruments represent the 90% of the answers provided by the Z-generation. As a first result we don't notice a difference in socio-demographic features and travel habits of Gen Z travelers according to their self-evaluation of being sustainable. Sustainable and non-sustainable young travelers show a similar profile. In a subsequent phase of the questionnaire, participants were introduced to a diverse array of attributes that encompassed various

facets of hotel hospitality. The following table provides a comprehensive overview of the average results associated with these attributes within the context of the two distinct respondent categories.

Table 1. Attributes in hotel choice (using a Likert Scale 1-7)

Variable	Location	Price	Cleanliness	Service Quality	Sustainable Practices	Food and Beverage	Brand	Price Quality Ratio	Staff	Rating Online
Sustainable	5.53	5.83	6.04	5.18	5.14	5.51	3.76	5.96	5.76	5.34
Not Sustainable	5.43	5.82	5.81	4.84	3.36	5.04	2.73	5.82	5.20	5.13
Difference	0.10	0.01	0.23	0.34	1.79	0.47	1.03	0.14	0.56	0.21

The table reveals that there is, on average, a higher evaluation for sustainable options compared to non-sustainable ones. This holds true across all the proposed categories. The most relevant attributes, with only slight decimal differences for both categories, are cleanliness, the price-quality ratio, and price. Brand, on the other hand, does not appear significant for either part of the sample, with evidently lower ratings compared to other factors. Focusing on sustainability, there is an evaluation that doesn't stand out among the other attributes. In the case of non-sustainable options, the assessment is notably low overall. However, the difference in evaluation between the two respondent categories is significant, suggesting that users can self-assess their sustainability considerations in hotel choice. Therefore, considering RQ1, it can be stated that sustainability doesn't emerge as one of the primary attributes even for users who self-identify as sustainable. It is only one of the relevant aspects that influence user choice. On the other hand, it is noticeable that sustainable users give higher ratings, although not primary, to the sustainable practices offered by hotels. Continuing the investigation, the study turns its attention to the research question through the application of the Mann-Whitney U test. The objective is to discern whether there exists a discernible difference in the perception of the three sustainability dimensions between individuals who categorize themselves as making sustainable choices in hotels and those who explicitly identify as non-sustainable. This inquiry delves into a range of factors associated with both the activities and organizational aspects of hotels, encompassing a set of questions incorporated into the questionnaire. The intent is to gain deeper insights into the nuanced perspectives held by these two distinct groups, shedding light on how their perceptions may vary concerning sustainability aspects within the hospitality industry.

Table 1. Hypothesis Testing

Dimension	Mann W. U – Test	P-Value	Mean Sustainable	Mean Not Sustainable
Environmental	U = 36597	The p-value is < .00001	5.60	5.09
Social	U = 39289	The p-value is < .00001	5.56	5.12
Economic	U = 39741.5	The p-value is < .00001.	5.34	4.85

Analyzing the outcomes provided in the table, it becomes apparent that a significant contrast is evident in the evaluations made by the two groups. Taking into consideration the average values, there is an increasing evaluation by respondents who define themselves as sustainable. Overall, the Environmental dimension and the Social dimension are the most considered, moreover it is important to note that, for the Economic dimension, there is a lower distance among the respondents. Concerning RQ2, survey participants are usual to assign more favorable ratings to aspects related to the environment and social dimensions compared to those of an economic nature. This suggests a particular focus on environmental and social considerations when respondents express their evaluations. Simultaneously, upon closer examination of the differences between the assigned averages, no significant disparities emerge among the various dimensions considered. This could indicate a certain homogeneity in the overall evaluations, despite individual preferences for specific aspects of hospitality.

CONCLUSIONS

The results of this study show that Generation Z exhibits a moderate interest in hotel sustainability, as evidenced by the nearly perfect split in the survey results. The averages of the three dimensions are significantly different, indicating that respondents have a clear self-assessment process regarding the role of sustainability in hotel choices. This suggests that the analysis did not reveal any misleading aspects, and participants are conscious and reflective about sustainability in their hotel selection criteria. However, also Gen Z travelers that self-evaluate themselves as sustainable consider sustainability less important than other hotel attributes such as cleanliness, price and value for money.

THEORETICAL AND MANAGERIAL IMPLICATIONS

From the point of view of theoretical implications, the study enriches the literature about hotel attributes considered by Gen Z during the travel behavior process with a particular focus on sustainability affecting consumer behavior. Gen Z sustainable tourists perceives the role of

sustainability as increasingly important in the hotel choice confirming previous research by Bohdanowicz (2005), Lee et al. (2010), Han et al. (2011), Millar and Baloglu (2011) and Verma and Chandra (2018). However, this item does not appear to be the prominent driver as compared with other (i.e. cleanliness, price, etc.) confirming previous studies about main drivers of hotel choice by Dolicar and Otter (2003), Lockyer (2005) and Caber and Albayrak (2014). It seems that strong environmental values and consciousness does not reflect in actual practices and engagement. This confirms previous research by Giachino et al. (2022), Parzonko et al. (2021), and Pinho & Gomes (2023). Concerning the different perceptions of sustainability dimensions our study confirms a socially and ecologically consciousness of Gen Z confirming the study of Wee (2019). Concerning managerial implications, the study offers a support for hotel managers to identify the most appropriate services and strategies to satisfy Gen Z sustainable conscious travelers. The studies demonstrate the increasing importance of sustainability, especially for social and environmental dimensions, as a driver of hotel choices. Therefore, Gen Z perceptions about sustainability and its influence on guests' choices should be seriously taken into account by hotel managers in defining their future management and communication strategies. This affects also policy makers and other destinations' travel companies that are components of an integrated travel experience.

DEVELOPMENTS, LIMITS, AND FURTHER CONSIDERATIONS

Within the confines of the current study, it is essential to acknowledge the limitations of the sample, which may be expanded for broader insights. Consideration should be given to enlarging the sample size and comparing it with other generations or with Generation Z cohorts from different countries. This extension would enhance the generalizability of the findings and provide a more comprehensive understanding of how the perspectives on sustainability in hotel choices may vary across diverse demographic groups and cultural contexts. Such comparative analyses could offer valuable cross-cultural insights, contributing to have further interpretation of the research outcomes. Moreover, the study is focused only on the hotel business. For the future other tourism businesses could be involved in the study such as transportation and Food & Beverage. Future research could also investigate the reason why sustainability consciousness is struggling to become actual and active sustainable practice and behavior showing a more passive approach of Gen Z.

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HOW CAN SCALES HELP MANAGERS IN DECISION-MAKING?

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ABSTRACT

The goal of this article is to introduce new approaches to the use of Exploratory Data Analysis (EDA) tools. It presents some original possibilities for working with data from market research and customer preference surveys. In particular, it introduces data analysis of information that has been obtained from customer or manager responses in the form of scaled responses. It presents new graphical techniques that make it much easier for managers to navigate such data. These graphical methods include the scaled axis, the semantic spiral, and the semantic tree. Our approach builds on the concept of Likert scaling. It introduces into data analysis not only an economic but also a psychological perspective on the behaviour and motivations of economic agents. The authors construct a differentiation ratio coefficient to describe differences in customer attitudes. Semantic analysis and the differentiation ratio coefficient allow managers to quickly orient themselves in customer behaviour. The text provides lucid graphs and simple calculations that can facilitate managers' decision-making processes.

Keywords: data support to management, scales, semantic characteristics, ordinal variable variability, differentiation ratio coefficient.

INTRODUCTION

Economic data to support managerial decision-making, obtained through field marketing research, opinion polls, sociological surveys, etc., are characterised by a relatively low representation of numerical values because it is objectively difficult, and often even inappropriate, to ask respondents some sensitive and personal direct questions, e.g., about their income, amount of expenses, amount of savings, etc. In such cases, we thus try to get an insight into the respondents' attitudes by "describing" them. This goal can be mediated by using a suitably constructed response scale. It can also be built rather loosely depending on the circumstances (by way of so-called open-ended responses).

For informed statistical analysis, the verbal information obtained must be quantified. In the situation of categorical (verbal) data, we usually substitute this requirement by working with the occurrence frequencies of these categories instead of the categories themselves. These frequencies then form the basis for analysing dependencies between verbal variables or for applying various goodness-of-fit tests

between assumptions and reality assessed on the basis of empirical verbal data. Another widely applied possibility is the use of ordinal variables. Ordinal data most often take the form of responses expressed on a numerical scale offered to respondents (e.g., customers) in a questionnaire. Here, we can proceed similarly to categorical data by mainly analysing the occurrence frequencies of individual response options on the scale.

In addition, managers can also obtain practical information by applying certain other methods in which, in addition to the frequency of responses according to the ordinal scale, the values of the scale itself, i.e., the degrees of the given ordinal scale, will also play a role. Therefore, the concept of working with ordinal data and its unique role in management support can be approached from specific directions, such as the semantic drawing of individual factors that are examined in management decision-making (e.g., semantic spiral or tree), differentiation ratio coefficient, mutability and some other EDA methods. We will now introduce these techniques in more depth; we consider such techniques original in data analysis for managerial decision support.

STATE OF THE ART

The opinions and attitudes of respondents in marketing, psychology or sociology are obtained through questionnaire surveys. Most such questionnaires are designed systems of questions where the answers are offered in the form of a scale. The most widely used approach to the concept of a scaled response is the so-called Likert scale or Likert-type scale (Likert, 1932). In their responses, respondents differentiate their opinions on a scale expressing the intensity of their feelings or the degree of their agreement or disagreement. The original Likert scale was defined as equidistant and symmetrical. In this case, the same methods can be used to process the data of a given ordinal variable without significant problems, as in the case of a metric variable (descriptive statistics methods, non-parametric hypothesis tests).

On the other hand, there are opinions (e.g., Liddell and Kruschke, 2018; Lionello et al., 2021) that the use of standard statistical methods can lead to systematic errors in the case of an ordinal variable since it cannot be shown that the distances are the same in the different scales used. Mazurek et al. (2010) came to the same conclusion based on their analysis of questionnaire survey data in France, the Czech Republic and Ecuador. Liddell and Kruschke (2018) further demonstrated that there is no reliable way to detect bias errors. To be able to prove that the conclusion of the analysis is wrong, we would need to know the reality (which is unknown and which the survey is only trying to estimate).

Simple evidence of bias is using the arithmetic mean, even in the case of equidistant and symmetric scales (see, e.g., Sullivan and Artino. 2013). The problem is not the method but the survey's psychological nature. Suppose respondents tend to choose rather marginal values (which is common). In that case, the mean will be indicative of a neutral, middle-variant response (of the type "don't know",

"neither agree nor disagree", etc.), which is biased. Memmedova and Ertuna (2024) report that processing ordinal variable values originating from a survey on a Likert scale with forced choice leads to loss and bias. Therefore, they proposed and applied a procedure based on fuzzy logic.

Norman (2010), on the other hand, uses several examples to show that parametric methods can be used to analyse ordinal variable survey data. To "resolve" the controversy over the appropriateness of using parametric methods in the case of an ordinal variable, Chan and Liu (2020) examined a total of 424 articles from Educational Technology Research and Development from 2016 to 2020, half of which analysed Likert-type data. This approach allowed them to recommend to educational researchers what methods to use for the ordinal variable and under what conditions. Assumptions about the applicability of parametric methods were also addressed by Westland (2022). He was interested in the properties of the data generated from Likert scale surveys. He, therefore, analysed the results of a 14-question (and scaled-response) survey conducted with 442 distinct sets of 125,387 respondents. Despite the possible distortion arising from the survey design, he showed that the assumption of normality of the distribution of the survey results is justified and that bias in the use of parametric methods should not lead to a significant loss of information. An earlier work (see Anděl, 1993), where a behavioural profile analysis was performed on pharmaceutical data, is also inspiring. This paper presents a procedure that benefits from field data based on non-parametric evaluations of a single group of respondents comparing different objects (here, drugs) and commenting on their properties.

The above-described approaches are based on the use of advanced statistical methods, which assume verification of the input conditions for their applicability. In practice, however, a manager often needs relatively quick and plastic information about the results of a questionnaire survey (using a Likert scale). Various graphical methods that are applicable without checking the input assumptions and provide the manager with a graphical representation of the phenomenon under investigation fulfil this requirement very well. However, graphical tools used for quick orientation in the survey results must always be chosen with regard to the phenomenon under study. Those employed in the marketing field should be different from those used in the field of sociology, for example.

Nevertheless, such surveys aim at finding out opinions, feelings, and preferences. To this end, it is always necessary that the questions asked in the questionnaire are formulated correctly and the scales chosen appropriately. This approach represents the only way to get a plastic picture of the respondents' views on the phenomenon under study (see, e.g., Hindls and Pribova, 1999) and the ability of the scales to differentiate between the respondents' answers.

Methods of visualising data from questionnaire surveys using Likert scales were, in particular, addressed by Robbins and Heiberger (2011), and Heiberger and Robbins (2014). They presented and analysed different forms of graphs in terms of their appropriateness and expression. It is the question

of the user's perception of the survey results thus produced that is most important for the choice of graphical form. The effectiveness of the graphical presentation of survey results as feedback was verified by Ivanov et al. (2018) in the case of an experiment in teaching discrete mathematics. South et al. (2022), based on examining 134 studies published between 2009 and 2019, concluded that the methods used to collect and analyse data obtained using Likert scales are inconsistent in terms of their resulting graphical presentation. They then generalised their experience and suggested appropriate graphical tools for data visualisation.

The discussion on the applicability and suitability of various statistical methods for processing survey data in the fields of marketing, sociology, psychology, etc., has led us to the conclusion that it is important to offer simple, easy-to-build and easy-to-interpret graphical tools for managerial decision-making, which allow quick orientation in the survey results. They include the scale axis, the semantic tree, and the semantic spiral. The graphical form of the survey results can then be supplemented with information on the degree of differentiation between the scalar responses, constructed explicitly for the ordinal variable. We present the methods using simulated data from a marketing survey as an example.

DATA ANALYSIS TO SUPPORT DECISION-MAKING

Let us suppose that the management of a company producing a specific type of product (for example, a shampoo) observes both the customer's perception of the typical characteristics of this product and how their product stands up to competition from a similar product (i.e., another shampoo) that other companies produce. For the purpose of presenting the tools for our analysis, we have simulated the results of such a survey.

In a simulated survey, we evaluated three specific shampoo brands – we have labelled their names ALPHA, BETA, and GAMMA. The respondents consisted of 50 simulated consumers who judged the three products according to their personal preferences and experiences. For an initial orientation in the problem, we present the questionnaire (see Annex 1) and the answers concerning the ALPHA product (see Annex 2). Analogously, the same was done for the BETA and GAMMA products (their simulated results are not presented for the sake of brevity). There were nine questions on the characteristics of all products, and these individual characteristics could be rated on a scale, with each characteristic having a different number of scale levels (see Annex 1).

Primary evaluation of respondents' answers

In order to evaluate the respondents' answers to the nine questions concerning the characteristics of the ALPHA product, we must first characterise the levels of the answers and, above all, their variability. The respondents' level of opinion is expressed by the average response to each question in the

questionnaire (arithmetic mean). From this, we then construct a so-called semantic spiral, which allows us to easily determine, by visual reading, which aspects are dominated by a positive evaluation and which by a negative one. We start with the ALPHA product. The average values of the responses are shown in Table 1. For the sake of further discussion, this table also includes s_x^2, i.e., the variance of the responses, the number of steps on the scale (see the questionnaire in Annex 1) and, finally, the essential original P_D characteristic (the differentiation coefficient), to which we will return in detail below.

ALPHA	Consump-tion	Brand	Effect	Compo-sition	Suitability	Price	Scent	Design	Availa-bility
Average	1.74	2.36	2.84	1.86	1.48	2.96	2.66	2.34	1.22
sx2	0.6324	2.0704	1.2144	0.5604	0.2896	1.0784	1.9044	1.4644	0.1716
Scale degrees	3	6	5	4	3	10	7	6	4
PD	0.2811	0.2300	0.1943	0.1401	0.1287	0.0431	0.1555	0.1627	0.0429

Table 1. Averages *and other characteristics of responses to individual questions – the ALPHA product*

Since respondents were offered scales of different lengths for their responses, the average values of the responses cannot be compared. The relationship between the scale midpoints and the response averages is presented in Figure 1 (the solid line indicates the midpoints of each of the nine scales, and the dashed line represents the response averages). However, it is difficult to deduce from this whether, relative to the scale centre, respondents on average rate, e.g., the importance of the brand (six-point scale, mean response 2.36) to be greater than the effect of the shampoo (five-point scale, mean response 2.84) or vice versa. Similar reservations apply to other aspects as well.
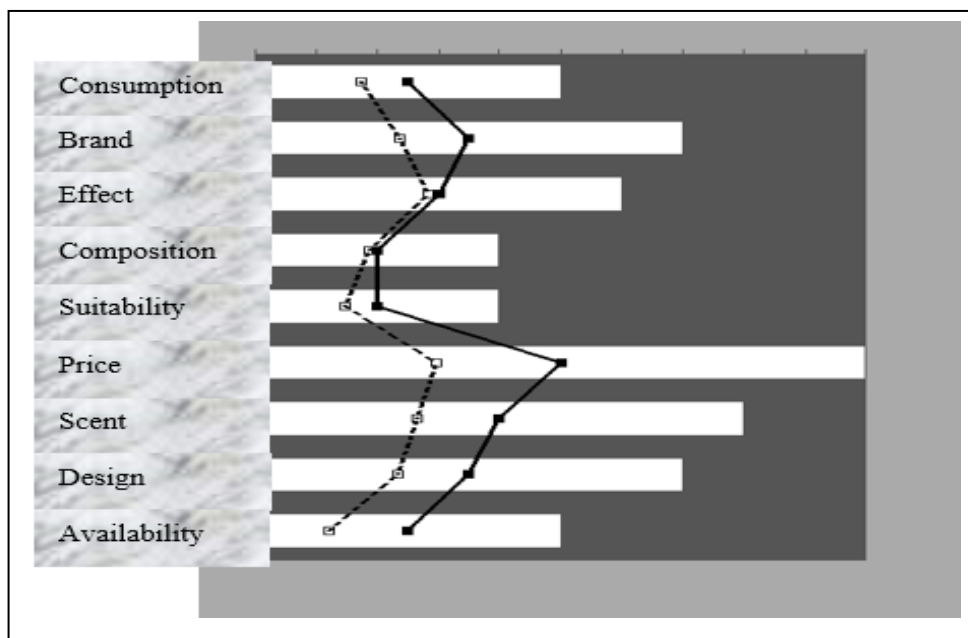
Figure 1. *Scale midpoints and averages for the ALPHA product responses*

For the purposes of comparison, we will now construct a so-called semantic spiral. This spiral is obtained by mechanically normalising the averages of the responses to a scale of a uniform number of

degrees (here, specifically, 10 degrees). The uniform midpoint of all scales (= 5.5 – the so-called *scale axis*) is indicated by a bold solid vertical line, and the hypothetical recalculated response averages are shown by a bold dashed line in the shape of a spiral (see Figure 2). This so-called *semantic spiral* is drawn so that it is "wrapped" around the centre of the normalised averages (the faint vertical line, the so-called *semantic spiral axis*).

From the semantic spiral, we can easily read that, for example, the price rating of the ALPHA product is slightly better than the rating of its design and that the overall rating of the individual attributes of the questionnaire is above average in all aspects. This fact is indicated by the positioning of the entire spiral axis to the left of the scale axis, as the scale grades are defined from the best rating (Grade 1) to the worst (the highest scale grade). The strong positive ratings from respondents are mainly attributed to the importance of the brand in the purchase process (Question 2, see Annex 1), to price (Question 6) or to the importance of the brand being easily accessible for everyday purchases (Question 9), etc. From the semantic spiral, we can thus quickly obtain aggregate visual information about the respondents' attitudes when evaluating a product. We can, therefore, compare consumers' opinions of a product with that of a competitor product or explore why the ratings are different, and what the motivation in the respondents' behaviour may be. We have also added the semantic spiral shapes for the BETA and GAMMA products.
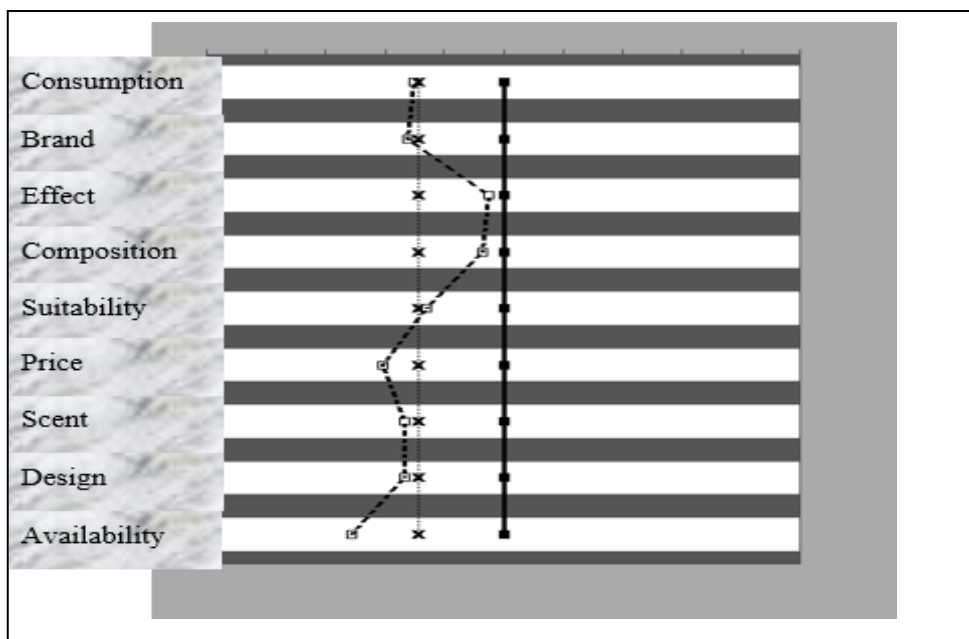
Figure 2. *The semantic spiral for the ALPHA product*

From Figures 2 through 4, we can see partly similar shapes for all three semantic spirals. The customer ratings of each shampoo brand's effect, content and suitability attributes show positive ratings (averages are to the left of the scale axis – vertical solid line). However, the fact that some attributes are to the right of the spiral's axis (vertical dotted line) indicates that respondents rate these attributes

somewhat less important than others. BETA's spiral axis is the closest to the scale axis of the three brands (especially the composition attribute), so this product is rated the least positively overall.

BETA	Consump-tion	Brand	Effect	Compo-sition	Suitability	Price	Scent	Design	Availa-bility
Average	2.28	1.48	2.52	1.92	1.66	1.52	3.04	2.32	1.28
sx2	0.5616	0.4096	0.8896	0.5536	0.2644	0.4096	1.9984	1.0176	0.2016
Scale degrees	3	6	5	4	3	10	7	6	4
PD	0.2496	0.0455	0.1423	0.1384	0.1175	0.0164	0.1631	0.1131	0.0504

Table 2. *Averages and other characteristics of responses to individual questions – the BETA product*
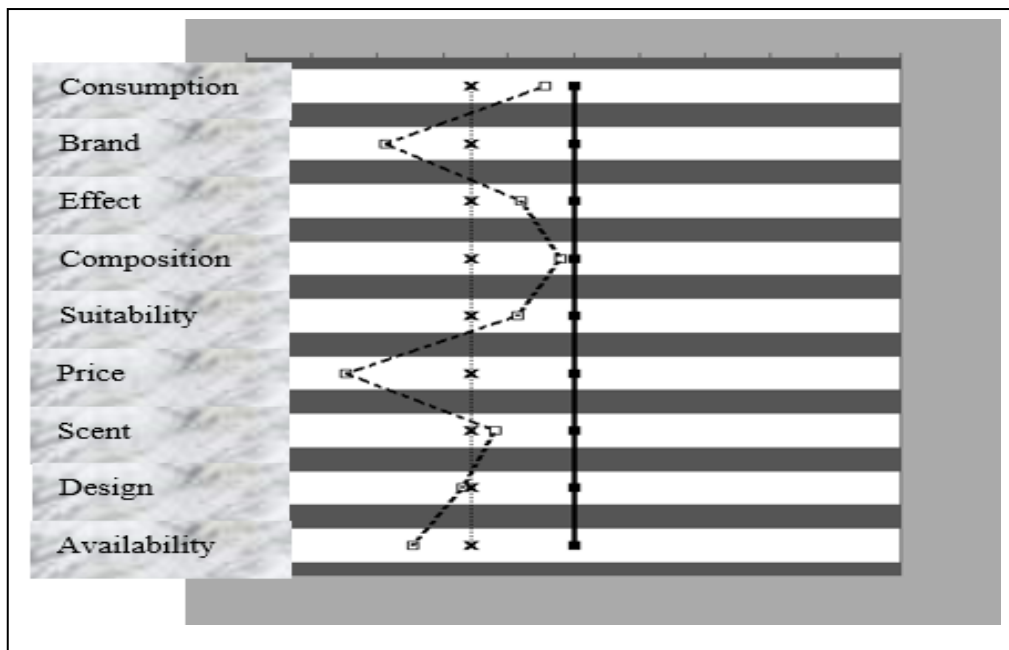
Figure 3. *The semantic spiral for the BETA product*

In addition, in the space to the right of the spiral axis, i.e., in the space between the spiral axis and the scale axis of BETA, the fragrance attribute is also wedged in, perceived here as relatively weak compared to ALPHA and GAMMA. For the BETA brand, on the other hand, the price attribute, which is positioned significantly to the left, appears to be a very positive factor for product evaluation. As can be seen, by applying the semantic spirals and comparing their shapes, good initial information can be obtained for further consideration when making decisions on the future production and sales of the products evaluated.

GAMMA	Consump-tion	Brand	Effect	Compo-sition	Suitability	Price	Scent	Design	Availa-bility
Average	2.00	1.52	2.64	1.74	1.48	2.00	1.54	1.94	1.32
sx2	0.6800	0.4496	1.4704	0.3524	0.2496	0.9600	0.3284	0.6564	0.2176
Scale degrees	3	6	5	4	3	10	7	6	4
PD	0.3022	0.0500	0.2353	0.0881	0.1109	0.0384	0.0268	0.0729	0.0544

Table 3. *Averages and other characteristics of responses to individual questions – the GAMMA product*
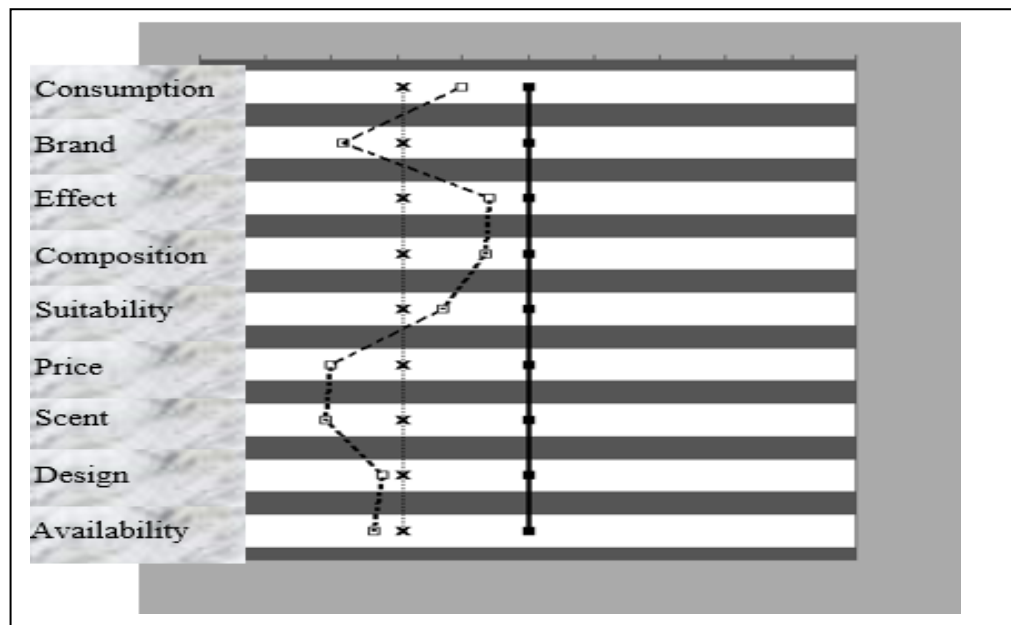
Figure 4. *The semantic spiral for the GAMMA product*

Different responses on the scale: variability of the ordinal variable

As already mentioned above, many types of statistical data used by management and collected, e.g., during marketing surveys or otherwise, are characterised by a relatively low representation of measurable variables. For data analysis, it is nevertheless necessary to quantify these non-measurable responses in a specific way. A frequent request is then to determine the variability of respondents' (e.g., customers') answers. The use of classical variance is either questionable or even impossible in the case of non-measurable variables (e.g., for verbal responses, the mean cannot be determined, so there is no point in considering variance at all). Let us now focus on how to proceed in this situation.

The difference between the responses defined by the scale (in the form of a linear side-by-side scale, where the distances between the scale steps are assumed to be equal) is minimal (i.e., zero) if all respondents provide precisely the same answer, i.e., if one of the relative frequencies p_1, p_2, ..., p_k is equal to 1, i.e. it represents 100% of all answers and all other relative frequencies are equal to zero (k is the number of the scale steps). Conversely, maximum differentiation occurs when the relative frequencies of the extremes of the scale (i.e., the extreme responses) are equal to exactly one-half and all other relative frequencies are zero, i.e., $p_1 = p_k = 0.5$ and simultaneously $p_2 = p_3 = \ldots = p_{k-1} = 0$. The case where all relative frequencies are equal, i.e., the case where $p_1 = p_2 = \ldots = p_k = 1/k$, can be considered a cut-off between significant and low variability of the respondents' answers.

Therefore, to measure the variability of the ordinal variable, we have proposed a unique characteristic, namely, the ratio of the variance s_x^2, calculated from the individual values of the ordinal variable 1, 2, ... k, to its maximum possible size s^2_{max}. We call this coefficient the differentiation ratio P_D; it has the form

$$P_D = \frac{s_x^2}{s^2_{max}} \ .$$

Since $\quad s^2_{max} = \frac{(k-1)^2}{4} = \frac{R^2}{4} \quad$ holds true, where R is the span of the variance (i.e., the distance between the highest and lowest levels of the scale), the differentiation ratio can be written as

$$P_D = \frac{4s_x^2}{R^2} \ .$$

The P_D differentiation ratio responds to all the responses obtained from the respondents. In this respect, it outperforms some other differentiation coefficients known to date. Since its value always ranges between 0 and 1, its values can be used to compare the inter-variability (variability) of respondents' answers to single questions, no matter how "broad" the scale is (i.e., how many levels it has).

The bottom threshold level of opinion differentiation corresponds to the P_D values roughly in the range between 0 and 0.10. In fact, if the answers to a question differentiate so little between respondents' attitudes, a question is implied whether the characteristic being assessed is even relevant in the survey. This circumstance encourages a review of the overall survey design or its correction (the question may not have been well asked; the attitude investigated in the question may appear to the respondents to be insignificant or may not be related to the subject matter, etc.).

In our simulated survey, the lower values of the P_D differentiation ratio (see Tables 1 through 3 above, or the graphical representation of the P_D values for all products and all of their attributes) show that, in particular, their price and availability attributes (whose P_D values are well below 0.1 in all three cases) do not differentiate the behaviour of customers who perceive these attributes very similarly and therefore are not a criterion in their motivated decision-making. The perception of the suitability attribute is partly similar to this behaviour.

On the other hand, we see a significant differentiation in the characteristics of consumption and efficiency of the products (in terms of their utility), which indicates that, in this respect, the customers differ quite a lot in their behaviour and probably see these attributes as the motivation for their decision to buy or not to buy. However, the extreme P_D values are not very high overall, indicating similar motivations for the respondents.

Assessing different perceptions of products by customers

To make an informed assessment of customers' perceptions of different products with similar characteristics, it is far from sufficient to know only the average ratings on the scale. Equally important is knowledge of the differentiation ratio. The P_D *differentiation values (here for the three products under consideration) are plotted together in a graph called a* semantic tree.
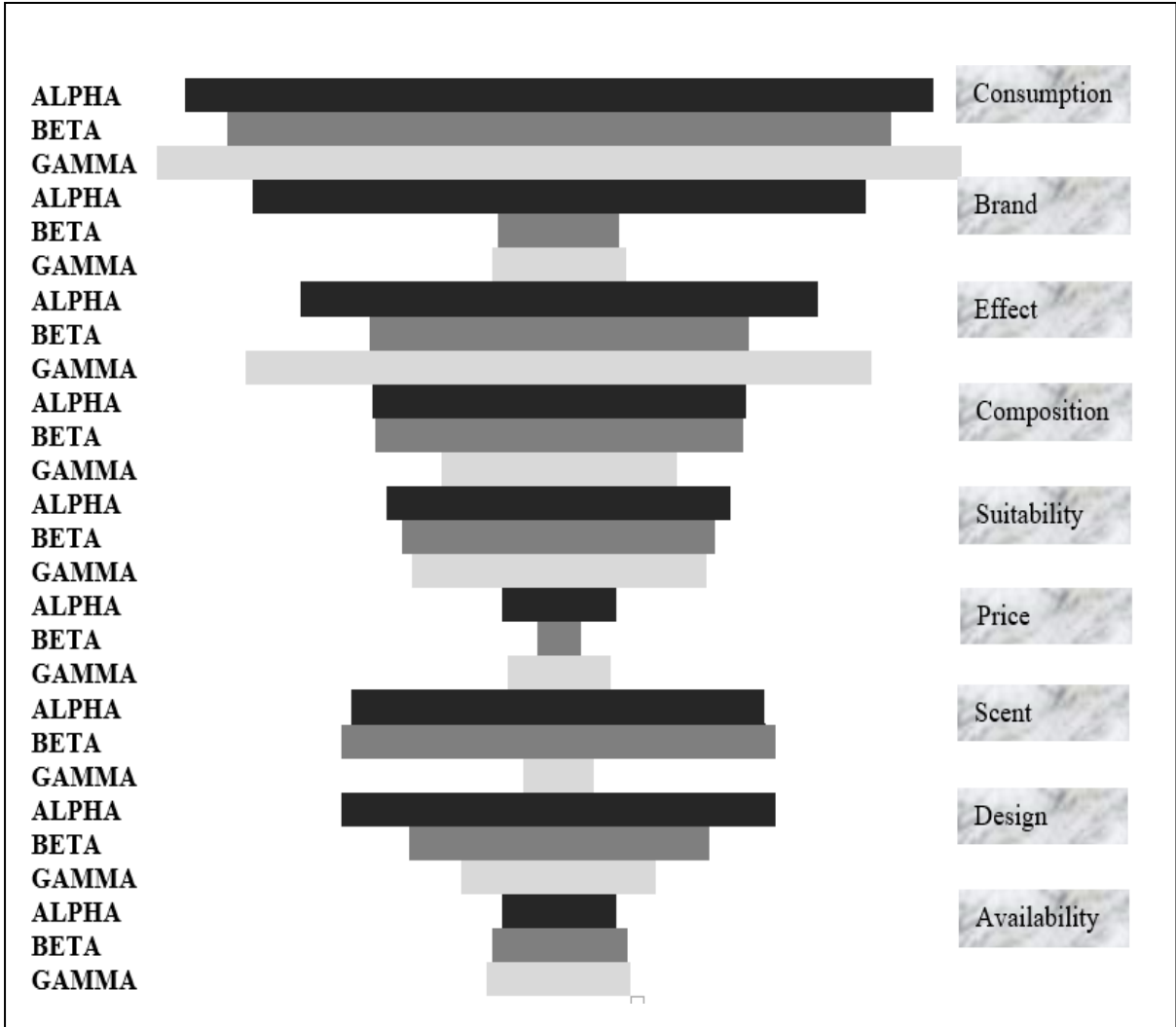
Figure 5. *The semantic tree (P_D values) – all products*

As shown in Figure 5, the perception of the different products studied in terms of their characteristics (consumption, brand, effect ..., etc.) is quite variable among respondents. For example, as already mentioned above, price or market availability are rated very similarly in terms of the relative differences between the three products. On the other hand, respondents rate the level of consumption

very differently, and there is also a variable attitude towards the effect of the products. The situation is interesting concerning brand perception – while the respondents' attitudes vary quite a lot for the ALPHA product, the individual perceptions differ little for the BETA and GAMMA. Similarly, for fragrance, for example, there is little difference with respect to GAMMA, while ALPHA and BETA evoke somewhat different feelings in the respondents. The question remains as to why such an asymmetric differentiation of ratings occurs at all. This question could be answered by dependency analysis, e.g., contingency table tests, discrepancy measures, etc. However, such an investigation would go beyond the scope of this article.

CONCLUSIONS

This paper has aimed to create (and simultaneously illustrate with the aid of data) new tools for quite simple but illustrative analysis of market research data. "Simple" because such an analysis does not require knowledge of complex mathematical and statistical procedures, the use of often costly software, and discussion of complicated conditions for the validity of the methods used and the results obtained. And "illustrative" because a visual evaluation of the results, which is not demanding in terms of technical implementation, is actually sufficient to support further managerial considerations and decision-making.

Regarding another important characteristic, which is the differentiation (i.e., variability) between the attitudes of the respondents who used the scale for evaluation, the proposed PD statistic is an effective compromise between simplicity and sufficient predictive power with respect to the characteristics under study. It is responsive to all observations, has clearly defined lower and upper bounds from the point of view of interpretations, and does not require any complex calculations. It allows comparative graphical processing and rapid interpretation of the comparisons across products.

Of course, a separate follow-up question is a search for the reasons why the above methods, measures and graphs achieve the results they do. Answering it would, naturally, require applications of other data analysis tools (contingency tables, multivariate statistical methods, etc.). But because of their simplicity, the procedures presented here are intended to be a first diagnostic tool, guide the direction of further work, and raise questions related to deeper data analysis. We have thus achieved the stated goal of this paper.

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ANNEX 1

QUESTIONNAIRE (SHAMPOO VALUATION)

Do you have personal experience with the following shampoo brands:

ALFA	yes	no
BETA	yes	no
GAMA	yes	no

If you do have personal experience with all three brands, please, reply to the following questions. If not, please, leave the questionnaire unanswered. *Choose only one reply in each line.*

1. How often do you use the brand: Most often   Sometimes   Rarely

	Most often	Sometimes	Rarely
ALFA	1	2	3
BETA	1	2	3
GAMA	1	2	3

2. When buying shampoo, do you decide by its *brand*? In each line, choose a value from a scale of 1 through 6 where 1 = I strongly consider the brand, 6 = I disregard the brand

   ALFA..................….   BETA.....................   GAMA....................

3. Do these shampoos have any specific *effects*? In each line, choose a value from a scale of 1 through 5 where 1 = many specific effects, 5 = no specific effects:

   ALFA..................….   BETA.....................   GAMA...................

4. What is your opinion about the shampoo *composition*? In each line, choose a value from a scale of 1 through 4 where 1 = composition I regard the best, 4 = composition I regard the worst::

   ALFA..................….   BETA.....................   GAMA....................

5. What is the *suitability* of these shampoos in the sense of being mild to your hair, skin etc.? Please value on the scale of 1 through 3 where 1 = most suitable, 3 = least suitable:

   ALFA..................….   BETA.....................   GAMA...................

6. What is your opinion regarding the *price* of the individual shampoo brands with respect to their features? In each line, choose a value from a scale of 1 through 10 where 1 = low (the lowest) price, 10 = high (the highest) price:

   ALFA..................….   BETA.....................   GAMA...................

7. What is your valuation of these shampoos' *scents*? In each line, choose a value from a scale of 1
through 7 where 1 = the best scent, 7 = the worst scent:

ALFA..................….   BETA.....................   GAMA...................

8. How do you like the packaging *design* for these shampoo brands? Please consider the overall
impression of the packaging based on its colour, shape, closure, etc. In each line, choose a value
from a scale of 1 through 6 where 1 = the best packaging design, 6 = the worst packaging design:

ALFA..................….   BETA.....................   GAMA...................

9. What is your valuation of the *availability* of these shampoo brands? Do you buy them in the shop
where you usually purchase such goods, or do you have to be on the hunt for them? In each line,
choose a value from a scale of 1 through 4 where 1 = the brand is always available, 4 = the brand is
hard to get:

ALFA..................….   BETA.....................   GAMA...................

ANNEX 2

Table A1 Questionnaire results – shampoo ALPHA

Respondent	Consumption	Brand	Effect	Composition	Suitability	Price	Scent	Design	Availability
1	1	1	2	2	1	3	1	1	1
2	3	4	4	3	2	2	2	2	1
3	2	3	3	2	2	3	3	4	1
4	2	2	2	2	2	1	4	3	1
5	3	5	5	2	1	4	2	1	1
6	3	2	3	1	1	2	1	2	1
7	1	1	2	1	2	3	2	2	1
8	1	3	3	2	3	2	3	3	1
9	2	1	1	1	1	2	5	3	2
10	2	1	2	2	2	3	7	2	1
11	1	1	3	2	2	4	1	2	1
12	1	2	4	3	1	5	4	2	1
13	3	4	5	2	1	5	2	2	1
14	2	2	3	1	2	2	1	2	2
15	1	2	4	1	1	4	2	3	1
16	1	4	2	2	2	3	1	2	1
17	3	1	5	4	1	4	3	2	2
18	2	5	3	1	2	2	6	5	2
19	2	2	4	2	2	3	3	5	1
20	2	1	3	3	1	4	2	6	1
21	1	1	4	1	2	4	2	1	1
22	1	3	4	2	1	5	3	2	1
23	1	2	2	1	2	3	1	1	1
24	1	1	3	3	1	4	2	2	1
25	1	5	2	2	1	1	3	2	2
26	3	6	3	2	1	1	2	2	1
27	2	4	4	1	1	2	3	2	2
28	1	5	4	3	2	3	3	1	2
29	2	1	5	1	1	2	3	2	1
30	3	3	2	2	1	3	2	3	1
31	3	4	4	1	2	4	3	2	1
32	1	1	2	2	1	3	3	2	2
33	2	1	1	1	1	2	4	3	2
34	2	1	3	2	1	3	2	2	2
35	1	1	3	3	2	3	1	1	1
36	1	1	2	2	1	4	1	1	2
37	1	2	1	1	2	3	3	1	1
38	1	2	3	2	1	3	2	3	1
39	3	4	2	1	1	2	1	1	1
40	1	1	2	3	2	3	2	3	1
41	1	2	3	2	1	4	2	1	1
42	1	1	2	2	2	2	3	2	1
43	2	5	3	1	1	2	5	4	1
44	3	1	4	2	1	5	2	2	1
45	2	3	2	2	1	2	4	3	1
46	2	2	1	1	2	3	5	6	1
47	3	2	3	2	2	2	2	2	1
48	1	1	1	3	2	4	5	3	1
49	1	2	2	2	2	3	1	1	1
50	1	3	2	1	1	2	3	2	1

DETERMINANT ATTRIBUTES IN THE SMARTPHONES PURCHASE DECISION: AN ANALYSIS OF THE Z AND X GENERATIONS

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ABSTRACT

The factors that affect the smartphone purchase decision are comprehensive and it is difficult to assign a single reason or aspect to the consumer's choice. This research analyzed which and how Brazilian consumers of generations Z and X prioritize the determining attributes when purchasing smartphones. This is a qualitative, exploratory study, using Interactive Qualitative Analysis (IQA). As the main results, it was identified that the generations use different behavioral patterns in the purchase decision. While Generation Z consumers were born in the Internet era and of significant technological developments, they use advertising and influences in the purchase decision. In contrast, Generation X consumers who already have financial, employment, and dependency stability, a more traditional consumer profile, use credibility and applications in the purchase decision. This study advances by presenting the relationship between consumers' determining attributes when purchasing highly involved products, such as smartphones. The creation of mind maps to show the consumer decision-making process is also a contribution presented by this research. The relationship between affinities may offer directions for marketing investments by the Apple and Samsung brands since some attributes are more determinant than others.

Keywords: Determining attributes; Buying decision; High involvement.

INTRODUCTION

The objective of this research is to present the smartphone purchasing decision-making model for generations Z and X, compare them and discuss their implications.

The factors that affect the smartphone purchase decision are complex. It is difficult to assign a single reason or element to the consumer's choice, as the attributes differ for different individuals (Sujata, Yatin, Abhijit, Noopur, and Ruchi, 2016). There is also recognition of the importance of consumer engagement with new technologies, their background, and moderators in the purchase process (Marbach, Lages, Nunan, & Ekinci, 2019). The objective is to present the decision-making model to purchase smartphones for both generations, compare them, and discuss its implications.

The smartphone is a product through which consumers tend to show their image to other people, and this indicates that, when making their choice, customers prefer those that match their self-image (Kaur and Soch, 2017). Sheth (2020) presented smartphones as one of the most impacting advances in consumers' lives in recent years. And with the rapid development of technology, smartphones have introduced an increasing number of features, making it more difficult for the market to accurately assess the product's perceived quality (Zhao, Qiu, Zhou, Hu, and Yang, 2020). While smartphone usage continues to have an increasingly significant influence on national economies, research has seldom delved into the correlation between economic circumstances and trends in smartphone purchases (N'da et al, 2023).

Knowing the characteristics of consumers and the purchase decision process, obtaining information about the brand, product price, and purchase decision of consumers are characterized as relevant studies (Irfan and Rachmawati, 2018).

The concept of generation in the historical conception designates a group of people who were born, more or less, at the same time and who have in common a similar historical experience and cultural proximity (Forquin, 2003). It has been common practice in global marketing to group consumer segments into target market categories. One of the more widely used is that of lumping generational cohorts into a group, and assigning traits to that group (Zwanka and Buff, 2021).

Generation Z's market segment includes consumers who have easier access to information, mobile and connected to date, and are those consumers born from the 2000s until 2010 (Sinha e Lu, 2019). Generation Z members are also socially aware, tech-savvy, incredibly innovative, and continually looking for a change (Chaney, Touzani, and Ben Slimane, 2017). They are continuously connected through smartphones and other electronic devices (Sinha and Lu, 2019) and have access to more information than any different generational cut (Mahmoud, Fuxman, Mohr, and Reisel, 2020).

Generation X consumers were born between 1960 and the late 1980s (Mahmoud et al., 2020). They were labeled 'generation of fear' because the age of majority was marked by the threat of nuclear war, economic crisis, and unemployment (Solomon, 2016).

Future studies should focus on establishing consumers' typologies from different generations, highlighting the main differences that characterize each generation, and making comparisons. Recently, Gupta and Jain (2019) pointed out that the process of choosing for different ages is relevant in marketing research. Given these considerations, it is plausible to say that the Z and X generations' consumers have other decision-making processes when purchasing smartphones. Therefore, the research problem is: how do consumers of ages Z and X prioritize attributes to buy smartphones?

THEORETICAL REVIEW

Smartphones Purchase Decision

The increase in the Internet's use and the possibilities for online shopping opened up altered consumers' decision-making processes. The classic purchase models became inadequate, making the acquisition process more complicated (Ewerhard, Sisovsky, and Johansson, 2019). With this change, companies that sell smartphones are not the only sources of information. Consumers also share the device's data/characteristics with friends, co-workers, and even on their digital media. Customers go through the decision-making stages several times until they purchase the product (Ewerhard et al., 2019), and social networking sites are becoming an essential part of consumer daily activities, with profound changes in purchasing behavior compared to traditional buying formats (Al-Abdallah, Khair, and Elmarakby, 2021).

The purchase decision is an integration process that combines knowledge to evaluate two or more alternative behaviors. Only one of them will be chosen when defining the product to be purchased (Irfan and Rachmawati, 2018). Sang, Xue, and Zhao (2018) consider that when the purchase decision process's involvement is high, the consumer seeks the most outstanding possible amount of product information and carefully compares the different options. Consumer engagement with value-added products (e.g., smartphones) is a complex, vital, and long-term intervening conceptual construct that influences the consumer's purchasing decision (Wahab, Diaa, and Nagaty, 2023). Given these similarities in purchase options, consumers are caught in the most striking attributes while purchasing a new product.

Shopping behavior can be affected by smartphone design, performance, types of connectivity it supports, price, social trends, and so on (Sujata et al., 2016). In the same direction, recently Fukui and Tan (2024) indicate that hedonic value, user interface and price value (PV) positively influence the attitude towards purchasing smartphones 5G, while utilitarian value does not. A study by the Market Analysis and Consumer Research Organization (2018) found that in 79% of the situations, people buy these products based on their influences. That is, the desire to buy arises with the motivation that others around you (friends, co-workers, and family, for example) have a particular electronic device. Consumer decision-making styles are considered psychological and intellectual approaches that can influence a customer's purchasing decision and help explain customers' behavior toward high-involvement products (Wahab, Diaa, and Nagaty, 2023).

Another attribute used in the purchase decision frequently identified is the brand. Another research confirms the brand's importance in choosing, however, considering other attributes involved, such as a recommendation from friends and family, innovative characteristics, promotion effectiveness, ease of use, after-sales services, design and price (Khan and Rohi, 2013). Loureiro, Correia and

Guerreiro (2023), in their research, identified that the brand is an important attribute when purchasing high-involvement products, not only in the physical environment, but also through e-commerce. Wang et al. (2023) explained that the brand image is one of the attributes that attract the brand change when purchasing a smartphone. A good brand image becomes a strong attraction to lead competitors' customers to buy the products that are offered.

In addition to the purchase decision attributes, it is valid that organizations also analyze the influences and the entire post-purchase process. Dhar, Huber, and Khan (2007) pointed out that consumers acquire an active and persistent implementation mentality after initially purchasing a specific product. Consequently, these consumers tend to encourage others (be it friends, family, and co-workers) to make an initial purchase of a particular product and increase the likelihood of making a second purchase (repurchase).

Differences in individual consumer characteristics indicate that the purchase decision-making processes are not deterministic (Völkner and Werners, 2002). They are still related to the decision maker's features (Chowdhury, Ratneshwar, and Mohanty, 2009). Consumers exhibit different patterns in decision making based on their characteristics (Bhatnagar and Ghose, 2004). Previous research indicates that purchasing processes are influenced by consumers' decision-making and product knowledge (Karimi, Papamichail, and Holland, 2015). These individual characteristics define consumers' motivation and capabilities and, therefore, can explain the differences in decision behavior (Karimi, Holland, and Papamichail, 2018).

For Sheth (2020), while consumption is chronic, there are also influencing factors that are contextual and change consumer habits. The social context (involving family and friends) and even the technological context, as innovative technologies emerge, change old habits. And among the most drastic technological advances in recent years, smartphones (smartphones) are included. Digital technology is transforming consumer desires into needs. Today, for example, one cannot live without a smartphone due to its day-to-day functionality, portrayed in the form of a personal need for interaction with the environment (Sheth, 2020).

While customers are progressively becoming omnichannel buyers, it is no longer enough for marketers to strategize only to optimize sales in physical stores versus online (Parise, Guinan, & Kafka, 2016). Therefore, it is necessary to combine the contact points between the customer and the brand to engage each customer and expand the overall consumer experience in this purchase process (Rasool, Shah, & Islam, 2020). Therefore, the organization of the determining attributes in the decision-making process is characterized by each consumer's priority at the time of the purchase definition (Irfan and Rachmawati, 2018).

METHODOLOGICAL ASPECTS

It is qualitative, exploratory research, using Interactive Qualitative Analysis (IQA). The IQA is an innovative way of doing qualitative research (Davis, 2019), especially in consumer behavior studies. The IQA protocols, designed by Northcutt and McCoy (2004), ensure that the researcher has minimal influence on the participants' data since the data generation and the first steps of the analysis are carried out by the research participants themselves organize your speech into categories. The result of the IQA is a mental map of a group about a specific phenomenon; this study, showing decisive attributes in the choice of smartphones, exploring individual and collective feelings and thoughts.

In this research, individuals' choice meets the criteria of minimum distance and maximum purchasing decision power concerning the phenomenon under study (Northcutt and McCoy, 2004). They were chosen, due to accessibility, to constitute the groups of research participants, consumers of smartphones of the Samsung and Apple brands. The first group, Generation Z, was formed by consumers born from the 2000s until 2010, and the Generation X group, by consumers born between 1960 and 1980. The participants selected in both groups use high technology, performance, approximate prices, and all the latest models launched on the market by the Apple and Samsung brands. Respondents have used the same smartphone brand for over three years, with the device being purchased in the last six months.

The research was carried out with Brazilian consumers. Ten consumers belonging to Generation Z and nine consumers belonging to Generation X participated in the research. These participants were involved during data collection via different focus groups for each group, and later, all were interviewed individually. Following the guidelines of the Research Ethics Committee of the University to which the researchers are linked, it was decided to keep the research participants confidential, naming them only as Interviewee 1, Interviewee 2, and so on (represented by E1-Generation Z or X, E2-Generation Z or X, E3...).

PRESENTATION AND DISCUSSION OF RESULTS

Generation Z data presentation

During data collection with the focus group, Generation Z participants pointed out as determinants in purchasing smartphones the following attributes: design, hardware, screen size, software, camera quality, influences, price, and advertising. Figure 1 shows the mindmap of consumers of this generation, (Northcutt and McCoy, 2004).
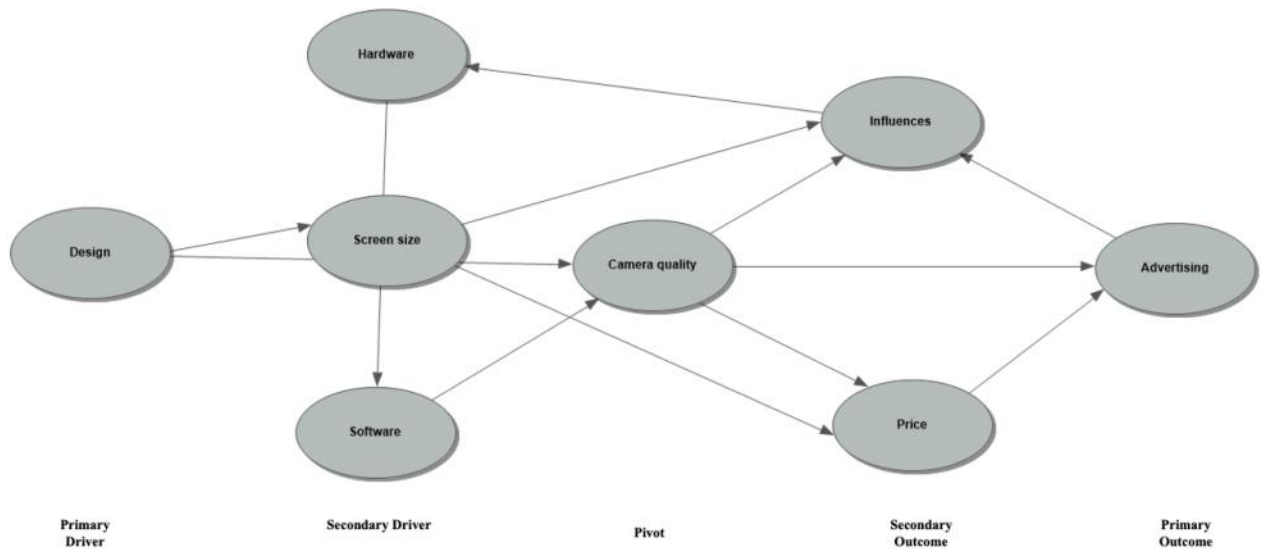
Figure 1. Generation Z - System Influence Diagram drawn from interviews.

Figure 1 shows the relationships of affinities. The primary design driver has two influence arrows, starting with screen size, camera quality, price, and advertising (via camera quality). About these relationships, the interviewee pointed out that:

> I think the design is related to the screen size because I imagine that companies develop a smartphone thinking about a differentiated product. From that, they will create a screen (display) according to the design of the device. Nevertheless, the focus should be on the differentiated design to draw consumers' attention (E9- Generation Z).

As secondary drivers, we have an affinity for screen size, hardware, and software. Screen size has two influence arrows, starting with the price and also with influences. Regarding these relationships, it was identified that:

> The screen size also shapes the price of the cell phone, right? [...] why cell phones are increasingly coming with big screens and higher prices. (E1- Generation Z).
>
> Ah, I think the screen size is related to influences. If Samsung launches a new phone, famous people will try to influence us to buy with a different screen from the competition. If a friend buys and likes it, surely, he will want to make us buy too (E7- Generation Z).

Regarding hardware affinity, there are relationship arrows for software and camera quality (via software).

> I imagine that the hardware, being the basis of the smartphone, influences the software. If my phone does not lock, I can download a lot of the App, it lasts a long time on the battery, so I imagine its suitable hardware (E3- Generation Z).

As a secondary drive, the software is related to camera quality, price, and advertising (both via camera quality). The importance of camera quality is perceived in this consumer decision model, being the central attribute of the decision process.

> If you have good software, the camera is usually excellent too. It has good quality (E3- Generation Z)
>
> Suppose the phone has good software. The camera does not lock. Good software also makes the videos look good, without crashing, with good quality. I think the software dramatically influences the smartphone's camera (E7- Generation Z).

The model's pivot affinity is camera quality. In this affinity, there are arrows of influence for the price, advertising, and influences.

> The more a good camera is, the higher the price will be (E3- Generation Z).
>
> The quality of the camera has to do with advertising. If I have an excellent camera, I can use it in my advertising (E3- Generation Z).

Price affinities and influences emerged from the interviews as secondary results. The price attribute has an influence arrow only for advertising.

> Depending on the price of the cell phone, the company invests in more types of advertising. For example, if Apple launches a new iPhone, it can invest heavily in advertising, as it is a product launch from a well-known brand (E9- Generation Z).

Nevertheless, the influences (from friends, famous people, family) were identified by consumers having to do with the smartphone's hardware (Bertol et al., 2017). It was understood that consumers who can influence other people also seek to convince them of the differential hardware in the smartphone. This view corroborates the findings of Zhao et al. (2020) where they pointed out that consumers expect to receive accurate information from people who have already purchased products in previous periods.

> Anitta, for example, when she appeared on TV with a Samsung and talking very well about the operating system, security and

> the cell phone did not lock up, she certainly influenced me to buy a Samsung for his hardware (E4- Generation Z).

Finally, the immediate result of the interviews was advertising. Research participants understand the importance of advertising as a final stimulus for a purchase decision.

> Advertising is the final stimulus. When I'm in doubt between two cell phones, I see which advertisement convinces me the most: the famous people in the advertisement, and from that, I decide which smartphone to buy (E3-Generation Z).

The sold products dissemination strategy depends not only on the quality of the product (in general) but also on the costs of disclosure (channels) and the level of anxiety of the consumer. Therefore, dissemination strategies are necessary (Zhao et al., 2020). After presenting the data collected with Generation Z, Generation X's results are presented.

Presentation of Generation X Data

During the focus group's creation with Generation X consumers, the following attributes were listed as determining factors in the purchase decision: software, hardware, design, price, credibility, internal memory, camera, and image quality and apps.

Figure 2 presents Generation X consumers' decision model containing the affinities mentioned as determinants in the decision-making process.
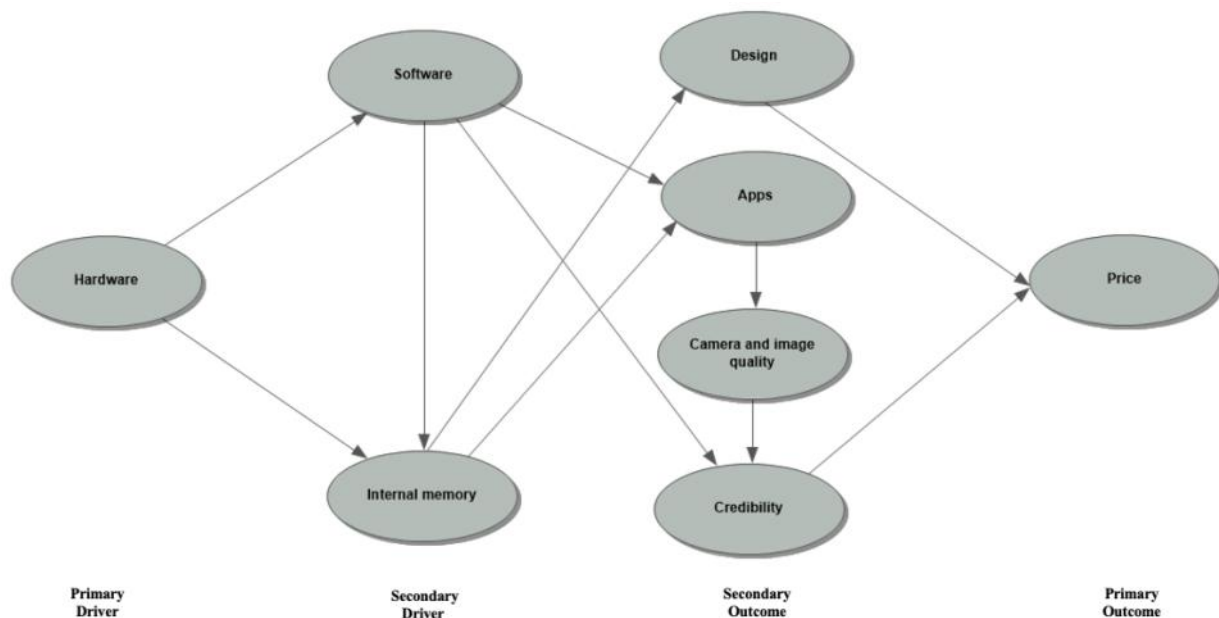
Figure 2. Generation X - System Influence Diagram drawn from interviews.

Hardware affinity is the primary driver. This affinity is related to software, applications, credibility, and internal memory. There is also a relationship between hardware with design (via internal memory), hardware with camera and image quality (via apps), and hardware with the price

(via credibility). The hardware affinity is related to all other affinities, being the attribute with greater power:

> I think that the hardware influences the price, because you put a camera set that is more basic, then it will be a more expensive cell phone (E2-Generation X).

> Because depending on the hardware, you will have a type of design, I believe that you are influenced right. For me, the iPhone's design is more beautiful than that of Samsung, and I think it has to do with hardware (E9-Generation X).

As secondary drivers, there is software and internal memory. Software is related to internal memory, applications, credibility, price (via credibility), and camera and image quality (via apps). Moreover, the internal memory can influence design, applications, price (via design), credibility (via apps):

> Internal memory influences price; I think that the larger the memory, at least within the same model, this relationship is direct, right? (E1-Generation X).

> Because look, how reliable the internal memory will be to give me confidence in the authority of my applications, my device [...] (E8-Generation X).

The affinities pointed out as secondary results are: design, applications, camera and image quality, and credibility. The design has a greater power of influence over price:

> People buy things for what they see. Look, I liked that for the image, for that with the eye itself. I see this is very beautiful. People buy for what they see, for the beauty itself. In this sense, people will pay a higher price, right (E3-Generation X).

The applications are related to camera and image quality and credibility. The affinity of camera and image quality has greater power over credibility and price. Moreover, the credibility affinity has a greater power of influence over price:

> Applications influence credibility because you have no problem once you have that confidence that you do not have a virus. So you have greater credibility in doing certain things that you would typically do only in the bank, which sucks. You keep going to the bank (E5-Generation X).

> Credibility precisely because of that, right, by use. I think if the iPhone guy will not take the price into account in my view. You

know, he will want to buy because of the credibility or because of what people have already passed on to him, that is a better device (E6-Generation X).

This study confirms the findings of Soesilo, Gunadi, and Arimbi (2018), where corporate credibility plays a critical role in reducing consumers' perceived risk and strengthening consumer confidence. The authors reinforce that credibility has been one of the focal interests that continues to receive attention in the marketing and advertising environment. Company characteristics such as attentive, competent, convincing, ethical, honest, impressive, and trustworthy are understood as factors that guarantee credibility (Hussain et al., 2020).

Given this evidence presented, the next topic will display a comparative analysis of the data collected with Generation Z and Generation X.

Results Discussion

Almost all consumers carry a smartphone with them all day; while some use it only for entertainment, others also use it as a work tool. People use it for various purposes, not only to call, send texts or access the Internet, but also to answer e-mails, create spreadsheets, and even hold meetings. The personal smartphone is used as a superfluous electronic device and as a working tool (Simmonds, Guha, Rahim, and Mella-Barahona, 2019).

Between the two models that emerged from the interviews, some affinities (attributes) were decisive in both generations' purchase decisions, such as software, hardware, price, design, and camera/image quality. However, some of these affinities are positioned differently in prioritizing consumers. In Generation Z, design emerges as the main attribute of the purchase decision, influencing other affinities. In Generation X, design emerges as results, being influenced by other more determinant attributes in the consumers' perception. It appears that in the purchase decision of Generation Z, characteristics such as appearance, color, and thickness are more determinant than in Generation X, which uses hardware as a base attribute in the purchase decision. Two vignettes were created that represent Generation Z and X consumers' purchase decision process, respectively.

"João Marcelo, now 19, has worked hard for the past 2 years and managed to save 1480 U$$. With that amount, he chose to purchase a new smartphone. João Marcelo goes to the store and the most decisive attribute in the purchase is the design, he is mainly concerned with color and thickness. Technical specifics, functionality, operating system and screen size are secondary characteristics in its decision, but they are also decisive. Among the options available, João Marcelo chooses the smartphone with the best camera quality (which has the best focus and sharpness in photos and videos), for him, this attribute is central to the purchase decision. However, there are still three options available within the features he outlined. So, he quickly checks his Instagram and analyzes the opinions of celebrities and makes a quick call to his best friend Fernando,

because for João Marcelo, the opinion of friends and celebrities are important. Finally, it takes into account the price to make a decision and remembers the advertisements you saw in the paid Instagram ads. João Marcelo, young, impulsive, anxious and indecisive, is in doubt whether to buy a Samsung Galaxy S20 + or Apple's iPhone 12 Pro Max."

"Sabrina, who is a professional in the area of Architecture, needs to change her smartphone, as it has been 3 years since the last exchange. However, she is married and has an 18-year-old daughter, has household expenses to pay, including rent and health insurance. But, the smartphone for her is a work tool too, and therefore, the technical components (hardware) are the most determining attribute in her choice. As mentioned by Sabrina, she uses the device as a work tool, to store and present projects to clients, make bank transactions, among others. That is, the internal memory capacity and the software used are extremely important also at this time of exchange. Even in her late 50s, Sabrina likes colorful smartphones that have a large screen, uses several applications, loves taking pictures and recording videos, and has her digital media always up to date. However, experience and security with the brand are indispensable factors in her decision. The price for Sabrina is not such an important attribute, but ultimately, it is her weight of importance. Sabrina is in doubt, if she buys the iPhone X from Apple or the Galaxy Note10 + from Samsung".

Figure 3. Vignettes of the Generation Z and X purchase decision-making process.

As illustrated in the first vignette, camera quality is the pivot of the purchase decision model for Generation Z consumers. In Generation X, this attribute also includes image quality (in addition to the camera). Generation Z uses the smartphone more as entertainment, recording moments with friends, food, and recording many personal moments alone, corroborating Melumad and Pham (2020). They analyzed smartphones as fun and entertainment forms by consumers and pointed out that emotional benefits are essential in this consumer profile.

In contrast, the quality of the camera and image for Generation X (second vignette) is seen as secondary results. It is more influenced by other affinities that are considered to have greater power in the purchase decision. It is inferred that Generation X consumers do not use the camera quality feature so often for entertainment purposes. Instead, they use image quality during their activities during day-to-day activities, such as sending e e-mails, meetings, and reading reports. These findings corroborate Simmonds et al. (2019), where they pointed out the use of smartphones as a work tool, not just for entertainment purposes.

Regarding the option of using the smartphone as entertainment, this action aims at satisfying the consumer's emotional needs, mainly from Generation Z. Consumers even seek emotional benefits on their smartphones, in particular, feelings of psychological comfort and, if necessary, real relief stress (Melumad and Pham, 2020).

Price affinity is seen as a result of both generations. Previous research by Pinto et al. (2019), also identified price as a determining attribute in the acquisition of electronic products. In this research, it was found that Generation Z consumers prefer to make installment purchases, while Generation X plans to save money and make sighted purchases, seeking discounts.

The software is present in both generations' decision-making processes. Even so, Generation X consumers demonstrated more knowledge of affinity by presenting software features, such as practicality, ease of use, agility in executing commands, security, and trust. Soesilo et al. (2018) pointed out that this consumer profile is more detailed at the time of purchase, seeks detailed product information, and performs cost/benefit analyzes before purchasing. For Generation Z, only functionality and diversity of functions were mentioned when approached about software.

There is a common point among consumers who participated in this research: smartphones are technological products that we regularly use, whether for entertainment or work activities. During the interviews, it was possible to identify a predominance in both generations by smartphones of the Apple brand, mainly due to the brand credibility (Generation X) and the status and influence of personalities, friends, and family (Generation Z). Demo and Guanabara (2015) have stressed the importance of consumers' utilitarian meaning in the process of choosing and buying the iPhone. A study by Kim, Lee, and Lee (2020) with consumers in South Korea, identified that Apple consumers are more loyal to the brand than consumers of Samsung. For these consumers, the brand is the most crucial attribute in the purchase decision.

With the advances and improvements that arise related to technology and rapid changes in market demands, the life cycle of consumer electronic products is being reduced, and new products have been continuously launched (Rau and Fang, 2018). These facts make consumers buy smartphones more often, always looking for new products with differentiated design and superior performance.

FINAL CONSIDERATIONS

The generations use different behavioral patterns in the purchase decision. Generation Z consumers, use attributes such as advertising and influences in the purchase decision. Opposed to Generation X consumers who already have financial, employment, and dependency stability, a more traditional consumer profile use credibility and applications in the purchase decision. A more significant concern is perceived among Generation X consumers. Unlike Generation Z, the smartphone is also used as a work tool, which is an entertainment and status device.

The use of mental models as a way of portraying the results identified during the research corroborates the findings by Pryor et al. (2016). In this research, based on the information collected from the interviewees, two mental models can be constructed, one being a shared mental model (from

the focus group) and another individual mental model (elaborated from the interviews). It should be noted that the same people participated in the construction of both models; however, they are different mental models. Pryor et al. (2016) revealed that the models can be shared in groups, and these groups affect the behavior aspects and information processing, consequently, the models are influenced during the construction by the group members. Recently, Behling (2019) also used mental models as a way of retracting the results of research carried out in Administration, using the same method as in this research.

As theoretical contributions, this study advances by presenting the relationship between consumers' determining attributes when purchasing highly involved products, such as smartphones. The creation of mind maps to present the consumer decision-making process is also a contribution presented by this research. The comparative analysis between the two generations also presents its contributions. It presents the purchase decision process in detail individually and subsequently performs analyses showing consumers' similarities and differences when purchasing smartphones.

As management contributions, it is recommended that marketers develop strategies segmented by smartphone customers since differences in the determining attributes between Generation Z and Generation X have been identified. The relationship between affinities may also present directions for marketing investments by the Apple and Samsung brands since some attributes are more decisive than others. In product dissemination strategies, greater emphasis can be given to attributes considered to be primary drivers in the developed decision models.

Even using robust methodological rigor, some limitations must be mentioned. First, it is an exploratory study with samples from only one State in Brazil. Studies in other regions of the country and internationally may also present their contributions due to cultural differences that may (or may not) influence consumers' purchasing decisions. Generations Z and X and the Apple and Samsung brands were used as a search filter; thus, new studies can be directed to other generations, make comparisons between generations, and analyze other smartphone brands. This study analyzed consumers only from smartphones' perspective, new studies analyzing the determinant attributes to purchase other types of electronic products such as notebooks, smartwatches, tablets, and others should be conducted. Quantitative studies with larger samples from across the country are also recommended to prioritize and validate exploratory qualitative studies.

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THE RELATIONSHIP BETWEEN CORPORATE SOCIAL RESPONSIBILITY AND CORPORATE FINANCIAL PERFORMANCE: THE MODERATING ROLE OF CEO GENDER

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ABSTRACT

As companies pursue sustainable development, people increasingly realise the importance of Corporate Social Responsibility (CSR). Research on the relationship between CSR and Corporate Financial Performance (CFP) has proliferated. The research on CSR has gradually developed a system in North America. However, as the research goes more profound, numbers of scholars realise that the conclusions of such research are inconsistent. At the same time, the relationship may be affected by other factors. Therefore, this paper aims to study the relationship between CSR and CFP in S&P 500 (Standard & Poor's 500). At the same time, the chief executive officer (CEO) gender is introduced as a moderating variable to examine the above relationship.

This study selects S&P 500 companies from 2010-2018 as a sample through Bloomberg's database. It empirically analyses the correlation between CSR and CFP and the moderating effect of CEO's gender using the regression and moderating effect models. This study adopts the ESG disclosure score to measure CSR and CFP indicators from accounting and market perspectives. The results indicate that it is vital for S&P 500 firms to be socially responsible, and the CEO gender has a moderating effect between CSR and CFP. Specifically, both perspectives of ESG disclosure scores and CFP show significant positive correlations, suggesting that the CSR of S&P 500 firms again has a significant positive impact on CFP. In addition, the moderating effect of CEO gender shows a significant negative correlation. It demonstrates that female CEOs are inhibitory in studying the relationship between CSR and CFP.

Keywords: Corporate Social Responsibility; Corporate Financial Performance; ESG Disclosure Score; S&P 500; CEO Gender.

1. INTRODUCTION

1.1 Reseach context

In the past few years, the field of corporate social responsibility (CSR) has grown by tremendous amounts. A growing number of businesses are seriously trying to define and incorporate CSR into every element of their operations. Companies are increasingly expected to track, analyze, and constantly improve their social, environmental, and financial performance. In recent years, CSR has received much attention in both the commercial and academic worlds. In the context of globalisation and information technology, CSR has become increasingly important for sustainable business development. Among the definitions of CSR, the most popular definition is consistent with McWilliams and Siegel (2001) that CSR is behaviour that goes beyond corporate interests to promote specific social interests and comply with legal requirements. According to some academics, CSR is businesses' mandated obligation to their workers, clients, suppliers, and local communities concerning the social and environmental aspects of their business practices (Witkowska, 2016). As a result, this concept has matured as the definition of CSR has evolved.

In recent decades, the rapid development of corporate activities has been closely related to CSR. Many scholars argue that the value of a company should be assessed not only from a financial perspective but also based on its social performance (Dunfee, 1991; Theodoulidis et al., 2017). However, there has been a debate about whether companies should focus only on maximising financial returns for shareholders or consider social interests. Striking a balance between maximising self-interests and considering society's interests is a massive challenge for most companies. The relationship between CSR and CFP is still being determined. Therefore, this dissertation will focus on a more in-depth study of the relationship between CSR and CFP.

1.2 Reseach objectives

This study examines the relationship between CSR and CFP for S&P500 in the United States from 2010-2018. Due to the relationship between the two in this field being still divergent (Roman et al.,1999; Lu et al., 2014), this study intends to select a specific country and years to be analysed. Also, considering the critical influence that corporate governance (CG) may play in the relationship, this study mainly focuses on the relationship between CSR and CFP. It is followed by exploring whether gender differences in CEOs affect the relationship between these two elements. The study's results found that for the sample of S&P 500 companies in the study sample from 2010-2018, there is a significant positive concern between CSR and CFP. Therefore, it can be proved that CSR has a significantly positive impact on CFP. At the same time, CEO gender has a significant negative correlation effect on the relationship. Therefore, the conclusion suggests that female CEOs are inhibitory in the relationship.
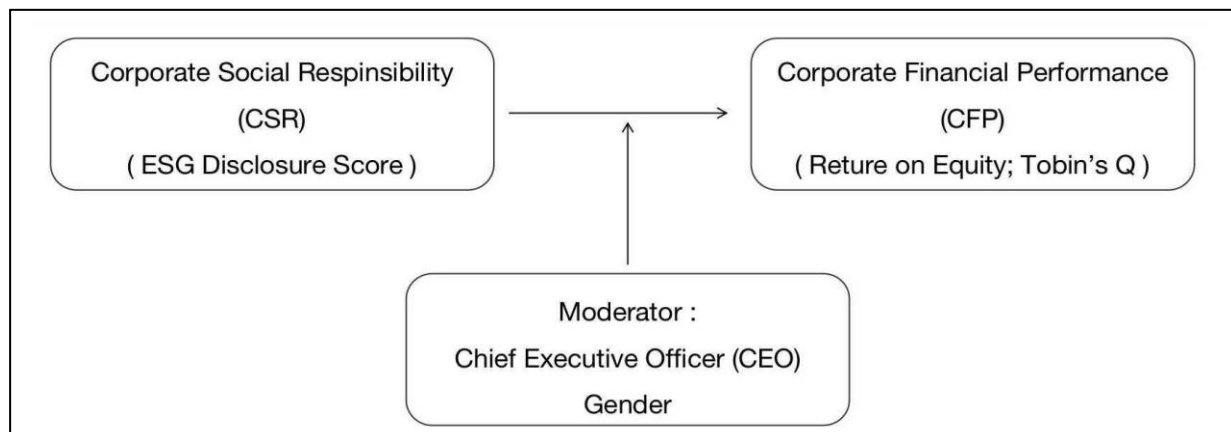
Figure 1. *Conceptual Framework*

2. LITERATURE REVIEW

2.1 Introduction

As companies become increasingly concerned with sustainability and enhancing competitiveness, scholars have focused on the potential relationship between CSR and CFP (Tang et al., 2012; Okafor et al., 2021; McWilliams and Siegel, 2001). At the same time, this has arrived at a role for CG-related indicators in studying issues in this area. Therefore, this chapter clarifies the theories which are the focus of this study. Then, by clarifying the definition of CSR and ESG and the critical stages of its development process. Furthermore, elaboration of the existing relationship between CSR and CFP through the classification of the findings of previous scholars. Finally, the implications of CEO gender are discussed for the study of CSR and CFP.

2.2 Stakeholder Theory

As increasing numbers of people realise the importance of stakeholders, many companies are beginning to understand that they should prioritize not only profitability but also the interests of their stakeholders. Stakeholder theory was first developed by Freeman (1984), who argues that a company cannot operate solely for its benefit and should be accountable to all its stakeholders to achieve sustainable growth. Therefore, if a company is concerned with the interests of its stakeholders, it is likely to have sufficient resources to devote to CSR. When stakeholders' interests are considered, a firm will likely improve its reputation and reduce risks, ultimately leading to improved performance (Devie et al., 2020).

Furthermore, as stakeholder theory has developed, more understandings of the theory have emerged. Donaldson and Preston (1995) show their understanding of the theory in terms of normative, instrumental, and descriptive aspects, emphasising the importance of CSR. Meanwhile, Dunfee (1991)

suggests that the theory is dynamic because stakeholders shift their focus in response to changes in a firm's external environment, leading to the emergence of more novel perspectives on stakeholder theory. As a result, many studies of stakeholder theories are gradually emerging in the field.

The relationship between CSR and stakeholder theory is highlighted by Freeman and Dmytriyev (2017), who argued that companies have several responsibilities to their stakeholders, and CSR is one of them. Whereas many scholars argue that the more CSR is disclosed, the more satisfied stakeholders are with a company which leads to benefits for the company's sustainability (Tilt, 1994). The existence of both concepts has generated significant interest in the business environment. Although many scholars concur with Freeman's view, some contend that the two concepts are complementary (Perrini et al., 2011). Therefore, the relationship between CSR and stakeholder theory has not been established in past research and has not been widely explored by many scholars.

Nevertheless, a multitude of studies employ stakeholder theory as a foundation for exploring CSR and CFP, establishing a valuable and robust research framework within this domain. Theodoulidis et al. (2017) used a stakeholder model to examine the relationship between CSR and CFP in tourism industries. Chen and Wang (2011) studied the relationship between CSR and CFP in Chinese companies, defining nine types of stakeholders by applying stakeholder theory and regarding CSR as a response to the demands of these stakeholders' interests.

2.3 The development of CSR

CSR has evolved from ideology to reality as many companies focus on their roles in society. The development of various concepts has led to various conceptualisations of CSR (Snider et al., 2003). Therefore, before discussing the CSR-CFP relationship, it is necessary to define CSR. The genesis of the CSR concept can be attributed to the British scholar Oliver Sheldon, who first introduced it in 1924. He linked it to the responsibility of company executives to meet a series of human needs, arguing that CSR included an ethical element.

Scholars have presented diverse definitions of CSR, each offering their unique perspective and understanding. According to Wood (1991), the meaning of CSR can be comprehended through the interplay of three principles: legitimacy, public responsibility, and managerial discretion. Friedman (1970) argues that CSR aims simply to increase corporate profits. Therefore, companies should have an increased focus on maximising the interests of their shareholders. His view provides strong support for the subsequent negative correlation between CSR and CFP. After that, the definition of CSR was further developed based on stakeholder theory. Being the first to establish stakeholder theory, Freeman (1984) contended that all stakeholders have the power to influence and are also impacted by the decisions made by the company.

2.4 ESG and ESG disclosure score

With the development of CSR, more interest is gradually shifting towards sustainable development and environmental, social and governance (ESG). Since the introduction of ESG was published in 2004, many developed countries have been actively engaged in the implementation of ESG principles, which is a holistic framework system comprising three dimensions: E (environment), S (social) and G (governance). However, the concept of ESG stems from the idea of responsible investment (PRI). This investment strategy seeks to incorporate environmental, social, and corporate governance considerations into investment decisions to manage risk better and achieve long-term sustainability (Ho, 2015; Li et al., 2021). It caters to diverse objectives among responsible investors, with some emphasizing financial returns while also taking into account ESG factors that could impact those returns. Consequently, ESG principles serve as a crucial tool for investors to evaluate corporate behavior.

In reality, the ESG disclosure score can be considered a leading factor in measuring the effect of CSR implementation by enterprises. As the measurement of CSR may have biases and errors due to internal business management, scholars tend to use ESG disclosure score data to study the implementation of CSR (Han et al., 2016). The ESG disclosure score provides an understanding of a firm's overall CSR activities, how it develops CSR implementation measures based on its long-term development goals and strategies, manages risks, and other organisational characteristics regarding general management practices. At the same time, the indicator serves as a measure of CSR, and stakeholders can acquire an understanding of extra environmental impacts on the company and its commitment to good governance practices.

2.5 The relationship between CSR and CFP

The relationship between CSR and CFP has been the subject of theoretical and empirical research since its inception. Previous research has provided conflicting results through a critical review of past research findings and has identified three categories of positive, negative and insignificant relationships (Orlitzky et al., 2003). Based on 52 studies of CSR in CFP between 1972-1997, Roman et al. (1999) focused on the validity and value of the research and found that over the last 25 years. The study found that 33% of studies showed a positive association, accounting for 64% of the total studies. Therefore, this section attempts to sort out past research on CSR and CFP and establish a correlation study of this relationship in the segment based on the views of previous scholars.

A compilation of decades of scholarship shows that little research has been conducted on the adverse outcomes of the relationship between CSR and CFP. Nevertheless, one of the most famous opponents, which is worth mentioning, is Friedman's theory. Friedman (1997) mentions that companies should only be concerned with maximising shareholder value through profits, with the interests of other stakeholders being secondary. As an economic organisation, a company should focus more on the

economy to maximise its interests and thus achieve profitability. As a result, several studies have arisen based on the negative impact of CSR on CFP. However, the Friedman doctrine has also been criticised. Some scholars argue that a positive relationship exists between CSR and CFP.

2.6 CEO Gender Diversity

Through collating and investigating previous studies, questions remain about the relationship between CSR and CFP. However, many scholars have suggested that CG is essential in improving CFP to effectively manage CSR (Jo and Harjoto, 2012; Jamali, 2008; Jensen and Meckling, 1976). Among these, gender diversity is considered an important area of CG being studied. Many studies have examined CSR and CFP based on gender differences and found that female executives outperformed male executives in terms of both CSR and CFP. Burton and Hegarty (1999) found that women's awareness of CSR was high, which led to a higher CSR disclosure when women became CEOs. Bear et al. (2010) came to the same conclusion, arguing that female has significant beneficial effects because more female boards improve the analysis and decision-making. Chen et al. (2020) argue that female CEOs can make more CSR recommendations, and when female CEOs are at the top, CSR performance is better when the proportion is higher. Therefore, it can be found through the study that gender diversity of CEOs can contribute to improved firm performance due to the gender decision-making characteristics of female CEOs in terms of the external environment and CG, resulting in enhanced corporate reputation and reduced risk. Thus, the gender advantage of women is increasingly being recognised as society evolves.

2.7 Hypotheses development

Certain studies have refuted the presence of a correlation between CSR and CFP. From a theory of the firm standpoint, McWilliams and Siegel (2001) explored the influence of CSR on CFP and reported a lack of substantial correlation between the two factors. They also found that implementing CSR may have social and environmental benefits, but there is no direct evidence that this behaviour directly enhances corporate performance. Nelling and Webb (2009) reinforced this discovery by confirming the absence of a statistically significant link between CSR and CFP when time-series effects were excluded. They concluded that no direct evidence suggests that CSR positively affects CFP. However, they do not deny the impact of CSR on aspects such as reputational brand value. Therefore, research in this area may need a more transparent methodology or a more detailed and comprehensive consideration to advance the research on this issue further. Specifically, this study proposes the following hypothesis for the sample selected for the study:

H1: There is a positive association between corporate social responsibility and corporate financial performance

Second, the impact of CEO gender is different in different country contexts. Nevertheless, although many studies have proved that female CEOs positively impact firm performance and CSR, the ratio of male CEOs to female CEOs in existing firms is still quite different. Therefore, this paper develops hypotheses for CEO gender:

H2: The positive correlation between CSR and CFP is weakened if the CEO is a woman.

3. EMPIRICAL STUDY

3.1 Sampling and data

The CSR research system in the United States is maturing, but the relationship between CSR and CFP is still inconsistent. In terms of data collection, this study uses data from S&P 500 index companies from 2010-2018. However, the list of S&P 500 companies has changed over time and some companies lack vital data, this research excludes some companies with missing data from the empirical study. In addition, considering the impact of CG factors, CEO gender is selected as a moderating variable to explore the above study. Regarding the year selection, the COVID-19 pandemic after 2018 was considered to have a possible impact on company data.

Therefore, data from 2010-2018 was intercepted for analysis in this study. All the data utilized in this study was sourced from third-party organizations through Bloomberg's secondary data.

3.2 Variables description

3.2.1 Dependent Variable

Tobin's Q, market return and stock performance are the main market-based measures, which reflect forecasts of future cash flows. Tobin's Q is selected as a long-term corporate performance measurement. ROE is used as a short-term corporate performance indicator. ROE looks at the ratio between net profit and the shareholder equity ratio. Considering the performance of a firm's equity provides a more comprehensive indicator for assessing CFP (Waddock and Graves, 1997).

3.2.2 Independent Variable

ESG Disclosure Score will be used in this study to measure CSR. According to Bassen and Kovacs (2020), this indicator is essential for measuring CSR because it provides ESG information and provides investors with comprehensive information to assess the business operation.

3.2.3 Control Variables

Previous research has demonstrated that firm size (Size) plays a crucial role in determining the effectiveness of CSR (Han et al., 2016; Fombrun and Shanley, 1990). This study assesses the firm size regarding the logarithm of total assets (Firm size = Ln (Total Assets)). Board independence (Bi) is also considered an essential consideration for board effectiveness (Endrikat et al., 2021; Ortas et al., 2017; Jo and Harjoto, 2011). Board independence has been calculated as the proportion of board independent

directors to the total board members. Finally, the effect of firm leverage (Lev) on the findings should be controlled for in the study of the relationship between CSR and CFP and this study uses the ratio of total liabilities to total assets to measure firm leverage (Firm leverage = Total Liabilities / Total Assets).

3.2.4 Moderating variable

To explore the potential moderating influence of CEO gender on the correlation between CSR and CFP, this study employs a dummy variable methodology to quantify this effect. The moderating impact of CEO gender has been measured in previous studies by coding the observation of female CEOs as 1 and male CEOs as 0. It is consistent with previous scholarly measures of CEO gender (Bauweraerts and Vandernoot, 2019).

3.3 Model

Main regression effects and moderated effects were used in this study. Firstly, a base regression model constructed based on the main hypothesis is used to study the correlations between CSR and CFP. The underlying regression model is constructed as follows:

$$\text{Tobin's Q}_{it} = a_0 + \gamma_1 \text{ESG\_DS}_{it} + \gamma_2 \text{Bi}_{it} + \gamma_3 \text{Lev}_{it} + \gamma_4 \text{Size}_{it} + \varepsilon_{it} \quad (1)$$

$$\text{ROE}_{it} = a_0 + \gamma_1 \text{ESG\_DS}_{it} + \gamma_2 \text{Bi}_{it} + \gamma_3 \text{Lev}_{it} + \gamma_4 \text{Size}_{it} + \varepsilon_{it} \quad (2)$$

In the above models, Tobin's Q and ROE are dependent variables. The independent variables are ESG disclosure scores (ESG_DS), where the control variables are board independent (Bi) firm leverage (Lev) and firm size (Size), a_0 is the regression coefficient, ε indicating the random disturbance term and γ is the regression coefficient.

As the study considers the moderating role of CEO gender, the following moderating effect regression model was constructed to analyse whether CEO gender would have a facilitating or inhibiting effect on Hypothesis 1 based on Hypothesis 2. Therefore, the moderating effect model is as follows:

$$\text{Tobin's Q}_{it} = a_0 + \gamma_1 \text{ESG\_DS}_{it} + \gamma_2 \text{CEO gender}_{it} + \gamma_3 \text{Bi}_{it} + \gamma_4 \text{Lev}_{it} + \gamma_5 \text{Size}_{it} + \varepsilon_{it} \quad (3)$$

$$\text{Tobin's Q}_{it} = a_0 + \gamma_1 \text{ESG\_DS}_{it} + \gamma_2 \text{CEO gender}_{it} + \gamma_3 \text{CEO gender*ESG\_DS}_{it} \\ + \gamma_4 \text{Bi}_{it} + \gamma_5 \text{Lev}_{it} + \gamma_6 \text{Size}_{it} + \varepsilon_{it} \quad (4)$$

$$\text{ROE}_{it} = a_0 + \gamma_1 \text{ESG\_DS}_{it} + \gamma_2 \text{CEO gender}_{it} + \gamma_3 \text{Bi}_{it} + \gamma_4 \text{Lev}_{it} + \gamma_5 \text{Size}_{it} + \varepsilon_{it} \quad (5)$$

$$\text{ROE}_{it} = a_0 + \gamma_1 \text{ESG\_DS}_{it} + \gamma_2 \text{CEO gender}_{it} + \gamma_3 \text{CEO gender*ESG\_DS}_{it} \\ + \gamma_4 \text{Bi}_{it} + \gamma_5 \text{Lev}_{it} + \gamma_6 \text{Size}_{it} + \varepsilon_{it} \quad (6)$$

In the above models, the independent, dependent and control variables are the same as in models (1) and (2) above. Since moderating effects are used, CEO gender is introduced as the moderating variable. The multiplier of CEO gender and ESG_DS is applied as the interaction term.

4. FINDINGS

4.1 Descriptive Statistics

Table 4.1 shows the main descriptive statistics of the collected data. Since the data provided by Bloomberg contains missing data, firms with considerable missing data were excluded from the data processing process, and companies with a small number of missing values were filled in with the mean value. Thus, the descriptive statistics are calculated based on 3,411 observations (379 firms) of S&P500 companies from 2010-2018. The study encompasses a collection of observations, encompassing descriptive statistics such as maximum, minimum, mean, and standard deviation for variables categorized as dependent, independent, control, and dummy variables.

Variable	Obs	Mean	Std. Dev.	Min	Max
Tobin's Q	3411	2.171	1.463	.69	14.244
ROE	3411	18.511	34.024	-174.622	1048.62
ESG_DS	3411	42.878	11.9	19.022	82.537
LEV	3411	.594	.189	.032	.997
BI	3411	83.495	9.783	27.273	100
SIZE	3411	5.183	1.55	.048	10.174
CEO gender	3411	.035	.185	0	1

Table 4.1 Descriptive Statistics

4.2 Correlation analysis

This section uses correlation analysis to evaluate the relationship between CSR and CFP. The correlation results for these variables across 3411 observations spanning 2010-2018 are presented in Table 4.2. The Pearson correlation coefficients between the ESG disclosure scores, ROE, Tobin's Q, CEO gender, and other control variables are shown in the following table. The coefficients, ranging between -1 and 1, signify negative correlations when below 0 and positive correlations above 0. Correlations greater than 0.8 are generally associated with multicollinearity. The above correlation analysis table shows that the correlation coefficients of variables are less than 0.8, indicating that multicollinearity problems between these variables are less likely. The result also compensates for the effects of previous studies ignoring the effects of multicollinearity on the test results.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
(1)Tobin's Q	1.000						
(2) ROE	.216***	1.000					
(3) ESG_DS	-.126***	.077***	1.000				
(4) LEV	-.370***	.101***	.157***	1.000			
(5) BI	-.149***	.033*	.303***	.262***	1.000		
(6) SIZE	-.498***	-.026	.414***	.524***	.246***	1.000	
(7) CEO gender	-.020	.020	.082***	.073***	.056***	.068***	1.000

Note: The sample includes 3411 observations for the period 2010-2018 from S&P500. *, ** and *** refer to the 10%, 5% and 1% significance levels respectively.

Table 4.2 Matrix of correlations

4.3 Regression Analysis

Tables 4.3 and 4.4 depict the outcomes of regression models for ROE, Tobin's Q, and ESG disclosure score employed to scrutinize the correlation between CSR and CFP. Where 'Coef' represents the regression coefficient between the independent and dependent variables. A positive regression coefficient signifies a favorable correlation between the two variables. In contrast, it represents a negative correlation. The 'P-value' represents the significance of these correlations. 'Sig' shows two stars if the p-value is less than 0.05 and three stars is less than 0.01, representing significant correlations between the variables.

ROE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ESG_DS	.196	.094	2.08	.038	.011	.381	**
LEV	26.679	14.72	1.81	.071	-2.265	55.623	*
BI	.145	.129	1.12	.263	-.109	.399	
SIZE	.644	2.072	0.31	.756	-3.43	4.718	
Constant	-21.186	17.524	-1.21	.227	-55.643	13.271	

Mean dependent var	18.511	SD dependent var	34.024
R-squared	0.010	Number of obs	3411
F-test	2.115	Prob > F	0.098
Akaike crit. (AIC)	31806.667	Bayesian crit. (BIC)	31831.206

*** p<.01, ** p<.05, * p<.1

Table 4.3 Regression results 1

Tobin's Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ESG_DS	.017	.003	5.04	0	.011	.024	***
LEV	.533	.34	1.57	.117	-.135	1.202	
BI	.007	.005	1.38	.169	-.003	.017	
SIZE	-.184	.134	-1.37	.172	-.448	.08	
Constant	1.467	.792	1.85	.065	-.089	3.024	*

Mean dependent var	2.171	SD dependent var	1.463
R-squared	0.030	Number of obs	3411
F-test	9.367	Prob > F	0.000
Akaike crit. (AIC)	7055.080	Bayesian crit. (BIC)	7079.619

*** p<.01, ** p<.05, * p<.1

Table 4.4 Regression results 2

4.4 Moderating effect

To explore the moderating influence of CEO gender in research, a moderated effects regression model is constructed. A dummy variable, CEO gender, was used to create CEO gender * ESG disclosure score to examine whether there is a role for the dummy variable between CSR and CFP. The research independently examined the impact of moderating variables on ESG disclosure scores concerning both ROE and Tobin's Q (Tables 4.5, 4.6).

ROE	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CEO gender	15.664	4.664	3.36	.001	6.493	24.835	***
CEO gender*ESG_DS	-.408	.107	-3.80	0	-.619	-.197	***

	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
ESG_DS	.221	.098	2.25	.025	.028	.413	**
LEV	26.781	14.726	1.82	.07	-2.175	55.736	*
BI	.147	.13	1.13	.259	-.108	.401	
SIZE	.535	2.083	0.26	.797	-3.561	4.632	
Constant	-21.743	17.56	-1.24	.216	-56.27	12.784	
Mean dependent var	18.511		SD dependent var		34.024		
R-squared	0.011		Number of obs		3411		
F-test	2.783		Prob > F		0.017		
Akaike crit. (AIC)	31807.446		Bayesian crit. (BIC)		31844.254		

*** p<.01, ** p<.05, * p<.1

Table 4.5 Regression results 3

Tobin's Q	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
CEO gender	.683	.376	1.82	.07	-.055	1.422	*
CEO gender*ESG_DS	-.012	.007	-1.83	.068	-.026	.001	*
ESG_DS	.018	.004	5.06	0	.011	.025	***
LEV	.532	.34	1.57	.118	-.135	1.2	
BI	.007	.005	1.41	.161	-.003	.017	
SIZE	-.19	.135	-1.41	.16	-.454	.075	
Constant	1.46	.791	1.85	.066	-.094	3.015	*
Mean dependent var	2.171		SD dependent var		1.463		
R-squared	0.031		Number of obs		3411		
F-test	6.456		Prob > F		0.000		
Akaike crit. (AIC)	7055.527		Bayesian crit. (BIC)		7092.335		

*** p<.01, ** p<.05, * p<.1

Table 4.6 Regression results 4

5. CONCLUSIONS

5.1 Discussion

As the definitions of CSR and CFP become more precise, the relationship between the two concepts has become an ongoing subject in the field. At the same time, as CSR is getting more and more attention from the public, it affects the development of enterprises to a great extent. Consequently, this study delves into the correlation between CSR and CFP using S&P 500 companies as the subject of analysis for the period spanning 2010 to 2018. Furthermore, many scholars believe CG can effectively regulate the relationship between the two (Jo and Harjoto, 2012; Jamali, 2008). Therefore, this study builds on previous studies by stakeholders and scholars to further discuss how CEO gender affects the positive CSR-CFP relationship.

Within this study's empirical results, a positive correlation emerges among the ROE, Tobin's Q, and the ESG disclosure scores of S&P 500 companies spanning 2010 to 2018. It can be shown that better CSR performance helps to establish a good social reputation, get recognition and support from stakeholders, and then enhance corporate performance. Therefore, it can be proved that Hypothesis 1 is valid. It can indicate that the results of this study trial confirm the positive correlation between CSR and CFP. For the moderating variables, the study shows a significant negative correlation. As a result, the original

Hypothesis 2 is supported, and it can be proved that Female CEOs may weaken the positive correlation between CSR and CFP.

5.2 Research contributions and limitations

This study benefits companies in understanding the impact of CSR on CFP and improving further CSR development, which improves CFP. The study results can be used to make research recommendations, such as corporate managers should actively incorporate CSR into their companies' business strategy and fulfill their CSR concerning different stakeholders. The results support the view of the positive relationship between CSR and CFP, which is aligned with the positive relationship based on the stakeholder theory. Furthermore, the study suggests that female CEOs may have a dampening effect on the positive impact of CSR on CFP. Therefore, inferences can be made with respect to the test results that due to stereotypes or social roles as well as leadership styles and traits of male CEOs, they may be more beneficial for positive CSR-CFP relationships. However, the results are not generalisable since the experimental data were specifically developed for women. Thus, the topic is still need to be further analysed for specific industries and countries and CEO characteristics.

Although this study fills the research gap in this area and helps to understand the relationship between CSR and CFP deeply, it still has the following limitations. Firstly, for data selection, the data is selected from the overall data of S&P 500 enterprises. However, since critical data are missing in a few enterprises, this study adopts the research method of excluding this part of the data. Meanwhile, this study selects the overall data of S&P 500 companies and does not analyse them according to specific segments. Tamimi and Sebastianelli's (2017) study is based on S&P 500 companies and segmented by industry, so this study may not be able to analyse the CSR-CFP relationship for each industry intuitively.

Secondly, the overall score data of Bloomberg's ESG disclosure score is selected for the CSR metrics. Scholars have widely used this indicator and it has high credibility because many scholars believe that ESG scores can be a good measure of the level of CSR implementation (Nollet et al., 2016; Han et al., 2016). The leading indicator used in this study to measure CSR was the overall ESG score. Therefore, it does not analyse the three ESG breakdowns in separate regression analyses. ESG is not broken down to measure may lead to incomplete results of the study and all implications. Finally, the moderating variable of CEO gender is present in too many firms in the sample as an indicator of predominantly male CEOs and a smaller proportion of female CEOs. Therefore, the empirical results for the moderating effect may lead to inaccurate experimental results due to the overrepresentation of male CEOs. Therefore, further research on the topic is needed.

5.3 Future research and development

In order to explore the specific relationship between CSR and CFP and its significance in a more focused manner, this study strategically selects an indicator for detailed measurement from both accounting and market perspectives. Although there has been a significant amount of research in this area, it is still anticipated that additional financial variables will be included in the upcoming research work, which will enhance the breadth and depth of the measurement. These comprehensive metrics are expected to provide a more comprehensive assessment of CFP in the short and long term. In addition, future studies will include more segmented samples and more comprehensive control variables. Such methodological improvements can reduce potential errors and improve the completeness of empirical results.

In exploring the uncharted territory of the relationship between CSR and financial freedom, and particularly in delving into the impact of corporate governance factors on this relationship, this study found that some unexplored aspects of corporate governance still need to be considered. Hence, there is a need for a nuanced exploration of the path of research in this area. Thus, while this study has shed light on the interplay between CSR, CFP and fundamental corporate governance factors by elucidating the interactions between them, the process of gaining a comprehensive understanding is still ongoing. Future research throws down the medicine to conduct a more nuanced investigation and collect more complete data to reveal the multifaceted dynamics that shape the relationship between CSR and CFP, thereby enriching the body of knowledge in this area.

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HARNESSING TALENT IN A TURBULENT GLOBAL ERA: A CONCEPTUAL FRAMEWORK FOR BUSINESS TRANSFORMATION SUCCESS

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ABSTRACT

The aim of this study is to develop a theory that establishes a conceptual framework demonstrating the interrelationships among organisational culture, leadership, employer branding, and talent management practices, specifically in the areas of talent recruitment, talent development, and talent retention. Furthermore, this study seeks to examine the influence of these practices on the digital transformation, quality 4.0, and sustainability of organisations. For the purpose of this study, the methodology approach consists of a comprehensive combination of an in-depth literature analysis and supplemented with the administration of a research questionnaire to Greek organisations. The primary objective is to construct a framework that integrates organisational culture, leadership, and employer branding as impact factors of talent recruitment, talent development, and talent retention, and their influence on digital transformation and quality 4.0 processes, as well as on organizational sustainability. This study contributes to the existing literature by developing a conceptual framework for researching the links mentioned above. It aims to investigate and explain the correlations and dynamic nature of these relationships. The proposed framework is a valuable tool for managers as it provides valuable insights into organisational development and excellence. This research is expected to contribute to the further development of the current knowledge base on talent management.

Keywords: Talent Management, Organizational Culture, Leadership, Employer Branding, Digital Transformation, Quality 4.0, Organizational Sustainability

INTRODUCTION

Talent management (TM) has become a crucial function for organizations in the current turbulent and rapidly changing business environment (Rozman et al, 2023). Businesses increasingly recognise the importance of their human capital, therefore the need to successfully attract, develop, and keep skilled personnel has become a major concern (Johennesse and Chou, 2017). In this context, it is crucial to

establish a conceptual framework that can serve as a guide for organizations implementing effective and strategically aligned TM practices. Furthermore, it is important for this framework to acknowledge the evolving needs and standards of the workforce, while also taking into account the impact of technological progress and globalization on talent management. These factors are particularly relevant in the present unstable business climate. Therefore, the objective of this study is to construct an all-encompassing conceptual framework that elucidates the efficacy of TM in the current business environment. By taking into consideration these critical elements, organizations can improve their capacity to identify, develop and retain suitable personnel in order to generate enduring competitive advantage and success in the ever-changing contemporary business landscape.

The aim of this research is to provide a comprehensive understanding of the factors affecting TM effectiveness in the era of Industry 4.0 and to develop a conceptual framework that can guide organizations in optimizing their TM practices. Furthermore, the study aims to determine the essential elements of successful TM practices, and provide a conceptual framework that combines these elements to improve organizational competitiveness and sustainability and also, to successfully support organizations in their digital transformation effort. Specifically, this research study aims to explore the intricate interplay between talent management practices and key antecedent factors such as organizational culture, leadership, and employer branding, and their impact on outcomes related to Quality 4.0, digital transformation, and organizational sustainability. The objective will be accomplished through a systematic review of literature and empirical research in order to provide a robust foundation for the development of the conceptual framework.

To summarize, the aims of this study are outlined below:

- to critically examine the existing body of literature on TM and pinpoint areas where further study is needed.

- to identify the key elements that have a significant impact on the successful adoption of TM practices.

- to investigate the effects of TM practices on specific organizational outcomes related to the Industry 4.0 era.

- to identify the relationships of the mentioned key elements that may impact the development and execution of a TM framework.

The structure of the article is as follows: in the next part the theoretical foundation is discussed, which is then followed by the formulation of hypotheses and the presentation of the suggested conceptual model. The methodology that will be applied in this study is discussed in the next part, and finally the discussion – conclusions and recommendations for further research will be presented.

THEORETICAL BACKGROUND

The current business era is driven by the technological and demographic changes that brought by the Fourth Industrial Revolution, also known as Industry 4.0, which has greatly impacted organizations' adaptability and growth (Deloitte, 2017). New business positions, especially in technology (e.g. data scientists, cloud computing specialists, and application developers), have created a skills gap in the workforce. The scarcity of important skills and talent is of significant concern for many CEOs (Bhalla et al., 2018; Groysberg and Connolly, 2015), while more than 75% of CEOs consider it as a major threat to their companies' growth (PWC, 2017). Organizations have also faced worldwide crises such as the Russia-Ukraine conflict and the COVID-19 pandemic (Bailey and Breslin, 2021).

To overcome these difficulties, organizations must identify, attract, recruit, develop, and retain skilled and talented employees (Claus, 2019; Reiche et al., 2019; WEF, 2016). Lawler (2008) states that a firm cannot evolve, change, or innovate without focusing on human capital. Lee et al. (2022) suggest that a firm's strategic approach to people development might give it a competitive edge and possibly drive success, especially during times of uncertainty and crisis. Other scholars have stressed that talent is a vital factor for competitive advantage and company performance (Chambers et al., 1998; Axelrod et al., 2001; 2002). Successful talent management practices help businesses leverage their human resources and address problems, whether human or natural, according to Mujtaba and Mubarik (2022). In particular, individuals and organizations gain from TM practices. Berger and Berger (2010) and Collings and Mellahi (2009) say talent acknowledgment drives top performers and boosts competitiveness, while talent development reduces replacement time and boosts firm reputation. Furthermore, TM systems increase operational outcomes like profits, market share, and commercial value (Bethke-Langenegger et al., 2011; Silzer and Dowell, 2010; Heinen and O'Neill, 2004) and individual, non-economic outcomes like commitment, job satisfaction, and company attractiveness.

Talent Management

TM is a comprehensive process that encompasses various stages of an employee's journey within the company, including recruitment, development, and retention. According to Collings and Mellahi (2009), TM is "the systematic identification of strategic positions, followed by the development of the

potential and high performance of individuals to fill these positions and ensuring their continued commitment to the company." Gallardo-Gallardo et al. (2020) define TM as the systematic activities and processes of attracting, identifying, developing, engaging, retaining, and deploying highly valuable individuals to achieve long-term strategic success. Essentially, the aim of TM is to guarantee that the organization possesses the necessary talent to achieve success. This entails ensuring that individuals possessing the appropriate expertise are placed in suitable roles (Guerci and Solari, 2012).

The discipline of TM is still in its nascent stage and lacks significant advancement. After 20 years since McKinsey coined the term "the war for talent" and the growth of literature and research on the topic, there is still no universal definition, theoretical framework, or reference field (Thunnissen et al., 2013). The research field has also been criticised for lacking theoretical direction and perspective (Collings et al., 2011; Cappelli and Keller, 2014). Dries (2013) states that experts have been unable to build a framework for TM methods despite considerable investigations, while Farndale et al. (2010), declare that no systematic study has researched and integrated talent management's core components into a single system. Despite numerous studies confirming the benefits of relevant practices and policies (Collings and Mellahi, 2009; Gelens et al., 2015; Luna-Arocas and Morley, 2015; Ulrich and Allen, 2014), how a TM model can influence employee behaviour and performance remains unclear. Additionally, research has not properly studied how processes and practices interact, as well as how environmental factors affect the efficiency of TM systems (Gallardo et al., 2019).

Organizational Culture

Schein (1985) defines organisational culture as an organization's shared values, beliefs, and expectations. Organisational culture encompasses the atmosphere of an organisation and is shaped by its values, conventions, beliefs, and traditions. It guides employees on how to conduct and carry out the organization's tasks, according to Coetsee (2004). Furthermore, Schein's (2010) latest definition of organizational culture where it is defined as "the pattern of basic assumptions that a group has invented, or discovered in learning to cope with its problems of external adaptation and internal integration", emphasise the crucial role that culture plays for organizations within the unpredicted environment that are operating in. Lawler (2003) emphasises that the organisation cannot accomplish spectacular achievements unless excellent performers are treated well and motivated to work effectively. Particularly, by treating individuals with respect, an organisation can cultivate a positive reputation—a critical factor that has been demonstrated to influence the capacity of a business to attract and retain new personnel (Cable and Turban, 2003). Thus, a culture is crucial to TM since it affects all aspects of the process.

Leadership

Leadership is considered as an important factor for the adaptability and success of an organisation, and the adoption of cultural ideals and norms (Haffar et al., 2019). As defined by Grobler et al. (2017), it is the capacity to exert influence over individuals in order to accomplish the goals of an organisation. In a study conducted by Mackey (2008), it was discovered that the CEO's influence on a company's performance may be greater than the effects of the company itself or the industry it operates in.

Tomsic et al. (2015) emphasized that leadership is crucial for enabling the successful development, maintenance, and implementation of TM. A leader needs to identify the specific competencies and talents that are crucial for the company's success, recognize the individuals who possess them, and oversee their growth and advancement. Furthermore, leaders motivate skilled team members to accomplish the shared objective, provide a distinct vision for individuals employed in the company, and ultimately guide employees towards it (Al Hammadi and Noor, 2020).

Employer Branding

Ambler and Barrow (1996) coined the phrase "employer brand" to refer to the combination of practical, financial, and emotional advantages associated with working for a specific organisation. According to the CIPD (2008), employer branding is a group of distinctive, intangible traits that set an organization apart, ensure a particular type of employment experience, and draw people who are most likely to thrive and excel within its organizational culture. It enables a company to differentiate itself from other companies and attract individuals that share similar beliefs and the organisation's value system (Backhaus and Tikoo, 2004; Foster et al., 2010). The term commonly referred to as "employee value proposition" encompassing the practical and financial advantages, such as salary and compensation policies, work environment, career growth opportunities, organisational learning, and psychological benefits, such as job satisfaction or reputation (App et al., 2012).

Digital Transformation

As Warner and Wäger (2019) stated, digital transformation is a continuous process of strategic renewal that enhances an organization's business model, strategy, and culture through the use of new digital technologies. Digital transformation surpasses digitalization, which refers to the modification of relatively minor organisational procedures and activities and impacts the entire organisation and its methods of conducting business (Amit and Zott, 2001). It involves the restructuring of operations in

order to modify the value creation process of an organisation (Li et al., 2018; Golzer and Fritzsche, 2017). According to several studies (Libert et al., 2016; Kurdi et al., 2020), the end goal of digital transformation is to increase sales, improve sustainability, and ensure customer satisfaction.

Quality 4.0

Quality 4.0 refers to the digitization of quality management and the ways in which this digitization enhances an organization's culture, structure, abilities, and leadership (Jacob, 2017). Furthermore, quality 4.0 integrates contemporary advancements with traditional quality methodologies in order to attain unprecedented levels of efficiency, market dominance, and innovation (Pagoropoulos et al., 2017; Milward et al., 2019).

The advantages of quality 4.0 will lead to a decrease in quality expenses through enhanced operational efficiencies (Mtotywa, 2022), an increase in revenue, a reduction in non-conformance, improved product compliance (Rosario and Dias, 2023), punctual deliveries, a decrease in supplier defect rates, and an increase in successful development of novel products (Antony, 2014; Douglas et al., 2009; Tissir et al., 2022). Additionally, by adopting quality 4.0, organisations are able to attain high levels of customer satisfaction and higher quality (Antony et al., 2023).

Organizational Sustainability

Sustainable organisational performance refers to the ability of a company to meet the needs of its stakeholders while continually improving its investment and management practices to ensure future profitability, social well-being, and environmental responsibility (Pantelica et al., 2016). Sustainability comprises economic, social, and environmental spheres. Economic sustainability refers to optimizing return on assets, reducing organizational costs, and increasing profits to enhance income and market share (Green et al., 2012). Social sustainability considers organizations' dedication to social responsibility, engagement, skill enhancement, and their interest in fostering a healthy workplace atmosphere (Amui et al., 2017). Lastly, environmental sustainability focuses on minimizing the use of dangerous materials, reducing hazardous consumption, optimizing resource utilization, and promoting energy efficiency (Akanmu et al., 2020).

HYPOTHESES DEVELOPMENT

TM necessitates not only the identification, selection, retention, and development of talented personnel but also the building of an organizational culture that fosters talent development (Bartlett

and Ghoshal, 1992). The effects of the organizational culture on TM need to be taken into consideration if a comprehensive understanding of the robustness of talent management programs is wanted. This is because the organizational culture has a substantial impact on performance, which is also the ultimate purpose of TM (Kontoghiorghes, 2016). The efficiency of TM in contributing to the organization's success is contingent upon the degree to which the internal systems and culture of the organization integrate and reflect the complexities of the external environment. Other studies supported the idea that organizational culture is very crucial for the successful implementation of TM practices, promoting and enhancing the learning and development of people. Therefore, we hypothesize that:

H1. There is a positive relationship between organizational culture and talent management practices.

King (2016) asserts that the successful implementation of TM relies heavily on the commitment and active involvement of upper management. In addition, King (2016) also proposed that leadership based on talent leads to a "*talent deal*" and a discernible talent climate among employees. Pandy (2017) emphasized that without great leaders owning the talent agenda, talent practices become HR-driven form-filling exercises that don't generate retention or results. Particularly, leadership facilitates TM by offering comprehensive training, incentives, and assistance to employees at all hierarchical levels within an organisation. Other studies also emphasize that the efficacy of the entire TM process hinges on the leadership's perspective and commitment to the concept, policy, and practice of TM (Du Plessis et al., 2015). Considering the above, we propose the following hypothesis:

H2. There is a positive relationship between leadership and talent management practices.

Employer branding has emerged as a strategic tool for HR in the competition to attract and retain talented individuals, aiding employees in assimilating company values and organizational culture (Sathya and Indradevi, 2014). There is a substantial body of research that has consistently established a positive and direct correlation between employer branding and talent retention (Gilani and Cunningham, 2017; Tanwar and Prasad, 2016). According to Alshathry et al. (2017), if an organization consistently provides the promised benefits to its employees through its employer brand, the employees are more likely to show greater loyalty, resulting in higher retention rates. Hence, the following hypothesis is proposed:

H3. There is a positive relationship between employer branding and talent management practices.

The essence of digital transformation lies mostly in the process of transformation itself, rather than the digital aspect, and is driven by individuals. Technology functions as a tool, but its true power lies in the realm of soft skills. Many studies on digital transformation have largely focused on talent identification and talent management as a main driver for a successful digital transformation of the organization (Pirola et al., 2019; Prifti et al., 2017). Ziadlou (2021) and Gulati and Raiche (2020) have also found that human factors, especially soft skills, are becoming more and more important for an organization's digital transformation to go smoothly. According to the research findings, HR should play a more proactive role in supporting the process of digitalization by ensuring that the workforce is equipped with the necessary skills and knowledge to fulfil both current and future digitalization requirements. Based on the above, we propose the following hypothesis:

H4. There is a positive relationship between talent management practices and digital transformation.

Quality 4.0 is a crucial framework that helps connect people and technology in the field of quality management. Sony et al. (2020) identified that the majority of the critical ingredients for achieving success in quality 4.0, specifically five out of eight, are directly associated with human aspects, concluding that the human element in the context of quality 4.0 holds paramount significance. Enabling the necessary workforce is a crucial element in attaining the objectives of quality 4.0, which in turn promotes the integration of quality management with the advancements of industry 4.0. Leadership, culture, and competency are recognised as fundamental elements that connect individuals with quality 4.0. Furthermore, multiple studies have found notable challenges in the implementation of quality 4.0, relating to the human capital of an organization. Specifically, Escobar et al. (2021) emphasised the scarcity of competent staff capable of managing these sophisticated systems and Khin and Kee (2022) highlighted the difficulties associated with recruiting suitable individuals to oversee quality 4.0 initiatives. Bakhtari et al. (2021) reiterated these concerns, highlighting the scarcity of proficient personnel and the insufficiency of training and educational initiatives as significant barriers to the adoption of quality 4.0. These findings emphasise the necessity of a comprehensive talent management approach to tackle the skills gap and improve the workforce's ability to successfully deploy quality 4.0 technologies. Based on the above, the following hypothesis is proposed:

H5. There is a positive relationship between talent management practices and Quality 4.0.

Many studies have identified a positive relationship between talent management and sustainability through human capital, due to the fact that the behaviors, attitudes, and resource utilization of individuals have a direct impact on social and environmental practices (Chams and Garcia-Blanton, 2019; Latukha, 2018; Ulrich and Ulrich, 2010). Additionally, according to Behera and Mohapatra

(2020), an organization's talented workforce has a significant impact on its success, and that workforce's sustainability has a direct impact on their effective management. The correlation between talent management and sustainable performance can be elucidated by employing the resource-based perspective (RBV) (Crane and Hartwell, 2019). Resource-based view (RBV) suggests that organisations should utilise their precious, scarce, difficult to imitate, and irreplaceable resources, such as human capital, in order to attain long-lasting performance. Consequently, we proposed the following hypothesis:

H6. Talent management practices are positively related to organizational sustainability.

A model of relationships (Figure 1) was developed in accordance with the aforementioned research hypotheses and supporting theory. This model enables the assessment of the influence of leadership, organizational culture, and employer branding on talent management practices and, subsequently, the impact of talent management practices on digital transformation, quality 4.0, and organizational sustainability. Prior empirical findings were used to verify all links between constructs.

Figure 1. Conceptual Model

METHODOLOGY

A comprehensive examination of literature and quantitative research are conducted to guarantee that all crucial factors related will be addressed.

The objective of this work is to present a literature review that is exhaustive, up-to-date, and complete of the empirical foundation of TM. Specifically, based on the scoping review procedure published by Arksey and O' Malley (2005), a sequential, five-stage strategy is applied to gather and analyze a database of empirical talent management studies (Colquhoun et al., 2014). During the initial stage of the review, the research questions are finalized and formulated. For the purpose of this study the research questions to be addressed are the following:

Q1. What is the scope and characteristics of the empirical research on TM?

Q2. What insights can be drawn from past empirical TM studies to direct future research?

The inclusion and exclusion criteria are established during the second stage. Following Gallard-Gallardo et al. (2015), the study examined articles published from 2006 to April 2024 (i.e. when the data gathering method is set to conclude), since there was no empirical study discovered in peer-reviewed journals prior 2006. We limited our search to empirical publications published in international peer-reviewed journals. Thus, non-empirical research, theses, interviews, editorial remarks, book chapters, and book reviews were excluded. In line with a growing trend (as mentioned in Arduini and Zanfei, 2014), we also choose to exclude conference proceedings and symposia presentations. During the third stage, the search strategy is established to define the search words and databases. For the purpose of this study, Scopus and WoS are used as trustworthy database sources. In these databases, the search terms "talent" and "talent management" are applied as keywords in Title, Abstract, Keywords and Topic search columns. During the fourth stage, the data for every article are extracted and Microsoft Excel is utilized to arrange, categorize and evaluate the data. For the purpose of results discussion in the fifth stage, the extracted data will be cleaned and verified. Upon completion of the data analysis, the results of this literature review will provide valuable insights of the current state of talent management practices and the direction of future research. Specifically, applying a bibliometric analysis, a broad summary of publications will be presented, followed by an exploration of the fundamental principles of talent, TM, and the theoretical frameworks linked with them. Lastly, we will analyze the main findings from our study and the practical progress made in the subject, culminating in a plan for future research.

During the second phase of the research, a structured questionnaire will be developed including measurement instruments related to the factors in focus. All constructs are based on validated measures that have been tested and verified in previous research and the responses for each construct are recorded on a 7-point Likert scale, with one (1) denoting complete disagreement and seven (7) denoting complete agreement. Random sampling provided the foundation for the data collecting process. A random sample of 2,200 privately owned Greek enterprises with more than ten workers was drawn from the list of businesses listed in ICAP's database, which is Greece's leading source of business information and consultancy. The questionnaires are sent via email and linkedin platform to managers and C-level executives, who are knowledgeable about the strategy of the company and are expected to be informed about TM practices in place. The information is gathered during a six-month

period, from October 2023 to April 2024. Upon completion of the data collection, the analysis of the data will follow. The statistical analysis will be performed by using the statistical package of SPSS 24.

Initially, exploratory factor analysis (EFA) will be used in order to condense the initial collection of instrument variables into a more manageable set of scales. This study also allowed us to identify and extract the underlying components that are subsequently used in regression analysis. Confirmatory factor analysis (CFA) will be used to enhance the accuracy of the scales derived from EFA and to assess the construct validity. Specifically, CFA will be used to evaluate if the number of factors and the loadings of the measured variables align with the expectations set by pre-established theory. Ultimately, the structural equation modeling (SEM) technique will be used to examine and validate the model and hypotheses proposed in the study. Structural theory is frequently employed to analyze the connections between conceptions (Hair et al., 2006). SEM enables the incorporation of unobservable factors that can only be assessed through observable indicators. In addition, SEM considers the presence of measurement error and allows for the simultaneous estimation of all the relationships suggested in the theoretical model (Bou-Llusar et al., 2009). The chosen approach is considered the most suitable and rigorous for this study, as it is used to examine the research hypotheses and their associated correlations.

DISCUSSION – CONCLUSION

Despite the increased attention given to talent management in recent years, gaps persist in defining the concept and developing a comprehensive model suitable for the current business landscape in the Industry 4.0 era. Thus, this study aims to bridge these gaps by introducing a holistic talent management model, shedding light on critical components, such as organizational culture, leadership, and employer branding, along with the resultant outcomes related to the I4.0 era, such as Quality 4.0, digital transformation and organizational sustainability. Exploring and analyzing the suggested connections among the mentioned factors could enhance comprehension of talent management practices, hence advancing theoretical and empirical progress in the subject. This framework will establish the primary dimensions of a talent management model, along with its key practices, assisting firms in effectively implementing a talent management strategy. Finally, this study is the first to propose these particular connections and their influence on talent management strategies and their contribution to organizational results.

Implications

The study focuses on factors that are crucial for the development of a talent management strategy and on the influence of such strategy on significant business outcomes in the Industry 4.0 context. Therefore, the practical consequences are of utmost importance for the organizations. Specifically, the results of this study can be utilized by managers to gain a deeper comprehension of the crucial aspects that contribute to the effective implementation of talent management strategies and the seamless functioning of their organization's human capital. Furthermore, it aids in comprehending the most effective approach and methodology to strengthen and drive crucial organizational procedures, such as digital transformation and quality 4.0. This understanding can lead to enhanced business results on both organizational level, including increased organizational sustainability, profitability, operational flexibility, as well as an improved company image, and on individual level, including increased job satisfaction, commitment, and productivity.

 Furthermore, the practical implication of the talent management framework lies in its ability to provide a roadmap for organizations to effectively align their talent management practices with their overall business strategy. This includes implementing recruitment and selection processes that not only identify skilled personnel but also individuals who align with the organization's values and culture. Moreover, the framework should guide the development and training of employees to ensure they possess the necessary skills to meet the evolving demands of the business landscape.

Additionally, the framework should address retention strategies that go beyond traditional approaches, taking into account the changing expectations and needs of the workforce. This could involve flexible work arrangements, career development opportunities, and an inclusive and supportive work environment. By incorporating these practical aspects into the talent management framework, organizations can enhance employee satisfaction and engagement, leading to improved productivity and performance.

Moreover, the framework should also consider the impact of new technologies and globalization on talent management practices. This includes leveraging technology for recruitment, training, and performance management, as well as developing strategies to attract and retain a diverse workforce in the global marketplace.

Furthermore, this study provides empirical evidence of talent management practices in Greek organizations and the effect on their effort for digital transformation and quality 4.0. Hence, it can support Greek organizations by providing a guide to design and implement suitable practices in order to identify, develop and retain talent during turbulent times. Additionally, this study not only makes a conceptual contribution, but also emphasizes significant practical consequences for stakeholders

such as HR professionals and managers. These implications pertain to how key aspects of organizational structure, such as leadership, culture and employer branding might impact talent management methods and practices. By acknowledging this impact and interrelation among these elements, they will better understand and design talent management practices.

Future research

According to this study, the proposed conceptual model and its accompanying factors reveal a rich agenda for future research. This model can be investigated by establishing connections for all relevant elements. Many theoretical and empirical research might be conducted to study the role of major components of the proposed model in various sectors or populations. To validate the defined theoretical framework and extend the results, it is necessary to include firms from industrialized or developing markets with diverse cultural and institutional contexts. Additionally, in order to gain a comprehensive understanding of talent management practices, it is necessary to consider both the micro-environments and macro-environments in which firms function (Cooke, 2017; Boxall et al., 2007) This includes examining the reasons for implementing these practices and the effects they have. Considering that the findings of the study is based on managers' view about crucial human-related aspects of the organizations, it is suggested to investigate the view and feedback of their people about talent management practices and their impact on business outcomes.

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SSAFETY AND SECURITY IN A TOURISM DESTINATION: PREVENTION OF CRIME AND THE SELF-PROTECTIVE BEHAVIOUR IN ZADAR COUNTY (CROATIA)

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ABSTRACT

Considering the ongoing political instability, wars, refugee crises, increasing terrorist attacks worldwide, and the rise in crime due to poor socio-economic conditions in many countries, safety has become a crucial factor in choosing a tourism destination. Various programs aim to ensure safety in destinations, while crime prevention and the self-protective behaviour of all stakeholders significantly contribute to overall safety and security in a tourism destination. In this context, this paper examines the self-protective behaviour and crime prevention efforts of renters in private accommodation and tourists in Zadar County (Croatia), a developed tourism destination. To achieve this, a continuous survey was conducted using a structured questionnaire. The results revealed a certain level of self-protective behaviour among the observed groups, however, there remains place for improvement. These findings indicate the need for the continuous implementation of various programs and measures to enhance the self-protective behaviour of all stakeholders in the destination. They also serve as a guide for tourism management to monitor and maintain safety and security in the area. Self-protective behaviour, as a form of responsible and conscientious conduct, plays a vital role in crime prevention and ensuring safety in tourism destinations. Therefore, research in this area and its implications are of significant importance for contemporary tourism management.

Keywords: safety and security in a tourism destination, self-protective behaviour, Zadar County, Croatia

INTRODUCTION

The aim of this paper was to determine the level of self-protective behaviour of renters in private accommodation and tourists in Zadar County (Croatia), as a developed tourism destination. To achieve this, a survey was conducted over several years using a structured questionnaire. During this period, various measures were implemented to enhance self-protective behaviour and prevent crime in Zadar County. The research results indicated a certain level of self-protective behaviour among the

observed groups, as well as opportunities for improvement. Ensuring a high level of safety and security is a crucial goal for any tourism destination, making safety a key element of contemporary destination management.

With this in mind, safety and security are broadly understood to encompass various aspects, including social safety, legal safety, psychological safety, traffic safety, and workplace safety (Nobilo, 1988: 70). In tourism, factors such as war, terrorism, and political instability have a significant negative psychological impact on tourists planning their trips. Additionally, the implications of migrations and refugee crises, natural disasters, and new diseases further complicate the tourism market (Čavlek, 2002; McKercher and Chon, 2004; European Union, 2019; Rossello *et al.*, 2020; UNWTO, 2020). Actual or perceived crime rates in a destination negatively affect tourist behaviour and demand, particularly in terms of destination choice and overall satisfaction (Brown, 2015). Safety issues concern all stakeholders in a destination, and their self-protective behaviour enhances overall security (Mawby and Vakhitova, 2022). Self-protective behaviour involves responsible actions focused on crime prevention within tourism destinations (Juan *et al.*, 2010) and falls within the responsibilities of all relevant stakeholders.

PREVENTION OF CRIME AND THE SELF-PROTECTIVE BEHAVIOUR IN TOURISM

Safety and security are key factors and motivators for tourism in this day (Breda and Costa, 2006). Unfortunately, tourism is sensitive to various safety and security threats, like wars, terror, crime, health conditions or civic unrest (Pizam and Mansfeld, 2006; Matika and Gugić, 2007; Tarlow, 2014). During the season, tourists are often the target of organized or unorganized crime. This is mostly related to the seasonality and large number of visitors and workers in a smaller geographical area, volatile relationships between residents and tourists, and intensive spending of money by tourists in a short period (Jones *et al.*, 2015). Gabriel and Greve (2003) show that fear of crime consists of three facets: the behavioural (the conscious experience of fear); the cognitive (the cognitive perception of a particular threatening or dangerous situation); and affective (the avoidance of a perceived threat or danger, and taking preventive and self-protective actions). According to Habibitabar *et al.* (2023), social, situation and policy prevention of crime are in domain of local community. In this framework, prevention implies the totality of all measures taken in order to eliminate or reduce crime, or in any way ease the feeling of uncertainty among residents, whether it be by directly deterring criminal activities or through intervention policies designed to address the root causes of criminal activities (Pavišić *et al.*, 2006). Prevention of crime is also related to the self-protective behaviour of each individual, who may reduce the risk by behaving responsibly and conscionably (Mawby and

Vakhitova, 2022; Ozascilar and Mawby, 2022). Therefore, the prevention of crime implies taking various precautionary measures and actions which reduce risk and increase the feeling of safety among tourists, but is also includes measures for deterring the perpetrator away from criminal behaviour. Such preventive actions are part of comprehensive risk assessment (Mansfeld and Pizam, 2006) and integrated multi-stakeholder crisis management planning (UNWTO, 2006; Martens *et al.,* 2016; Bundy *et al.*, 2017; Belyaeva *et al.* 2020), public awareness and education campaigns (Ferreira and Harmse, 2000; Chataway and Hart, 2018), community policing and community engagement and partnerships between stakeholders (Soska and Ohmer, 2018; McGuire *et al.,* 2021; Prenzler and Sarre, 2023), public safety infrastructure and enhanced surveillance systems (George, 2003; Laufs *et al.*, 2020; Laufs and Borrion, 2022), etc. All these measures assume a higher level of safety and can influence on safety perception in a destination (Zou and Yu, 2022).

A person commits the criminal act when recognizing an opportune moment or a vulnerable victim or unprotected object (Borovec *et al.*, 2011: 29). During tourism season, there is an increase of criminal acts committed in tourism objects (accommodation capacities, restaurants, etc.) or on beaches (Biagi and Detotto, 2014). Unlike private accommodation, in hotel capacities there is a relatively high level of security control and protection; an organized system of technical security, protocol procedures in crisis situations, surveillance, employee training, etc. (Petar and Laušić, 2010). This is why during the summer it is more likely that apartments, vacation rentals, camps and vehicles will be targeted instead.

AREA OF RESEARCH

Zadar County is a developed tourism destination situated in the Croatian coast, with a continuous increase of tourist arrivals in recent years. To illustrate, in the five-year period before the pandemic, tourist arrivals were growing annually on average by about 8%, and overnights by 6%, while in the record year 2019, 1.76 million tourist arrivals and 9.87 million overnights were achieved (CBS, 2020). The basic attractive resource of Zadar County is the pleasant climate and the sea, therefore about 70% of the total tourist arrivals is realized in the peak of the summer season (June-August). Due to the pronounced seasonality, certain negative effects of tourism are evident in that period (ZADRA and UNIZD, 2013; UNIZD, 2016), among which is crime. In the following table, it is possible to see how most of the criminal acts are connected with the high seasonality in a destination (Jones *et al.*, 2011).

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Share in %	74.8	73.6	74.4	71.3	72.5	64.3	59.4	52.01	50.60	51.74	51.27

Table 1. Share of property crimes committed during the summer season (June-September) in the total number of crimes in Zadar County, 2013-2023
Source: Zadar County Police Administration, 2024

From the Table 1 it is seen that the share of crimes committed in the main season in the total number of crimes has been falling since 2013, which is especially visible in the years of the pandemic, when tourism activity was lower. Table 2 (below) shows the type of criminal offences. During the summer months, the most crimes are related to pickpocketing and theft from beaches, followed by attacks on vehicles and restaurants. The table also shows that the number of committed individual crimes varies over the years, however, it can be determined that the total number of crimes is increasing until 2017, after which it noticeably is decreasing. The total number of criminal offenses at the level of an individual year and observed period is satisfactory, considering the continuous increase in the number of tourist arrivals and overnights in Zadar County. Also, the reduced number of criminal thefts during 2020 and 2021 can be attributed to reduced tourist activities during the pandemic.

Theft / Years	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
From the beaches	44	37	43	45	56	44	30	19	24	32	44
From the vehicle	36	30	41	38	34	33	26	18	13	20	23
From hotel rooms	6	7	7	12	1	5	6	5	3	1	8
From tents or mobile homes	10	5	9	8	19	6	3	1	4	10	9
From motorhomes	17	22	31	15	8	19	22	6	6	7	10
From the vessel	18	15	22	15	28	13	19	12	8	15	17
From the apartment and houses	28	13	14	33	46	32	28	7	5	5	10
From catering facilities	34	43	30	44	28	24	21	6	9	14	18
Pickpocketing	68	87	119	109	164	97	40	38	111	39	58
Total	261	259	316	319	384	273	195	112	183	143	197

Table 2. Criminal offenses of theft during the summer season (June-September) in Zadar County, 2013-2023
Source: Zadar County Police Administration, 2024

Although these data indicate the presence of crime in tourism, the crime rate is on the very low level. However, the largest number of thefts is related to pickpocketing, as well as thefts on beaches and in vehicles, which are the most common crimes in tourism destinations (Holcomb and Pizam, 2006; Biagi and Detotto, 2014). The level of safety in Zadar County is also indicated by the results of previous research, because the safety was one of the tourists' motives for coming to Zadar County (UNIZD, 2019), and during the stay they were extremely satisfied with the safety, rating it highly (ZADRA and UNIZD, 2013; UNIZD, 2016).

To assure the safety, the Crime Prevention Council operates in Zadar County. It supports national preventive projects, and is responsible for local preventive projects in the County. The Council includes stakeholders from various fields of activity (public and private sector, and NGO-s). The goal of the Council's work is cooperation, exchange of knowledge and a multidisciplinary approach to crime prevention and security in Zadar County (Zadar County Crime Prevention Council, 2024). The Council implements various projects, programs, measures and activities in order to systematically monitor, analyse and improve the level of safety in the entire area. Among other, continuous educations (community engagement, cooperation, technical protection, etc.) have been carried out since 2015 with the aim of raising the level of awareness, responsibility and self-protective behaviour of the local community and tourists. Also, during the summer season, foreign police officers stay in the Zadar County and together with Croatian police officers, they patrol the streets, tourist settlements and other areas. They talk to tourists in their native language, advise them on self-protective behaviour and provide other necessary information related to safety and a pleasant stay in the destination.

RESEARCH METHODOLOGY

Research was conducted in Zadar County to determine the level of self-protective behaviour of renters in private accommodation and tourists, as relevant stakeholders of the tourism destination and those to whom the prevention program is mostly directed. Renters in private accommodation are important because they occupy 69% of the total accommodation capacity in Zadar County (Tourist Board of Zadar County, 2023), and according to the given data, a significant proportion of criminal offenses are committed in them. Tourists were included in order to determine the level of their self-protective behaviour and their perception of safety in the destination. Also, by their behaviour, these groups of stakeholders can significantly influence on prevention of criminal acts and the level of security in the destination. Therefore, a survey was conducted on these groups on three occasions (in 2018, 2020 and 2022) in order to observe possible changes in behaviour. The structured questionnaire contained questions related to crime prevention and self-protective behaviour, the perception of safety in Zadar County and the impact of safety on the decision when choosing a destination, etc. With this questionnaire, a larger number of respondents was wanted to be included in the sample. For easier understanding of the research subject, the questionnaire was offered to tourists in 5 languages. When evaluating statements which describe behaviour and express opinions on various factors, the same neutral scale from -2 to 2 was used for both groups of respondents. In some questions, the same particles were used to compare attitudes of renters and tourists.

RESEARCH RESULTS AND DISCUSSION

There are 105,628 accommodation units in private accommodation available for tourists in the Zadar County (Tourist Board of Zadar County, 2023). Based on the database of the Zadar County Tourist Board, a questionnaire was sent electronically to renters in private accommodation. The research was conducted outside the summer season, assuming that renters are less burdened with work and will have more interest in participating in the research. The sample of tourists was random, and the questionnaire was conducted physically with the presence of the interviewer during the summer season at different tourist locations that were considered suitable for the survey. In the Table 3 sample of respondents is shown, and it is evident that the sample is not evenly distributed according to the observed groups of stakeholders and the years of the research. The relatively small number of respondents in all years of the research is imposed as a fundamental limitation of the research. This can be explained by the weak interest of potential respondents in participating in the research, which is very probably conditioned by the topic of security and outlining self-protective behaviour. Namely, although the questionnaire was anonymous, the questions in the questionnaire clearly touch on the personality of the respondents.

Sample of respondents	2018	2020	2022	Total
Renters in private accommodation	305	157	209	671
Tourists	191	361	188	740

Table 3. Sample of respondents according to year of the research
Source: own research

In addition to the uneven distribution of respondents by age, the demographic characteristics of each group of respondents in the observed years are different. Here, only gender, age and level of education were considered, and this is shown in the table below.

Demographic characteristic	Renters in private accommodation			Tourists		
Gender	2018	2020	2022	2018	2020	2022
Male	37%	38%	31%	46%	55%	50%
Female	63%	62%	69%	54%	45%	50%
Age	2018	2020	2022	2018	2020	2022
18-25	2%	2%	3%	30%	21%	21%
26-35	11%	6%	7%	27%	22%	41%
36-45	20%	23%	22%	21%	27%	21%
46-55	29%	24%	26%	11%	18%	10%
55-65	25%	32%	26%	6%	10%	5%
66 and more	14%	13%	18%	5%	2%	2%
Highest level of education	2018	2020	2022	2018	2020	2022
Elementary school	3%	3%	4%	0%	3%	1%
High school, grammar school	39%	33%	16%	22%	33%	25%
College education	18%	17%	15%	38%	14%	23%
Bachelor's degree	5%	4%	4%	15%	21%	21%
Higher vocational education	29%	35%	54%	18%	24%	11%

Master's degree and PhD	7%	8%	7%	7%	6%	20%

Table 4. Demographic characteristics of the respondents
Source: own research

All age groups were represented in all years, with respondents between the ages of 36 and 55 predominating among renters in private accommodation (about 50%), while slightly younger respondents predominated among tourists, in aged 18 to 35 (about 50%). More than a third of the surveyed renters in private accommodation and tourists have completed a university degree. Respondents of both groups most often work in the public and private sector (around 40%). Renters in private accommodation mostly have their rented units in their own house (about 50%). The surveyed tourists stayed in different types of accommodation, where private accommodation and hotels predominate. Also, these are experienced tourists who usually travel twice a year, with family, partner and friends.

The focus of the research was to determine the level of self-protective behaviour of the observed groups of stakeholders in the destination. The following graph shows the self-protective behaviour of renters in the observed years. In the answers, a scale from -2 (does not apply to me at all) to 2 (completely applies to me) was used, with which respondents evaluated statements related to self-protective behaviour.
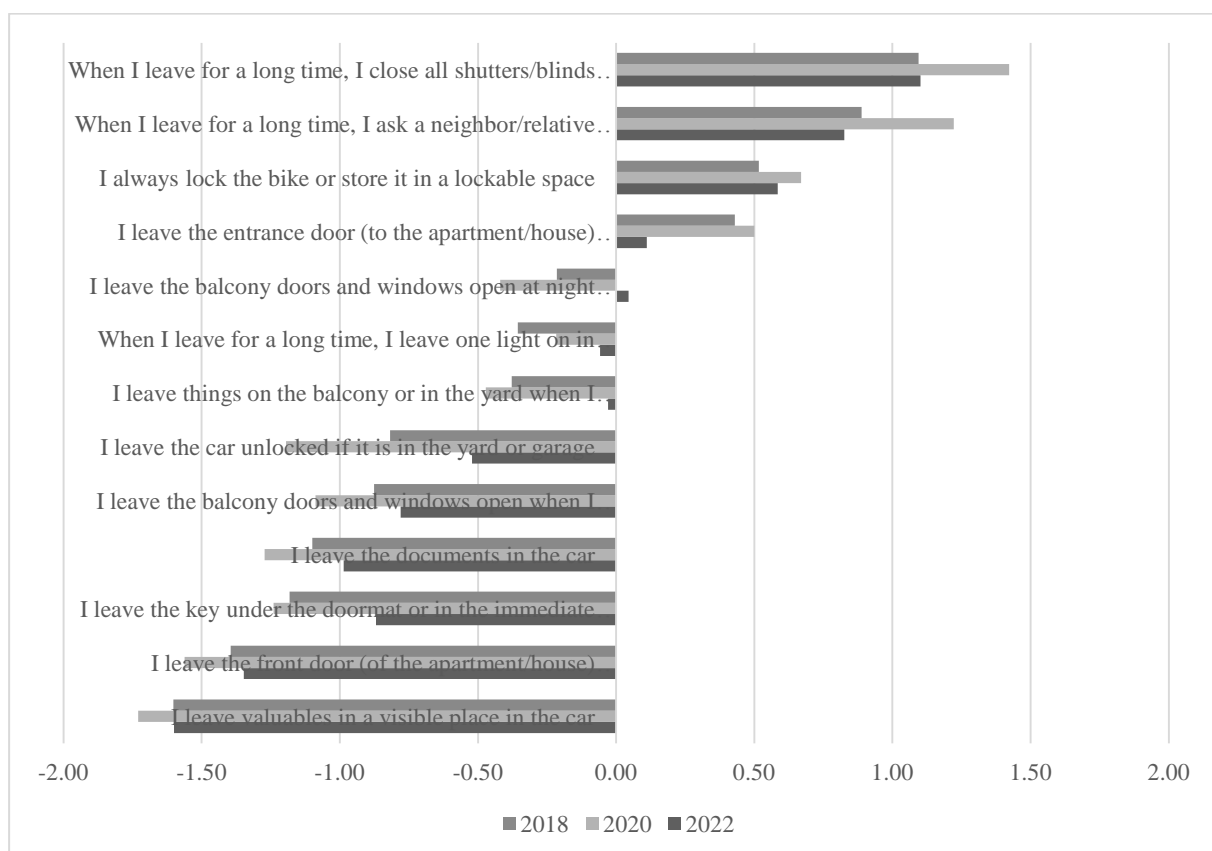
Graph 1. Self-protective behaviour of renters in private accommodation
Source: own research

Assertions are defined as desirable (self-protective) behaviour with expected positive values, while others are described as undesirable behaviour with expected negative values. This behaviour is based on social and situational prevention (Habibitabar *et al.*, 2023), and outlines the responsible behaviour of the individual. Although the respondents are adults (mostly between the ages of 36 and 55), it is evident that they are still not fully responsible and conscionable. However, it should be taken into account that the perception and feeling of safety in the destination itself can also influence on the relaxed behaviour of the individual (Zou and Yu, 2022).

Tourists expressed the level of self-protective behaviour in the destination in the same way, and their assessment is shown in the next graph. In the answers, a scale from -2 (does not apply to me at all) to 2 (completely applies to me) was used, with which respondents evaluated statements related to self-protective behaviour.
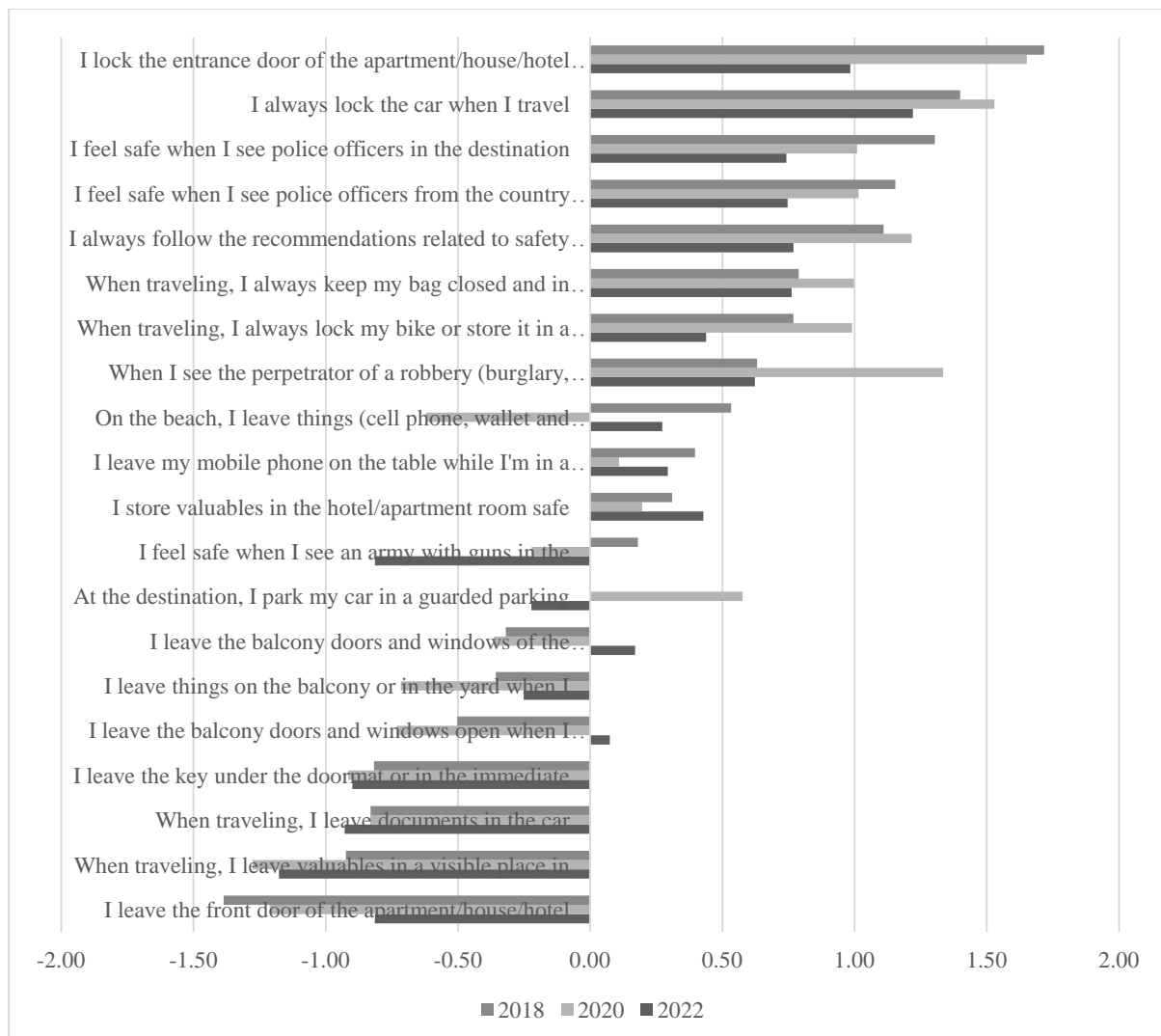
Graph 2. Self-protective behaviour of tourists
Source: own research

Among tourists, a certain level of self-protective behaviour and attention to their property is also visible, however, not a single particle has a maximum value either. It is interesting to note that the values of desirable behaviour among tourists mostly decreased compared to the initial year. Comparing the same particles, i.e., the behaviour of tourists with renters in private accommodation, it can be determined that tourists are more considerate and cautious. This is not surprising, considering they stay outside the usual environment and probably have less trust in the resident population. In terms of self-protective behaviour and reduction of potential criminal acts (Mawby and Vakhitova, 2022; Ozascilar and Mawby, 2022), the destination should certainly continue to work on the public awareness and education campaigns (Ferreira and Harmse, 2000; Chataway and Hart, 2018), and community engagement and partnerships between stakeholders (Soska and Ohmer, 2018; McGuire *et al.*, 2021; Prenzler and Sarre, 2023).

Respondents also evaluated the importance of self-protective behaviour, crime prevention, detection of perpetrators and other safety measures. The evaluation is given in the table below, using the scale from -2 (it is not important at all) to 2 (it is very important).

Behaviour	Renters in private accommodation			Tourists		
	2018	2022	2022	2018	2020	2022
Responsible behaviour of each individual for his property and life (self-protection measures)	1.79	1.85	1.85	1.60	1.59	1.40
Mutual cooperation of the local population (with neighbours and other residents)	1.80	1.89	1.89	1.47	1.35	1.35
Cooperation of citizens and tourists with the police	1.79	1.77	1.77	1.55	1.44	1.35
Report to the police as soon as possible	1.79	1.82	1.82	1.59	1.38	1.22
Equipment of buildings with means of technical protection	1.22	1.37	1.37	1.55	1.49	0.94
Reporting any suspicious behaviour	1.28	1.29	1.29	1.22	1.13	0.67

Table 5. Importance of self-protective behaviour, crime prevention and detection of perpetrators in a destination
Source: own research

The table shows different attitudes between groups of respondents. Renters in private accommodation are more aware than tourists, which can be interpreted by their perception of the impact of tourism and importance of safety in a destination. It seems equipment of buildings with means of technical protection are most important for tourists. At the same time, renters in private accommodation do not have any special protection and crime prevention measures (only 15% of them have alarm, anti-burglary system or camera). Also, around 43% of respondents in private accommodation provide insurance for burglaries, thefts, etc., although it does not particularly mean to tourists, because the measure does not indicate prevention itself, but rather the consequences of the crime committed. Therefore, all stakeholders in the destination have obligation to improve the partnerships and

community engagement, as well the safety infrastructure and surveillance systems (George, 2003; Soska and Ohmer, 2018; Laufs *et al.*, 2020; McGuire *et al.*, 2021; Laufs and Borrion, 2022; Prenzler and Sarre, 2023).

Tourists also evaluated the influence of certain security elements on the decision when choosing a destination, using the scale from -2 (it is not important at all) to 2 (it is very important).
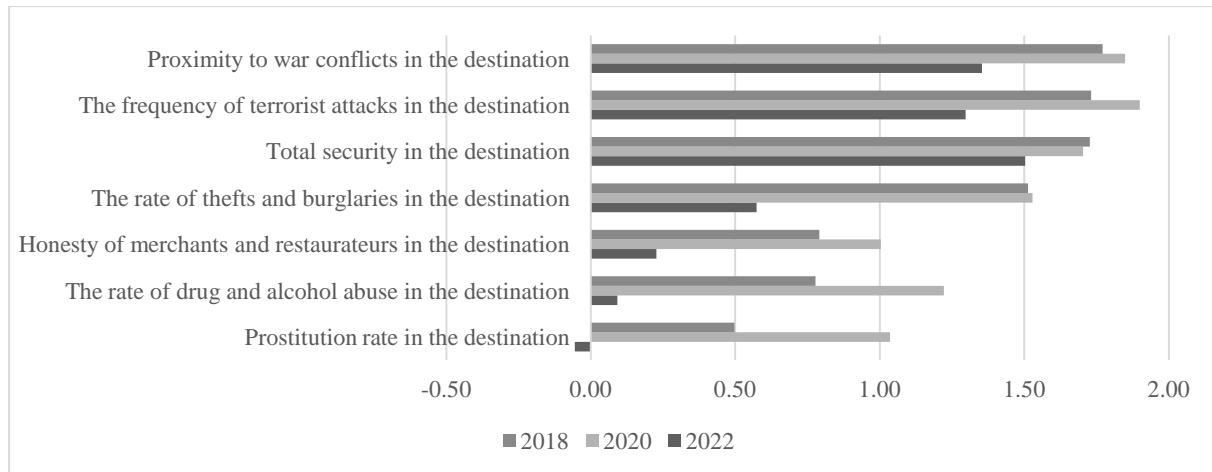
Graph 3. Safety factors influencing when choosing a destination
Source: own research

The graph above shows the importance that tourists attach to safety elements when choosing a destination. Certainly, it is evident that the proximity of the destination to the wars, the frequency of terrorist attacks and general safety in the destination are the elements that tourists pay the most attention to. Considering the continuous and various safety and security threats, like wars, terror, crime and diseases, safety in the destination is certainly one of the key motives for contemporary travelling (Breda and Costa, 2006; Pizam and Mansfeld, 2006; Brown, 2015; Zou and Yu, 2022).

Ultimately, both groups of respondents rated the level of security in Croatia and destination, and the ratings can be seen in the table below. Respondents used the scale from -2 (it is not safe at all) to 2 (it is completely safe).

Area	Renters in private accommodation			Tourists		
	2018	2020	2022	2018	2020	2022
Republic of Croatia	1.51	1.49	1.32	1.38	1.61	1.74
Zadar County	1.52	1.39	1.33	1.41	1.66	1.81
The city of Zadar	1.46	1.23	1.23	1.52	1.57	1.81
The city/town of accommodation	1.60	1.47	1.54	1.56	1.76	1.82

Table 6. The perception of safety
Source: own research

The respondents perceive relatively higher level of safety in the destination, with this perception growing especially among tourists, which is positive from the aspect of destination image (Brown,

2015; Zou and Yu, 2022). This is also in accordance with the results of previous research, according to which tourists come to Zadar County because of safety (among other reasons), and rate it highly (ZADRA and UNIZD, 2013; UNIZD, 2016, 2019).

IMPLICATIONS

The research results indicated a certain level of self-protective behaviour among renters in private accommodation and tourists in Zadar County, although there remains place for improvement. Simultaneously, there is a relatively high perception of the importance of self-protective behaviour and a strong perception of safety in both Croatia and the County. Despite the Zadar County Crime Prevention Council's implementation of various safety and security measures, it cannot be definitively concluded that these measures are solely responsible for the current situation. Nonetheless, their efforts are evident and should be sustained, with the introduction of new measures and actions aimed at elevating prevention and self-protective behaviour to the highest level. However, this should be done with caution. Emphasizing and promoting safety from the perspective of destination image and destination management organization (Zou and Yu, 2022) can be risky if the perceived safety is suddenly compromised.

Continuous and diverse educational programs and campaigns targeting different groups and local stakeholders are undoubtedly the most effective measures for enhancing safety in a destination. These initiatives change behaviour and facilitate the flow of safety information to tourists (Ferreira and Harmse, 2000; Chataway and Hart, 2018; McGuire *et al.*, 2021). Such behaviour strengthens public awareness, stakeholder collaboration, and community engagement, all of which are crucial for providing and maintaining safety in a destination (Soska and Ohmer, 2018; McGuire *et al.*, 2021; Prenzler and Sarre, 2023). Accordingly, all stakeholders should continue investing in safety infrastructure and enhanced surveillance systems (George, 2003; Laufs *et al.*, 2020; Laufs and Borrion, 2022). To monitor the effectiveness of these safety measures, future research should expand the group of stakeholders and increase the sample size. For renters in private accommodation, it is essential to include those who have participated in previous research to monitor specific progress. Additionally, research should be conducted from pre-season to post-season, including loyal tourists, and examine factors such as the country and size of the place of residence. These elements influence perceptions and attitudes towards safety, thereby affecting levels of personal self-protective behaviour.

CONCLUSION

Considering the turbulent environment and characteristics of contemporary tourism, safety and security should be an imperative for all tourism destinations. However, it is not possible to ensure

complete safety, as it comprises several segments influenced by various factors. Ensuring safety and security is a complex, long-term process that requires the efforts of all relevant stakeholders, including those who are frequent victims of criminal acts. Most security measures and protective instruments fall under the authority of relevant institutions and are part of the security system of a state or business entities. However, other measures involve interest groups that are indirectly responsible for safety and security. A quality security system is effective but also expensive. Preventive and self-protective behaviour by related interest groups over the long term could be more cost-effective and efficient. Given the complexity and heterogeneity of tourism, such responsible behaviour is desirable because it can enhance the effectiveness of the security system in tourism. This type of behaviour is part of the culture and can be easily transmitted and communicated within a community. Additionally, many infrastructural and soft measures are available. These can be implemented through community engagement, with a focus on safety as a key element of the modern standard of living.

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LESSONS IN BUSINESS LONGEVITY FROM KONGO GUMI CO. LTD.: THE WORLD'S OLDEST FAMILY BUSINESS

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ABSTRACT

Entrepreneurship is the driving force for economic growth and development. A 2022 study shows an estimated 5.5 million family businesses worldwide, accounting for 10% to 15% of the global GDP. The research paper aims to investigate one such family business called Kongō Gumi Co., Ltd. (株式会社金剛組, Kabushiki Gaisha Kongō Gumi), a Japanese company founded in 15 AD, making it the world's oldest company. The research explores lessons from Kongō Gumi Co., Ltd., which testify to longevity and sustainability over the 1400 years. A qualitative methodology was adopted to conduct a case study analysis using information from three primary sources: academic publications, encyclopedia entries, and historical publications. Data triangulation was adopted as a research method to gain a more comprehensive understanding. The key findings are that the company invested heavily in apprenticeships and training. They practiced utmost visibility and transparency of business financial aspects. The research investigates their approach towards sustainability, their competitive strategies, and the strategies adopted to overcome many of the challenges they have experienced over unprecedented changes since their inception. The research presents a story that would inspire academics and practitioners with implications and insights from business, history, and culture.

Keywords: Family Business, Strategy, Longevity, Governance

INTRODUCTION

Businesses over the years have always been associated with the risk of survival and surrounded by uncertainty and rapid change. Business leaders aspire to find a strategic fit between the internal and external environment. Every business journey worldwide is unique as they vary in nature, size, resource availability, financial capability, leadership, and economic, sociocultural, and geopolitical business landscape. A business is any organization that is involved in the production or distribution of goods and services. It can be owned and operated by individuals, groups of individuals, or corporations. A family business, on the other hand, is a business that is owned and operated by

members of the same family. All kinds of companies aspire for sustainable growth and strategies to weather disruption along their journey.

Scholars, leaders, and entrepreneurs have been interested in learning how to be successful and profitable. Renowned thought leaders and management Gurus claim that entrepreneurship is the driving force behind economic growth and prosperity. Understanding and identifying key challenges and entrepreneurial characteristics are vital, as disruptive technologies can displace established businesses. Extensive research over the years provides insights into the challenges and opportunities companies face and the strategies imperative to succeed.

According to a 2022 study by EY, there are an estimated 5.5 million family businesses worldwide, accounting for 10-15% of global GDP. Of these, about 200,000 are "well-established," meaning they have been operating for at least 20 years. The study also found that family businesses are more likely to be successful than non-family businesses. For example, 33% of family businesses survive the third generation, compared to only 12% of non-family businesses. Several factors contribute to the success of family businesses. These include strong family values, clear succession plans, and professional management. Family businesses are also more likely to be resilient in facing challenges, such as economic downturns. Samsung, Honda, Walmart, Samsung, Heineken, and Estée Lauder are a few examples of the many well-established family businesses worldwide. These businesses have been successful for many years and play an essential role in the global economy.

One such family business is Kongō Gumi Co., Ltd. (株式会社金剛組, Kabushiki Gaisha Kongō Gumi). It was a Japanese construction company founded in 578 AD, making it the world's oldest company. The company specializes in designing, constructing, restoring, and repairing shrines, temples, castles, and cultural heritage buildings. A family of carpenters brought to Japan from Baekje (present-day South Korea) by Prince Shōtoku Taishi founded Kongo Gumi. The company was initially called Kongō-shō (金剛庄), and it was responsible for building the Shitennō-ji temple in Osaka, which is one of the oldest temples in Japan. Kongo Gumi continued to thrive for centuries and constructed many important buildings, including Osaka Castle, the Kiyomizu-dera temple, and the Nara temples. The company also expanded its operations to countries like China, Korea, and Vietnam.

The present research aims to explore the lessons from Kongō Gumi, a testament to longevity and sustainability over the last 1400 years. The present case study can be applied to any business, regardless of size or industry. By adapting to change, innovating, and staying true to its family values, Kongō Gumi achieved business longevity.

LITERATURE REVIEW

The oldest family business in the world is Kongo Gumi Co. Ltd., a Japanese construction company

founded in 578 AD. The same family has managed Kongo Gumi Co Ltd. for over 1,400 years. Kongo Gumi Co Ltd. was in operation for over 1,400 years until it was acquired by Takamatsu, a larger construction company, in 2006, due to financial difficulties. However, the Kongo family still operates a temple-building business as a subsidiary of the larger construction company. Before the acquisition, Kongo Gumi Co Ltd. employed over 100 individuals, with an annual budget of around $70 million (Fisk, n.d.).

While Kongo Gumi has been the subject of various research studies, research gaps may remain for further investigation. Park et al. (2021) assessed the strategic and operational levels, where sustainability requirements are essential, sustainability differs from legal compliance, and there is an opportunity to implement sustainability practices. Hanusch et al. (2020) formulated 12 initial design principles, serving as the basis for explaining specific organizations' longevity, challenges, and governance. Hagan (2021) postulated a complete narrative using history, financial information, and research to correlate a perspective of the family office formation over a period of time. Sone (2022) identified the attributes pertaining to the firm's long-standing survival and the partnership between family generations and the local community served. Birdthistle (2022) explored the family business and its relevance on the economy. Parkinson et al. (2022) found that resilience was critical in long-standing businesses. This literature review will provide an overview of family business strategy, succession planning, innovation and diversification, stakeholder relationships, and sustainability. The goal of the literature review will be to understand factors contributing to Kongo Gumi's history, longevity, success, and legacy implications for contemporary business practice.

Family Business Strategy

Family business strategy is derived from ethical, environmental, social, and cultural practices leading to better management, enhanced value, and significant performance (Rivo-Lopez et al., 2021). The family business strategy provides a roadmap for governance, activities, rules, and structure (Frezatti et al., 2022). As with any strategy, the family business strategy ebbs and flows based on the political, environmental, social, and technological factors underlying the industry.

Family Business Innovation, Succession Planning, and Diversification

Family business innovation balances risk-taking and strategic insights to achieve a competitive advantage for their firm (Rondi et al., 2019). Diversification enables family businesses to identify a set of parameters to determine a course of action for the form (Hafner, 2021). For long-standing businesses, family business innovation ensues through actively assessing tradition, the need for change through diversification, and the organization's structure (Sone, 2021). The organization's structure fulfills the current need to meet customer demand and provide operational oversight. Succession planning ensures its ability to respond to the market and the organization's longevity (Porfírio et al., 2020).

Stakeholder Relationships

Collaborative practices are essential in family businesses now more than ever. As markets quickly adapt to customer needs and disruptions, the family business and stakeholder relationships are crucial to ensure future viability (Amoako-Gyampah et al., 2019). The depth of the relations, whether governmental, supplier, or customer, depends on the family business's chosen direction and anticipated outcomes (Miller et al., 2021).

Sustainability

From the United Nations Brundtland Commission, sustainability encompasses "meeting the needs of the present without compromising the ability of future generations to meet their own needs." (United Nations, n.d.). Millan-Tudela et al. (2023) discovered that corporate sustainability might encompass sustainability and entrepreneurial activity. For family businesses, sustainability includes ensuring that the firm's needs are met without compromising the future health of the organization and the communities it serves (Porfírio et al., 2020). Family businesses are keenly aware of the impact made internally and for society, specific to the family businesses' vision, values, and actions (Porfírio et al., 2020). Write and save your paper keeping text and graphic files separate until after the text is formatted. Do not use hard tabs, limit use of hard returns to only one at the end of each paragraph and do not add pagination anywhere in the paper. Proceed to formatting once you are done with completing the content and organizational editing.

METHODOLOGY

The central qualitative research question (RQ) was:

How do a family business's strategic and operational considerations respond to the environmental, social, and governance challenges of the societies in which they operate?

The research question is relevant to theory since family businesses' strategic and operational actions impact the societies in which they operate. Additionally, the practical application of the study findings may cultivate the economy, innovate services and products delivered, and enhance the quality of relationships needed for long-term survival. Using the qualitative method case study design for this study enabled the identification of successful strategies used by family business leaders. The qualitative methodology supported this study because the focus was on gathering detailed descriptions of strategies and practices that have enabled the company to survive and adapt for centuries. The case study design supported this study since the focus was on using a single business to provide detailed descriptions of strategies and practices that have enabled the company to survive and adapt for centuries.

The researcher collected information about Kongo Gumi Co Ltd. using three source types: academic publications, encyclopedia entries, and historical organizational publications. For Kongo Gumi Co Ltd., the search terms used in the data analysis were:

– Kongo Gumi Co. Ltd.

– World's oldest family business

– Business longevity

– Lessons from Kongo Gumi"

– Success factors for family businesses

– Strategies for Business Survival

– Principles of business continuity

– Case studies of successful family businesses

The researchers used data triangulation to develop a rich understanding of phenomena (Patton, 1999), precisely a family business's strategic and operational considerations in response to the environmental, social, and governance challenges of the societies in which they operate. Based on the literature review, the researchers developed an analytical model that allows us to connect the information gathered, interpret its meaning, and propose critical themes.

FINDINGS

Kongo Gumi Co Ltd.'s core competency in traditional Japanese architecture, specifically the construction of Buddhist temples and Shinto shrine architecture, combined with its unique skills, techniques, and reputation for quality, has given the company a competitive advantage in the construction industry (Nakazawa, 2020). The company established a niche in the market and developed unique expertise. The company also invested heavily in apprenticeship and training. Management realized the importance of ensuring that the independent craftsmen's skills, practices, and techniques were shared internally to improve the competence of all craftsmen (Nakazawa, 2020). The best practices and techniques were documented in manuals and flow charts for all employees to enhance the organization's capabilities. Additionally, the financial side of the business was shared with the employees to promote visibility and transparency into the organization's financial performance and to align an employee's contribution to the organization (Nakazawa, 2020).

Leadership was essential for the Kongo family. The approach to managing the family business consisted of choosing leaders who were both recognized as skilled craftsmen and highly regarded leaders (Nakazawa, 2020). This strategy supported the family business through turbulent times. In

cases where the fit was not apparent, the individual would be removed from leadership accordingly (Nakazawa, 2020). Additionally, the Kongo family and the branch family would collaborate to ensure the success of the family business (Nakazawa, 2020).

Kongo Gumi Co Ltd. adopted the generic business competitive strategy of quality to build a reputation for excellence, the ability to change, and attract repeat business. Long-standing relationships with all stakeholders ensured a steady workflow over the years (Nakazawa, 2020). The family business adjusted to the market to ensure business continuity. Over the years, the company primarily focused on traditional Japanese architecture and diversified into general construction and real estate to increase its revenue stream (Nakazawa, 2020).

One of the biggest challenges that Kongo Gumi Co Ltd faced was the global financial crisis, which had a significant impact on the construction industry, resulting in decreased demand that negatively impacted revenue and profits (Nakazawa, 2020). To overcome the challenges, the company drastically cut costs, diversified the business, formed strategic alliances to expand to new markets, and maintained its focus on quality and customer service (Nakazawa, 2020).

In 2005, Kongo Gumi Co Ltd merged with Takamatsu Construction Group. Takamatsu Construction Group focuses on construction in Japan and comprises 22 companies contributing to the "preservation and protection of Japanese cultural heritage and property (Takamatsu Construction Group, n.d.). Employees now employed with the Takamatsu Construction Group have been instrumental in using their carpentry craft to preserve the culture within several projects, most notably the Japanese Cabinet Office for Public Relations.

Business approach towards sustainability

Kongō Gumi's sustainability initiatives exemplify how family businesses can positively affect society. Family businesses can help create a more sustainable and equitable future by addressing environmental, social, and governance challenges.

Environmental

The company has a policy of using sustainable materials in its construction projects. Kongō Gumi is also committed to using recycled materials in its construction projects. The company also has a program to promote energy efficiency in its construction projects. This program has helped to reduce the energy consumption of its buildings.

Social

The company has a solid commitment to corporate social responsibility. It supports several charitable causes, such as education and poverty alleviation. It also has a program to promote diversity and inclusion in the workplace.

Governance

The company has a board of directors responsible for overseeing its management. The board encompasses independent directors who are not related to the founding family. The company also has a code of ethics demonstrating its commitment to ethical business practices. The company's long history of sustainability shows that it is committed to doing business in a way that benefits society and the environment.

CONTRIBUTIONS

Kongo Gumi Co. Ltd. would inspire readers interested in business, history, and culture. The company's 1,400-year history of specializing in traditional Japanese architecture, surviving wars and natural disasters, and adapting to changing times is a remarkable example of how a business can thrive for centuries. The research provides insights into the company's business strategies, including its focus on strategy, quality, ability to change, innovation, diversification, sustainability, leadership, long-term relationships, and investment in apprenticeship and training. Moreover, it would highlight the role of Kongo Gumi Co Ltd in preserving Japan's cultural heritage and its contributions to the country's construction industry.

PRACTICAL IMPLICATIONS

The study of Kongo Gumi Co Ltd, the oldest continuously operating family business in the world, provides valuable insights into the factors that contribute to the longevity and success of a family business. The study highlights the importance of focusing on quality, expertise, relationship management, flexibility capability in driving firm performance, and corporate social responsibility's role in ensuring the business's sustainability. This study explores longevity, family business practices, and social and cultural factor research as a new field of study. The study provides practical insights for entrepreneurs and business leaders on developing a sustainable and resilient business model that can withstand the test of time. The study also emphasizes the need for family businesses to innovate and diversify their product offerings to remain competitive in a rapidly changing global marketplace.

CONCLUSION

Businesses over the years have always been associated with the risk of survival and surrounded by uncertainty and rapid change. According to a 2022 study by EY, there are an estimated 5.5 million family businesses worldwide, accounting for 10-15% of global GDP. In this backdrop, the present study explores the world's oldest company. The family business is Kongō Gumi Co., Ltd. (株式会社金剛組,

Kabushiki Gaisha Kongō Gumi). It was a Japanese construction company founded in 578 AD; it is 1400 years old, making it the oldest company in the world. Based on the extensive literature, we framed the research qualitative question- The central qualitative research question (RQ) was: How do a family business's strategic and operational considerations respond to the environmental, social, and governance challenges of the societies in which they operate? The case study design supported this study since the focus was on using a single business to provide detailed descriptions of strategies and practices that have enabled the company to survive and adapt for centuries. The findings indicate that leadership was crucial to the survival and growth of the Business. Specific leadership qualities were also identified in the study. The study provides practical insights for entrepreneurs and business leaders on developing a sustainable and resilient business model that can withstand the test of time. However, the research has limitations, as the study focuses on secondary data sources with inherent biases or subjective interpretations. The research offers scope for other scholars to expand. Scholars could conduct a comparative analysis of multiple long-standing family businesses from different industries that could provide a broader understanding of the factors contributing towards business longevity.

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SUPPORT OF FEMALE ENTREPRENEURSHIP AT GERMAN UNIVERSITIES – A QUALITATIVE ANALYSIS OF SUPPORT CONCEPTS-

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ABSTRACT

Due to the high proportion of academic founders (cf. Kollmann et al. 2022), universities and university startup support centers play a relevant role in supporting startup projects in Germany. Despite numerous support activities in entrepreneurship, the number of registrations of commercial start-ups in Germany has tended to decline over the last 10 years (cf. IfM Bonn, 2023) and the proportion of female founders in start-ups is low (Sternberg et al. 2022). The situation in startups has worsened even further since the Corona pandemic (cf. Herold et al., 2022; cf. KfW (1), 2022). Implications on the gender gap in start-up activity as well as the analysis of concepts to close the gap form central contents of this research paper.

This research paper is based on a qualitative study (N=25 interviews). The research results provide new insights into the support landscape for women at the start-up-supporting universities in Germany.

Keywords: Female Entrepreneurship, Universities Start-up Support, Gender Equality

INTRODUCTION

Despite the high relevance of innovations and start-ups for the economy as a whole and a wide range of efforts to promote start-ups, the number of start-ups in Germany is trending downwards.

Anzahl der Gründer in Deutschland im Zeitraum von 2000 bis 2022

Figure 1: Number of business founders in Germany in the period from 2000 bis 2022, KfW, 2023

A look at the sociographic cross-section of the start-up structure in Germany shows a low proportion of female founders. At 5.3%, the early-stage entrepreneurial activity rate for women is currently statistically significantly lower than the rate for men (8.4%) (TEA = Total Early-Stage Entrepreneurial Activity describes the proportion of female founders among 18- to 64-year-olds, Sternberg et al. 2022). The gender gap is also reflected in a low proportion of female entrepreneurs of around 20.3 % in start-ups with a high degree of innovation (Kollman et al., 2022; Gather, Biermann 2021). In an international comparison, the proportion of female founders in Germany is therefore well below the average (Sternberg et al., 2022).

Looking at the development of gender distribution in Germany, it is clear that the origin of the gender gap in relation to start-ups can be already found in schools and universities.
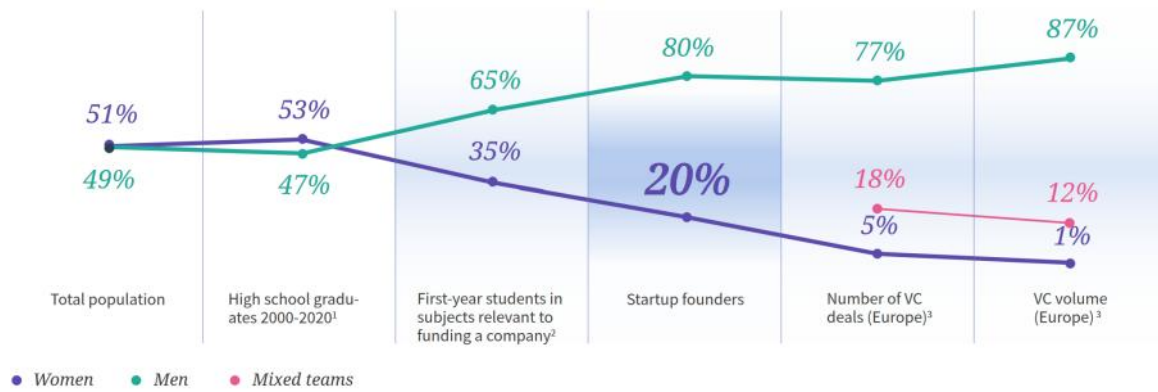
Figure 2: Gender gap in the German ecosystem based on Hirschfeld et al., 2022.

Almost 90 % of women who start a new business in Germany have an academic background (Metzger, 2022). This is not the only reason why university support facilities and programs are so important. However, the gender gap is also significant in the university sector. At 29.7%, women make up less than a third of start-ups at universities (Frittsche et al., 2023). The aim of this research paper is to contribute to reducing the gender gap in the field of entrepreneurship by identifying opportunities to support women in start-up processes.

LITERATURE REVIEW

Some scientific studies already provide approaches for optimizing start-up support for female founders by identifying gender-specific challenges in the start-up sector (cf. Alhajri & Aloud, 2023; Hirschfeld et al., 2020; Schell, 2009). In addition, there are already a lot of associations that are active in the field of female entrepreneurship, such as the Association of German Women Entrepreneurs and the WEgate initiative (wegate.eu, 2023).

Research articles have already established that women have a lower level of digitalization than men (see Initiative D21 e.V. and Kompetenzzentrum Technik-Diversity-Chancengleichheit, 2020) and have structural disadvantages when it comes to networking. For example, women have less efficient and effective networks than men (see Greguletz et al., 2018). The scientifically established higher risk aversion of women is another reason for the gender-specific differences in start-up-related activities (cf. e.g. Kremel, Yazdanfar, 2015). Compared to men, women also receive fewer financial resources to set up businesses and bear higher risks in self-employment when starting a family (Herold et al., 2022).

Although the overall proportion of women among students in all disciplines in Germany is 52.4% (Destatis, 2023 (2)), there is a high variance in the gender distribution between degree programs. For example, there is a lower proportion of female students in degree programs with a high propensity to start a business, such as STEM degree programs (cf. Metzger, 2022; cf. Frittsche et al., 2023), where only 34.5% of students are female (cf. Destatis, 2023 (1)). The proportion of female students is even lower in information and communication technology degree programs, where the proportion of female students is only 21.8% (cf. Destatis, 2023 (1)). These articles therefore already reveal a number of factors that may be linked to the low proportion of women in start-up projects.

Furthermore, implications of the Covid-19 pandemic affect startup activity in Germany. Irrespective of gender, the number of start-ups in Germany reached a millennium low during the Corona Pandemic in 2020 (cf. KfW (1), 2022). According to the KfW Gründungsmonitor, the share of start-ups by women increased in the period of the Corona pandemic 2019 - 2021 (cf. KfW (1), 2022). In contrast, Herold et al. (2022) note that the gender gap has widened since the beginning of the Covid 19 pandemic to the disadvantage of women since 2019 (cf. Herold et al., 2022).

RESEARCH METHODOLOGY

This research paper discussed the findings from a qualitative study (N=25 interviews) with Entrepreneurship Support Center leaders at German universities (Frank, Schröder 2021) and provide insights into the support landscape for women. Two central research questions were posed:

1. are there currently explicit programs specifically for women in start-up support at German universities?

2. what kind of support programs are offered for women in start-ups at German universities?

In order to answer the research questions, representatives of start-up support centers at German universities (small, medium, large) were surveyed in 25 qualitative interviews as part of an exploratory study. The empirical study was conducted in 2021 and thus falls within the Covid 19 pandemic period. The selected universities were contacted via email and interviewed using a semi-structured interview guide for a total of 23 questions. To generate findings on support formats for women in the context of start-up support the representatives of the universities were asked about support offerings for different gender identities (m/f/d) in the context of start-up support. The interviews were conducted in a media-mediated manner using a web conferencing system and, after

consenting to the use of the data, were recorded. Following the analysis, the interviews were transcribed and the responses were categorized and evaluated using MAXQDA software.

FINDINGS AND IMPLICATIONS

The evaluation of the data provided information on the type and frequency of start-up support services in general at the universities as well as on the current start-up support services specifically for women. A distinction was made between the current start-up support services for women at the time of the survey and the formats offered in the past.
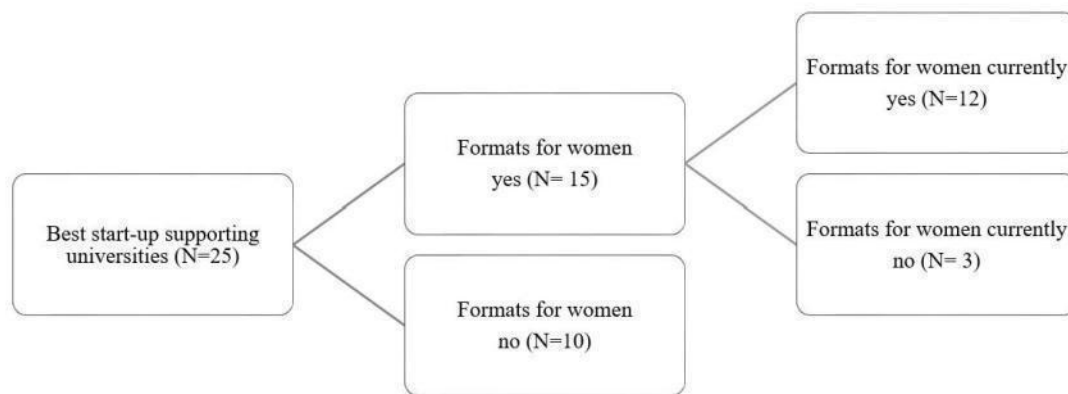
Figure 3. Programs for women in start-up support, visualization of data from empirical analysis, Ladwig D.H., Wohlert M.J., 2022, own illustration.

The evaluation of the analysis shows that a total of 12 of the 25 universities surveyed currently offer special formats to support women interested in starting a business. In addition, three universities stated that they had offered start-up support programs specifically for women in the past, but that these are no longer offered.

13 of the universities surveyed had no programs explicitly for women. They pointed out that a gender-specific offer would contradict the university's gender equality policy and that women-specific offers would lead to discrimination against male students and students of other gender identities. Although less than 50% of the startup-supporting universities had offerings for women in startup support, they were all sensitized of the issue (Ladwig, Wohlert, 2022).

In addition to analyzing the quantity of start-up support activities for women, findings were also collected on the quality, characteristics and content of start-up support.

One possible reason for the unequal gender distribution in the start-up scene at universities was that women tend not to start up spontaneously. Instead, when they do decide to start up, they are perceived as being very well prepared:

"I have simply noticed that when women start up, they have thought it through extremely well beforehand and that they have just researched their market intensively and worked out their innovation in detail. So it is often the case that they have actually developed an innovation on their own that is really not yet available on the market to this extent. And that, yes, that does make a difference. Less support work is necessary for me." (14)

"I would really say that in our university the distribution of men/women is perhaps 60 to 40 percent, if I make a rough estimate. And what I've also noticed is that the women are definitely more active and easier to reach than male start-up teams, they're often not as committed as the female ones." (3)

The formats currently offered for women predominantly offer workshops, qualification and awareness-raising events (N=5); female talks with women as "role models" (N=4) are also offered. The support programs for women also include networking events (N=3) (Greguletz et al., 2018), comprehensive support programs for women (N=3) (support programs outside the start-up support offices related to start-up support were also taken into account here or events and formats on gender equality issues (N=2). In addition, advisory coaching and mentoring programs by women for women (N=2) are also used (multiple answers possible).

20% of the universities described that the proportion of women participating in start-up support activities is higher than the proportion of start-ups resulting from these activities. It was also described that the more concrete and advanced start-up projects are in the start-up process and the more individual the support service is, the lower the proportion of women (cf. Ladwig & Wohlert, 2023).

"Now in teaching, the proportion of women is comparable to the proportion of women at the university, so there are easily a few more women than men, around 52 to 48 percent. The more specific this becomes in terms of starting a startup, the lower the proportion of women becomes. The proportion of women there is roughly between 25% and a third. Then it goes on to the Designbox, where some of the startups have already been founded. The proportion of women there is between 15

and 20 percent. So the proportion of women decreases the more concrete the project becomes. That's certainly the case with us and you can almost draw a straight line."(1)

This shows a phenomenon that there is also a leaky pipeline here, i.e. at the beginning of information events for students interested in founding a company, the number of women is even higher than later on in the founding process, which could be explained by the higher risk aversion of women, among other things.

At some universities, a high number of women are interested in intrapreneurship and may only want to start up later or contribute their entrepreneurial thinking and action skills to established companies.

"Exactly in the same normal distribution as you see in higher-level studies. In other words, a third of all students are women. And interestingly, a disproportionately high number of these students are interested in entrepreneurship. In other words, they are very interested in this topic, but not like students who want to start their own business. This is a small anomaly that perhaps also indicates certain behaviours and structures, that the interest is perhaps much more pronounced, but the willingness or the possibility or whatever the reason is to connect this with a concrete start-up at that moment, that is smaller."(2)

Again, 13 of the 25 universities surveyed did not offer any courses explicitly for women during the survey period. Reasons given for the absence of such programs varied among the universities. For example, an insufficient number of female students was sometimes given as the reason for this. It was also stated that a gender-specific offer would conflict with the university's gender equality mandate and that offers specifically for women would lead to a disadvantage for male students.   The qualitative evaluation reveals a number of very interesting aspects, which are summarized below.

"... we also once had, this is quite interesting, a student initiative...XX was its exact name....They wanted to organize an event specifically for women. The students rejected it. So they said there was no difference ... between men and women as far as the approach was concerned and they didn't really see the point." (11)

"..., no. Well, there were some thoughts and we had also written a proposal. We wanted to create a Female Entrepreneurship Academy, especially for women. We were banned from doing this because our Equal Opportunities Officer and our Vice President for Human Resources said that they didn't want to make this distinction. They want us to develop open formats that everyone can use."(9)

"We did this for a while because we also noticed that there were fewer women at our lectures and events and thought that perhaps there really was a lack of specialized offerings. We also got together with the federal initiative "Women in Business" to really get to know female entrepreneurs from the region who have founded companies. There was only moderate interest and we also received feedback from the students that they didn't really want them to be singled out in this way."(12)

In some cases, the topic of promoting women is linked to other institutions or embedded in an overarching construct, as in the following examples:

"The university only focuses on XX and doesn't offer any extra formats for women because that's just what our university does." (11)

"Well, we have a project at the university called XXX, which doesn't just deal with start-up support, but basically with the cultural approach to it." (21)

"There is no direct offer for this at our university. There are different professorships within the university that have different formats for promoting women, perhaps also in the STEM fields. We- as the Entrepreneurship Center - support them by helping to design workshops or offering workshops. But we don't develop a program ourselves where we differentiate according to gender."(17)

Other universities work in internal networks - several departments deal with the topic, not just the start-up centers. Through the interaction of different stakeholders at the university, the topic is given a higher profile, sustainability and a variety of perspectives:

"Yes, it's still in its infancy. Of course, we basically have the problem that we have relatively few women here, so we really don't have many. But things have changed a bit in recent years. We have a female professor who organizes XXX, a conference, every year. We have an initiative at the university that generally looks after female students and they now do a lot with us. They invite us every now and then." (15)

So they've brought the topic of start-ups into the fold and there's a lot of interaction, but it's really still in its infancy, unfortunately. But the numbers of female founders are increasing."(15)

"But still: we have Girls Day here, we do a lot more STEM subjects for female pupils or potential students. So I think you can do that. We have a basis to build on. It's probably another resource problem." (15)

In addition to analyzing the quantity of start-up support activities for women, findings were generated on the characteristics and content of start-up support at the best German universities. Some universities have a wide range of programs specifically for women:

"Yes, we have two initiatives that are very dedicated to the advancement of women. One is "Initiative 1" and the other is "Initiative 2". "Initiative 1" is an initiative by female students and academic staff. It's generally about setting up support, mentoring, mutual coaching for women and where a great many female entrepreneurs are active and pass on their knowledge and experience. And then we also have "Initiative 2", which is specifically about encouraging women to set up more start-ups and where coaches, women coaches, also accompany women in the start-up process, so to speak. So, these are two activities that are super important to us. That's why I say we are completely open, very, very international and also have a team from Denmark. We also have two initiatives that focus specifically on different gender identities." (15)

"We have XXX workshops, for example. We've already had guest lectures at university-wide events where the focus was specifically on women. Yes, so the focus was on women's self-discovery. But actually, it's integrated into the XXX workshop and otherwise. At the XXX workshop, for example, we had a very strong female professor speaking as a leading role model. And that had a very strong effect on the students, the audience." (23)

The feedback was also very good. We also repeatedly highlighted our female founder role models in the PR articles, for example, i.e. female founders as role models. That is a very powerful tool." (23)

Some universities even have professorships for "female entrepreneurship", which gives the topic even more impact:

" We have a junior professor for female entrepreneurship who also offered teaching-related courses. Otherwise, our courses are always open to all gender identities." (22)

Other universities, on the other hand, do have events for women, but to a much lesser extent:

"Yes, as part of our events, i.e. start-up advice, we don't now say we have the consultation hour here for female founders or people who assign themselves to the female gender, not that. But what we do have is that we explicitly offer a Female Founders Talk twice a year." (14)

Alternatives to an offer explicitly for women include the increased involvement of women in the formats offered or offers that specifically take women into account, but are aimed at all genders and in particular take gender-appropriate language into account:

"And what went down better was actually getting women more involved in our formats. After all, at least half of our Entrepreneurship Center team is made up of women. The proportion was even higher in 2017. In other words, we were very, very well represented and many of our workshops were run by women."(13)

"In most cases, we still openly implement the topics that we think specifically appeal to women, simply because of the third gender. We have also already implemented women's programs. For example, we have a small series called "Language for success", which deals with language, also gender-specific communication and/or voice use. But as a rule, we try to offer an open program. So when we start an offer, such as "Reconciling family and self-employment", where you might think that this is a specifically female topic, then just as many or sometimes even more men usually come. Ultimately, women benefit more when men take on this challenge for themselves than if we had self-employed men who assume that a woman sits at home and pulls the strings in the background so that the man can be successful." (10)

"Everything we do is actually more than targeted at unusual suspects. Yes, and for example just small things, that we use a completely different language than in this testosterial (male) startup culture. Yes, we simply take a much more qualitative perspective. Also not so technology - deterministic and because we have a very targeted diversity management. We are unusual suspects (not the usual ones)."(16)

Some of the universities' experiences with programs that specifically support women in start-up processes are listed below.

"We once organized an event XX and invited female founders to present their business models and students, especially female students. Yes, simply to encourage them to say where there might be difficulties, partly in terms of compatibility, also with family planning. How can this be countered and how did I still manage it? We tried it out. Compared to other formats, it wasn't really that well attended. We then did two or three other formats. We addressed them specifically to potential female founders. We actually discontinued them after these tests. (13)

"We also did -event XX- formats where only female founders were invited; perhaps also female founders who only made it after the second attempt. But we no longer advertised it so specifically. So our experience was similar to the topic of XX Entrepreneurship: it always excludes a group of participants to some extent, but we have not had any good experiences with these formats that are explicitly marketed for women. That doesn't mean that we don't continue to push and strengthen it, but rather through action and not through communication." (13)

"And then, as part of Diversity Week, which was organized on our campus, we also discussed the topic of female entrepreneurship. We invited a female entrepreneur who relatively quickly scaled up a successful business model for herself and is now still very successful. Our experience with this is that, on the one hand, such talks do attract a certain amount of interest. Sometimes even with one or two men in the audience, which is of course nice. Nevertheless, it quickly feels like a small event bubble. And on the other hand, you could of course argue that this is exactly what we need. We are in a safe space where we can talk openly and also talk about topics that only affect female founders, such as childcare. And that sets my alarm bells ringing again, because in an equal world, that would be a topic that I would also like to hear from a male founder. So I actually find that very difficult.(14)

"There are events that are aimed directly at women and where we offer a protected space where only women can take part. These events are called Female Entrepreneurship or something similar. And only women take part in them. That has happened. So our experience is that we offer this again and again and see how it is received, whether there is a need. So far, there has always been a need. But it's not as if I'm saying that 50% of the events are held for this purpose. So it is accepted and we also get feedback that it is quite good if you can only talk from woman to woman, because the advisors are still women in the end. But I would say that there is not a huge demand for it. Especially because we also address these topics in the mixed events and these events are always structured in such a way that we work together in working groups, where you can also organize it in such a way that you are just among women. And there's always a one-to-one feedback session at the events, six-to-one, where topics can be addressed that you didn't want to say in the group. So there is always room in all events to address gender-specific or individual issues, and also in a protected space. We have had good experiences because there are events where a women's team has come together. And a network emerged from this and they then went through these further processes together. They held an event, so to speak, found each other, got to know each other, then decided to pursue their start-up project in a very concrete way, took a semester off for this time and prepared their start-up together in this group of women, so to speak, and supported each other with our help, but also with very individual exchanges with each other, and then each individually pushed ahead with their own start-up project

and also founded it, but remained connected as a network. So for me that is a success. But I can't say that if we start a group like this every time, it will lead to it happening again. There is also a momentum of its own. So the experiences are good, we would offer it again and again, but not exclusively." (24)

Overall, "Female Founders Meetings" were mentioned as a very popular and well-received format in which women are invited to network meetings as role models and then speak about their experiences to mostly (but not exclusively) female people interested in founding a company.

"And now, for example, we also have an event ... with Female Founders, where we have said: Yes, men can come in too.... Or a Female Breakfast, with women...where you have a high proportion of women in particular. And that is actually very well received. And it's actually also important." (I4)

Opening up the offer to all genders was seen as effective in supporting women in start-up processes, whereby more women are involved in the events and the special needs of women are taken into account without explicitly offering these only for women. For example, advice is offered by women without being exclusively accessible to women. It was also stated that the problem of the low proportion of women has its origins in the low proportion of women in start-up-related degree programs, primarily in the STEM field (Ladwig & Wohlert, 2023).

In addition, further findings on the support of women in start-up processes were collected. It was sometimes mentioned that women interested in starting a business are interested in receiving advice from women.

"Of course we have a lot of women in our Entrepreneurship Center team. Of the 15 people in our team, two thirds are women, who also provide advice and run the events, and who of course also see many things from a woman's perspective. It may well be that a woman feels better supported by a woman giving advice" (I1)

With regard to gender-related differences and challenges, it was stated that it is more difficult for women to obtain financial resources than for men.

"But then, when it comes to money, it becomes problematic because they are women. So then it's still the white men who are engineers who get the money and not the women." (16)

The conception of formats against discrimination of women in the workplace was also provided as a suggestion.

"And what I would really like to see as an event would be a women-only safe space on the topic of sexual misconduct, i.e. sexualized discrimination in the workplace. I had a very frightening conversation with a young female computer scientist who told me two or three sayings that she had encountered during her internships, where my jaw really dropped, where I really thought, wow, in what century are we in?! And to create a workshop format specifically for this, a framework in which the young women learn that this is unacceptable behaviour and that there are ways and methods to tackle it. But that has less to do with the start-ups themselves. It's more about how we can reshape the sometimes toxic environment for women so that it becomes more supportive and that there is equality, equal opportunities. Exactly. So it's a difficult topic." (14)

It is also interesting to note that the proportion of women among those providing start-up support is very high:

"Whereby, if I may add something else - what is interesting is that all start-up support in many universities, not just ours, is almost 90-100% female. So the colleague we are hiring now is the first male advisor in our team." (15)

CONCLUSIONS

In order to be able to further adapt and develop the offer of start-up support at German universities to the special needs of women, it is consequently recommended to evaluate the effectiveness of existing programs for the support of women in start-up processes.

In addition to the orientation of support activities, it is also necessary to create suitable framework conditions for women's start-up projects. This implies not only suitable childcare but also access to the necessary capital.

The selected sample of German startup-supporting universities with the implicit experiences enables a comprehensive and practice-oriented insight into startup support at universities. The results of the analysis show that university-specific factors, such as the focus of the universities' studies, also have an influence on the basic proportion of female students and thus also on the proportion of female entrepreneurs from the universities. Although only a few universities have special offers to support women in the start-up process, it is positive to note that universities in Germany are highly sensitized to women's start-up topics and needs.

The very controversial discussion about programs and offers specifically for women shows how differentiated this topic is viewed today. In our opinion - and in order to do justice to all gender identities - it makes sense in future to develop very individually tailored offers with very different formats (workshops, lectures, talks, projects, one-to-one meetings, mentoring, network events with role model speakers etc.). In a holistic approach, the Entrepreneurship Centers can offer different formats side by side in a modular structure: Being able to discuss more personal topics in a protected space, such as balancing start-up and family life, and being able to articulate doubts and fears. Finding each other as a start-up team through intensive group activities and discussions. To feel like a long-term member of a start-up network that supports and accompanies each other. To receive appreciative support and guidance from professional Startup Coaches. And arousing interest and enthusiasm for entrepreneurship at a young age with a low-threshold introduction seems to us to be a promising approach. At our university, we have integrated the teaching of pure start-up knowledge into a first step start-up wiki, where interested parties can first surf freely to get their initial questions answered and then go into the one-to-one advisory sessions prepared and with specific questions.

One approach for further research could be to ask students of all gender identities at the different universities about their wishes, ideas and needs for support and to compare these results with the findings of the present study.

The gender gap in entrepreneurship continues to exist. The worsening of the situation of women in start-ups during the Corona pandemic (Herold et al. 2022) provides the necessary impulse for reflecting on the support for women from Entrepreneurship Centers at German universities. This research paper makes a contribution on relevant influencing factors to support women in start-up processes in Germany.

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EXPLORE THE INFLUENCE OF DIGITAL MARKETING IN THE ENVIRONMENTAL REVERSE SOCIALIZATION OF THE FAMILY; A COMPARATIVE STUDY BETWEEN GREECE AND GERMANY

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ABSTRACT

The present study places digital marketing activities under the microscope in order to identify the field's contribution to children's environmental awareness. The research aims to reveal the prominence of children's environmental reverse socialization in the family. Following a data collection process through 17 interviews and 50 open-ended questionnaires with parents from Greece and Germany, the researchers analyze the qualitative data through Thematic Analysis. The research reveals that digital marketing channels, such as YouTube ads and influencer marketing, play a weak role in children's environmental awareness although children in both countries spend an increasing amount of time on digital channels. Interestingly, due to adjunctive sources, children are active contributors to the promotion of an eco-friendly mentality in the family through environmental reverse socialization and positive pester power. The study depicts the current contribution of digital marketing to children's environmental awareness, which constantly changes and requires frequent observation. Future research should utilize a wider sample and should reevaluate the findings for possible alterations. Moreover, as the research focused on Greece and Germany, it is recommended that future research will examine different and multiple European countries. The paper innovatively interrelates the contribution of digital media with the influence of children between 7-13 years old on their parents' environmental awareness. The results can provoke requisite developments to digital marketing activities towards children in accordance with the global sustainable awakening.

Keywords: Environmental Reverse Socialization, Children's Environmental Awareness, Positive Pester Power, Digital Marketing channels, Social Marketing, Influencer marketing, YouTube Ads, Qualitative Research, Southeast and Northern Europe

INTRODUCTION

In the light of a sustainable world with a growing health awareness, children should be introduced to a pro-environmental mentality from an early age. Parents constitute the primary source of environmental education, as they are responsible for instilling a pro-environmental mindset in their children. However, children's increasing interest in online sources renders digital media a secondary source of information, as young consumers are constantly enhancing their knowledge of environmental issues. The field of digital marketing attempts to lead the 'consumers of the future' towards healthier consuming patterns, through healthy food advertising and the reduction of food waste (FW) (Sutinen and Närvänen, 2021). Thus, the first research objective is to discover the contribution of digital marketing channels to the environmental socialization of children in Greece and Germany. The selection of these countries was based on their divergence with regards to environmental practices, such as the solid waste management system (Andreasi Bassi, Christensen and Damgaard, 2017). The promotion of pro-environmental practices, allow children to acquire the role of the 'educator' and lead their parents to sustainability through the process of environmental reverse socialization (Hosany, Hosany and He, 2022). However, there is scarce evidence that children's efforts are adequate to effectively influence parents and create a positive change in the family. Hence, the study will, also, explore the impact of environmental reverse socialization on the acquisition of ecological behaviors in Greek and German families. It seems that reverse socialization affects only the parents' knowledge rather than their behavior, whereas more gnawing strategies, such as positive pester power, have been proved to pull the family in a healthier consumption pattern and sustainable behavior (O'Neill and Buckley, 2019). Therefore, the third research objective will be to uncover children's overall participation in the formulation of environmental behavior in the family through positive pester power. These objectives will provide an insight into the contribution of digital marketing tools to children's environmental awareness in two European countries and into the extent to which children utilize environmental reverse socialization and positive pester power in order to raise environmental awareness in the family. The outcome will underline the effectiveness of children's persuasive techniques and will direct digital marketing activities to fortify children's conservationism.

RELEVANT LITERATURE

Socialization and environmental socialization

Focusing on the way children assimilate healthy consumption, it is exigent to examine their primary source of education, namely their parents. The process where children develop their consuming behavior imitating their parents' example is known as socialization (John, 1999 as cited in Gentina and

Muratore, 2012). Environmental socialization describes children's acquisition of pro-environmental behaviors and knowledge either from their parents or the media (Gentina and Muratore, 2012). Taking into consideration the increasing rate of childhood obesity in Europe (Spinelli et al., 2021) and the excessive amount of food waste (Savelli, Francioni and Curina, 2019), it would be salutary to evaluate the contribution of media to children's socialization (John, 1999 as cited in Gentina and Muratore, 2012; Hosany, Hosany and He, 2022). Similarly, according to Junsheng et al. (2019), the role of mass media in raising environmental awareness should be examined, while Närvänen et al. (2018) stresses the importance of researching the impact of social marketing on consumer behavior.

Digital media as a source of children's environmental socialization

The rise of digital media tends to replace the traditional marketing tools as a means of communication with younger audiences. Children today are considered "digital natives", which highlights the significance of digital media in their development. According to findings of Moschis & Moore, children's exposure to media and advertising have an influence on their knowledge and consumer skills (1978; 1979; 1982; 1983; 1985 as cited in Hosany, Hosany and He, 2022). However, based on the recent literature, there is no evidence that "green" advertising or online marketing stimuli result in the adoption of pro-environmental behavior from children and thus, further research is suggested to identify the influence of socialization agents on children's environmental behavior (Hosany, Hosany and He, 2022). Consistent with Haddock et al. (2022), most children consider watching Youtube videos as their favorite digital activity. However, there are few studies that investigate how platforms, like YouTube, raise environmental awareness (Gómez-Casillas and Victoria Gómez Márquez, 2023). Apart from their popularity, researchers have examined their exerted influence of these platforms on children and the reason behind it. The majority of videos young children watch on Youtube includes content from their favorite influencers (Hosany, Hosany and He, 2022). It has been proved that children tend to widely trust advertising messages produced by a familiar and relatable source (De Jans and Hudders, 2020 cited in Holiday and Brinson, 2022). Thus, scholars have stressed the importance of a future investigation in order to clarify the way influencer marketing can help children adopt a healthier lifestyle (De Jans et al., 2021) and to showcase a positive relation between influencer marketing and children's sustainable behavior and reverse socialization (Hosany, Hosany and He, 2022). Finally, the time children spend online daily can reach up to an hour and a half, which increases with age (Rideout et al., 2021 as cited in Haddock et al. 2022). As expected, children's screen time depends on parental guidance and as the research compares the situation in two European countries, we may observe a divergence of parental forbearance about screen time.

Environmental reverse socialization and positive pester power

Based on the existing literature, the family, the school and the mass media constitute the basic sources of children's environmental socialization (Aguirre Bielschowsky et al., 2018; Grønhøj, 2007; Matthies et al., 2012 as cited in Schill, Muratore and Hogg, 2022). Apparently, there is pervading information available in all online channels, facilitating the process known as reverse socialization, which describes the inverted impartation of knowledge from children to the family (Ward, 1974 as cited in Singh et al., 2020; Liu, Chen and Dang, 2022). Moreover, children can educate parents about ecological practices through the process of environmental reverse socialization (Easterling, et al., 1995 as cited in Hosany, Hosany and He, 2022; O'Neill and Buckley, 2019). Digital media also enhance children's awareness with the promotion of air and water pollution, soil erosion and marine life extinction (Hanifah Mahat et al., 2023). Also, former studies have suggested future research on the amount of influence children exert on family's healthier consumption (Betrol et al. 2017), while others highlighted the limited academic literature regarding the extent to which children are involved in environmental issues (O'Neill and Buckley, 2019; Singh et al., 2022).

There are two types of influential strategies that children can employ, namely the bilateral strategies which resemble a dialogue and the unilateral, which involve direct request and stubborn persuasion (Offermann & Schrier, 1985; Bao et al., 2007 as cited in Singh et al., 2020). Through reverse socialization children had an impact only on parents' knowledge, whereas through more persuasive strategies, such as positive pester power, they effectively achieved behavioral change (O'Neill and Buckley, 2019). However, further research is needed to confirm the catalytic role of positive pester power in raising environmental awareness (O'Neill and Buckley, 2019; Swindle et al., 2020), despite having examples of positive pester power about sustainable consumption (Ritch and Brownlie, 2016). Finally, it has been highlighted rather repetitively that parents' receptiveness to environmental reverse socialization depends on many factors, such as their prior environmental knowledge, as well as the reliability of the source that children consult (Bartiaux, 2009 as cited in Walker, 2016). Focusing on two European countries, the study will clarify the way Greek and German parents adapt to the environmental reverse socialization.

METHODOLOGY

Interpretivism was considered the most suitable research philosophy to follow in order to explore these newly emerging phenomena and attempt to explain the forces that shape them (Kapoulas & Mitic, 2012) in the present comparative research.

Data collection

Semi-structured interviews were conducted to explore the objectives, as they constitute the most frequent and popular technique in qualitative research, as it is versatile (Kallio et al., 2016). The interview consisted of 12 questions and the answers of the respondent were pseudonymised as Σ1,

Σ2..Σ17 in order to secure their anonymity. Aiming at triangulating the interview results, 25 open-ended questionnaires were equally distributed to parents in each country. The questionnaires included the same 12 questions and the respondents were pseudonymized as M1, M2.. M50.

Sample

The sample of the study was purposeful and consisted of millennial parents (28-46 years old) with children between 7-13 years old. Given that children could not participate in the interview, the researcher interviewed 9 parents from Greece and 8 parents from Germany, in order to gain an insight into children's point of view. Study findings have illustrated that children (7-12 years old) participate actively in recycling and can foster change to their micro-environment (Schill, Godefroit-Winkel and Hogg, 2020).

Data analysis

The data collected were analyzed through Thematic analysis, which is a widely used qualitative analytical method (Braun and Clarke 2006). Considering the comparative nature of this study, thematic analysis facilitated the effective identification of the most important similarities and differences between the two countries.

Ethical procedures

Prior to the data collection, the researcher obtained an Ethics approval from CITY college University of York Europe Campus.

FINDINGS

The researchers have followed a six-step process of Thematic analysis. Based on data, 56 codes were created and categorized in themes, which were then identified and the research moved to a detailed analysis, in order to showcase their importance and internal construction.
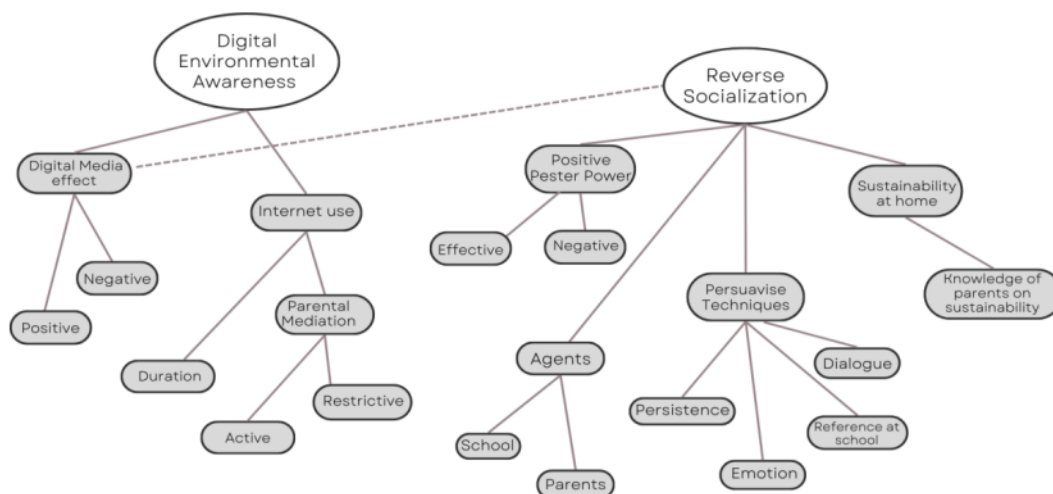
Figure 1. Final thematic map

As discussed by scholars, various online marketing tools, such as influencer marketing and Youtube, can facilitate the promotion of sustainable and healthy practices (Samoggia, Bertazzoli and Ruggeri, 2019; Makhal et al., 2020; Hosany, Hosany and He 2022). Firstly, our findings verify the existing literature claiming that watching videos on Youtube is considered the most preferred digital activity for children (Haddock et al. 2022): Σ8: [..] link on YouTube [..] M15: Yes, they watch videos on Youtube [..] The majority of parents referred to YouTube as their children's preferred platform. However, as digital marketing tools are rallied for a pro-environmental cause, scholars pursue the role of social platforms in children's environmental awareness (Junsheng et al., 2019; Gómez-Casillas and Victoria Gómez Márquez, 2023). Parents mentioned examples of YouTube advertisements where the environmental messages were clear and children were introduced or reminded about sustainable practices:

M31: 'No trash, no plastic in the sea and on the beach' (Greek advertisement)

M35: To paper recycling. She is influenced by advertisements on YouTube [..]

However, many parents referred to the negative influence of online ads on children, such as consumerism:

Σ17: [..] usually on YouTube there are these kids and she says 'I saw that and I want to buy it'[..]

M45: "[..] If an Influencer advertises a new product, my child has to buy it immediately."

According to Σ17, child-influencers are a very successful subcategory of influencers, who engage in child-orientated activities and are watched by millions of children (De Veirman, Hudders and Nelson, 2019). However, a decisive factor for the influence of digital media on children is the amount of screen time. There is no sufficient divergence between Greece and Germany with regards to the duration of children's internet usage, as most parents mentioned a duration of 2-3 hours per day. However, an exception was a small group of almost only German parents, who answered that their children spend up to 5 hours per day online. Findings indicate that Greek parents maintain a stricter profile towards the use of digital media and try to divert their children with other activities, whereas most German parents have incorporated it into their daily routine and allow an extended use. Moving on, the research indicates that influencer marketing is one of the two digital marketing tools that presented a prominent influence on children's environmental awareness: Σ16: "[..] because an influencer said it or showed it..[..] it is the motto nowadays to be eco-friendly etc [..] last year an influencer promoted afforestation and my child asked me about the afforestation on burned grounds." Therefore, this point supports the view of Hosany, Hosany and He (2022), where the effectiveness of influencer marketing on children's sustainable behavior is stressed. Also, building on the suggestion of De Jans et al. (2021) for further evidence about the participation of influencer marketing to the promotion of a healthier lifestyle for children, the example above shows that influencer marketing can

instill pro-environmental messages in children, but influencers do not often promote such practices. Moving on, multiple responses of parents stressed their children's environmental reverse socialization, which led to radical changes in the house, such as garbage separation, energy preservation etc. However, given that the school's and parents' disposition to environmental teachings also constitute factors that reinforce children's sustainable behavior, researchers should confirm the leading role of influencer marketing in environmental reverse socialization (Hosany, Hosany and He, 2022). Sadly, 46 out of 67 parents stated that there was no evidence of environmental messages on digital marketing channels. Hence, the connection between influencer marketing and environmental reverse socialization is imponent, while the other two factors seem to play a more decisive role. Furthermore, contrary to the assumptions of Makhal et al. (2020), that influencer marketing can be used for the promotion of suboptimal food (SOF), the research data do not showcase any evidence of food advertising to children online, due to many restrictions (Fleming-Milici, Phaneuf and Harris, 2023), which may prohibit the promotion of unhealthy food advertising, but impede positive messages from coming across.

In this comparative study, the contribution of digital marketing channels on children's environmental awareness and reverse socialization is the same in both countries. Both Greek and German parents highlighted the urgency for adequate pro-environmental messages on digital marketing channels. However, regarding the aspects involved in environmental reverse socialization, there are some differences between the two countries. According to existing literature, the family, the school and the mass media constitute the basic sources of children's environmental socialization (Aguirre Bielschowsky et al., 2018; Matthies et al., 2012 as cited in Schill, Muratore and Hogg, 2022). The research data verify the credibility of this statement, as there is evidence that children acquire knowledge from all these sources. At first, it is very clear that children in both countries are energetically involved in the promotion of a pro-environmental mentality: M16: [..] she reminds us about the rational use of water almost every time! M31: " I have to be careful about water consumption, not to waste it."

Their persistence and commitment contribute to the success of the process. Former research has suggested the exploration of the extent to which children influence the family's healthier consumption (Betrol et al., 2017) and the study shows that alongside diverse ecological habits, children have suggested alterations to the family's eating habits, such as the reduction of meat-based food, the avoidance of products with extra packaging or products from mass-production. In addition, the parent's responses agree with former study findings which claimed that children participate in recycling and can modify their micro-environment (Schill, Godefroit-Winkel and Hogg, 2020). However, opposite to O'Neill and Buckley (2019) who stated that reverse socialization enhances only

the gnostic capabilities of parents, the responses indicated that parents do change their habits following the example of their children: Σ12: [..] he told me 'Mum, you know that we are not supposed to throw batteries alongside the rest of the garbage [..]'…Honestly since then I will not throw even one battery in the garbage [..] M42: "Children become an example for their parents. For example, turning the light off everytime I walk out of the room."

This divergence between the research data and the existing literature indicates that children's environmental reverse socialization may become more effective. Furthermore, throughout the thematic analysis we have identified some differences between the two European countries. German parents stressed that as children learn about recycling and garbage separation from a very young age, it is natural for them to imitate and promote such behaviors, compared to Greece. They also commented that a prominent difference between the two counties is that in Germany recycling is obligatory, whereas in Greece there is no such legislation. Equally, the contribution of the school to the overall environmental awareness of children was evidently different between the two countries. Multiple references to school facilities, such as a compost machine and food waste management highlighted the participation of German schools in raising awareness, whereas in Greek schools the education about sustainable practices, though sufficient, is only theoretical. Apparently, children from both countries are actively involved in environmental reverse socialization and parents in both countries followed their recommendations, regardless of their prior knowledge. However, there was a small group of respondents, who did not deem their child's ecological suggestions as influential, because their environmental knowledge was at the same level. Therefore, the argument of Bartiaux (2009) is merely confirmed, as the parent's prior environmental knowledge was partially interfering in their receptiveness of environmental reverse socialization.

Moving on, a factor that can influence a parent's receptiveness of any pro-environmental suggestion, is the child's persuasive technique. In the research data, parents referred to persuasive attempts through dialogue and reasonable argumentation, as well as through positive pester power, which was suggested for further investigation (Swindle et al., 2020): Σ1: ..they drive me crazy..[..] 'Mum, don't throw anything there..Mum don't do that'..constantly, they are like teachers. Σ3: [..] she doesn't use nagging, but mostly yelling, she insists [..] and it is effective even by force [..] because her dad doesn't do them very often [..] she says 'Dad this is for recycling', 'Dad the water is still running!' Considering these examples, the point of O'Neill and Buckley (2019) about the positive influence of pester power on parental environmental behavior is confirmed. Regarding the knowledge of parents, which was discussed above, the respondent Σ3 highlights that the child yells at her dad in order to convince him about the importance of sustainable practices. Understandably, we can assume that children utilize pester power when the parents' involvement in eco-friendly practices is weak. Overall, the fact that

the effect of positive pester power is validated by many parents contributes to the existing literature regarding the subject. Lastly, environmental reverse socialization and positive pester power are interdependent, albeit different, and constitute children's "supplies" towards a sustainable future.

CONCLUSION

The study provides many insights for the influence of digital marketing channels in children's environmental awareness. Having confirmed that YouTube is the most preferable online platform, the research shows only adult influencers in the promotion of an eco-friendly 'motto', which disagrees with the existing literature about young influencers. Furthermore, the research reveals that children acquire information about sustainability through social marketing activities and transfer it to the family through reverse socialization, though it underlines the urgency for more pro-environmental digital marketing activities. The research data clearly shows that children, both in Greece and Germany, actively influence their parents towards the adoption of eco-friendly behaviors and they utilize both environmental reverse socialization and positive pester power. Although children in both countries play a vital role in the promotion of sustainability, in Germany there is a positive contribution of the school and society compared to Greece.

Overall, the research data benefits both the theoretical and the practical field. To begin with, the evidence of children's suggestions about healthy alternatives to the family's consumption patterns, enhance the existing literature about the influential role of children over parents, while it leads marketers towards healthy food advertising to children, in order to achieve sales. Also, the energetic involvement of children in pro-environmental awareness enriches the literature by proving the prominent existence of environmental reverse socialization in both European countries and highlights that marketers should utilize children's influence on parents. Furthermore, the data proved that although YouTube advertisements and influencer marketing promote pro-environmental practices, there is room for improvement. Theoretically, this contributes to the literature exploring the role of digital mass media in raising environmental awareness, while practically suggesting that marketers should rapidly increase the digital marketing messages on sustainability and the use of Influencers for the promotion of environmental practices. Regarding the impact of social marketing on consumer behavior, the study proves that social marketing reinforces healthy buying behavior to children and constitutes an effective marketing tool. Lastly, the powerful effect of positive pester power on parents' sustainable behavior confirms its role in the promotion of sustainability and stresses the need for more pro-environmental advertising messages to children.

The limitations of a study can function as the stimulation for further investigation on the topic. Although the sample is limited to only 67 respondents, it allowed the researchers to delve deeper into the parents' point of view in both countries and have a clearer glimpse of the phenomena investigated

and the forces that shape them. Understandably, the research outcome cannot be generalized. Hence, future research should focus on different or wider areas in order to complement the existing data. Moreover, as the research explored the influence of digital marketing activities on children from 7-13 years old, future researchers should investigate the influence of such channels on older children's environmental awareness. Lastly, given that digital marketing practices are constantly changing, future research should reevaluate the situation after a period of time, for the same or a similar subject, to ascertain any changes to digital media practices.

IMPLICATIONS

Social marketing has been characterized as one of the main paths through which the field of marketing can actualize social change (Russell-Bennett et al., 2019). Based on the study, social marketing has a positive effect on consumption accompanied with the managerial implication that it can harm the sales of unsustainable products. The rejection of specific products and brands due to generic or specific reasons, is described with the term 'Anticonsumption' (Cherrier, Black and Lee, 2011). As the recent anticonsumption theorization places environmental sustainability at the center (Dalmoro, Matos and Barcellos, 2019), it can create multiple managerial implications as children may prevent their parents from buying multiple unsustainable products. Moreover, although marketers may utilize YouTube and Influencers to lead children towards the consumption of sustainable products, there are also implications that may not be avoided. YouTube ads prior to videos can be ignored from children (skipped) and the influencer may not comply effectively with the respective brand, in order to create engagement and to initiate sales. Finally, although Influencer marketing presentes a prominent influence on children's environmental awareness, its connection to children's environmental reverse socialization is still imponent. Thus, marketers may consider that additional agents, such as the school, are directly connected with the environmental reverse socialization of children and hence, more effective.

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DIGITAL TRANSFORMATION IN FOREST SERVICE OF GREECE

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ABSTRACT

The main purpose of this research to investigate the digital transformation of the Forestry Service in Greece by the human resources, as well as to highlight the importance of forest digital transformation and the utilization of information and communication technologies (ICT) for more efficient service provision and change in organisational culture, while investigating the existing digital systems and forest applications used by the Forest Service. This research was based on a specially structured questionnaire completed by 232 Forestry Service officers from all regions of Greece, representing 20% of the total population, during the period from May 2023 to February 2024. The survey showed that a significant percentage of Forest Service executives were not yet aware of the concept and purposes of digital transformation, despite the country having implemented a national strategy for digital transformation. It was observed that modern digital technology has been adopted to a small extent and will require support from the government.By adopting and implementing digital transformation and smart forestry in the Forestry Service of Greece, a new more effective culture will be developed improving collaborations, social inclusion, and government accountability. Additionally, this will enable real-time monitoring of the forest environment, particularly in terms of fire accident monitoring and logging monitoring. Finally, it was found that the marketing of forest ecosystem services contributes positively to highlighting the recreational role of forests. This research is expected to improve the Forestry Service, by using digital transformation tools to emphasize its multifunctional role in the new digital era. The originality of this research lies in its being conducted for the first time in Greece, and possibly being unique in the European Union for the effective implementation of digital transformation in the Forestry Service.

Keywords: Digital Transformation, Forest Service, Smart Forestry, Forest Apps, Organisational Culture.

INTRODUCTION

In recent years, digital technologies and data have been evolving rapidly having a transformative

impact on various economies and societies. Globally, citizens, businesses and governments live, interact, work and produce differently than in the past (OECD, 2019). Gong & Ribiere (2021), define the digital transformation as "a fundamental change process enabled by digital technologies, which aims to bring radical improvement and innovation to an entity (e.g., an organization, a business network, an industry or society) to create value for stakeholders by leveraging strategically key resources and capabilities".

Digital transformation in forestry is necessary for biodiversity conservation, food production and consumption which must be related to nature. It is crucial to move away from practices that degrade the natural environment with the unsustainable resource use and production patterns and consumption as forests are among the most important ecological stabilizing elements of the landscape (Elias, *et al.*, 2017). Also, Marusakova, *et al.*, (2019) agree that forests perform important economic and social functions.

According to Kangas *et al.* (2018), open forest data can be used for control and management planning, implementing various functions, business transactions, quality management and business activity. Furthermore, they emphasize that good quality forest digital data benefits service providers and forest owners by supporting efficiency in planning and decision-making, targeting and scheduling operations, increasing costing efficiency, reliability and quality of services. Consequently, this new digital transformation provides opportunities for profitable business and competitiveness in the forestry sector.

The main purpose of this research is to investigate, adopt and apply principles and good practices of digital transformation by human resources in the Forestry Service of Greece. This will enable the service to adapt to new realities with the goals of sustainable development, extroversion and maximizing its social role as one of the country's most important services in protecting the natural environment. Additionally, the implementation of digital transformation in the Forest Service aims to eliminate administrative burdens, improve its accountability, and develop a modern culture by ensuring the coherent use of digital technologies across policy areas and levels of governance.

LITERATURE REVIEW

Digital Transformation

The necessity for organizations to transition towards a digital economy and society is now considered imperative in the effort to develop a model for Industry 4.0 (Ghobakhloo, 2020; Javaid *et al.*, 2022). Emphasis from both businesses and states on digital infrastructures, appropriate organizational

structures, and human resources with high digital skills is becoming pivotal for strengthening entrepreneurship in the new digital economy.

The European Commission (2021) has presented its vision for the Digital Transformation of Europe by 2030. Specifically, the Commission proposes the establishment of a "Digital Compass" to transform the EU's digital ambitions for 2030 into specific objectives. This initiative is structured around four key strategic axes: a) ensuring a population with digital skills and highly trained digital workforce, b) developing secure and efficient sustainable digital infrastructures, c) promoting digital transformation of businesses and d) facilitating the digitization of public services.

In recent years, the international community has implemented various actions aimed at enhancing the foundational evidence for monitoring and shaping the digital transformation of countries (OECD 2019).

The European Commission has also developed the Digital Economy and Society Index (DESI)[1], a tool designed to measure digital performance indicators. The DESI framework includes dimensions such as Human capital, Connectivity Digital integration, Digital public services. It assesses areas such as telecommunications, broadband, internet usage, online services, digital governance, digital skills, research and development.

The OECD (2019b) has developed the "Going Digital Toolkit", a measurement framework designed to assist policymakers in addressing the challenges of Digital Transformation and leveraging its opportunities. This toolkit comprises seven policy dimensions that enable governments, in collaboration with citizens and stakeholder groups, to shape digital transformation to enhance their standard of living. These dimensions include a) enhancing access to infrastructure, services and data, b) increasing the effective use of digital technologies and data, c) open access to data and digital innovation, d) creating good jobs for all citizens, e) promoting social well-being and inclusion, f) strengthening trust in the digitalization and g) promoting market openness in digital business environments. According to the World Economic Forum Digital Transformation is expected to change all sectors of economic activity by 2027 fundamentally altering the world and the daily lives of citizens.[2]

Furthermore, European Commission (2020), describes how digital transformation can contribute broadly to economic and social aspects of life including: a) creating and developing digital solutions to address social challenges, b) revitalizing democracy, trust and cultural diversity, c) ensuring digital technological dominance and cyber security and d) strengthening Europe's competitiveness.According to a survey conducted by the National Documentation and Electronic

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[1] https://digital-strategy.ec.europa.eu/en/policies/desi
[2] https://www.weforum.org/agenda/2022/05/17-ways-technology-could-change-the-world-by-2027

Content Center (2022) 40.2% of respondents indicated that digital transformation is a highly important development strategy.

Digital Transformation and Resilience Plan of Greece

The Recovery and Resilience Plan[1] contributes to the digital transformation of Greece by allocating 23.26% of the estimated budget addressed to the digital objectives. This allocation fully aligns with the goals and action plan outlined in the Digital Transformation Bible (Ministry of Digital Governance, 2021), which corresponds to three main directions of the "European Digital Strategy" : a) Technology that supports people, focusing on priorities such as, the interoperability of public services and their optimal operation for the benefit of citizens and businesses, b) A fair and competitive economy which supports the digital transformation of the Greek economy through key digital "catalysts", i.e. digital skills, digital infrastructures , digital services etc. and c) An open, democratic and sustainable society emphasizing the "open data" policy of the Public Sector, as included in the Digital Transformation Bible, as a mean to promote transparency and open governance. This comprehensive approach underpins Greece's efforts to leverage digital transformation for economic growth, public sector efficiency, and societal advancement in line with European Union directives and strategies.

Modern software and applications for forest management

Smart forestry represents an innovative approach leveraging artificial intelligence (AI), to enhance forest management while minimizing environmental impacts, as highlighted in research by Ehrlich-Sommer *et al.* (2024). This research underscores the symbiotic relationship between human expertise and digital transformation in forestry, particularly in challenging environments.

In Greece, the Smart Forest Innovation Challenge (2022) saw the submission of 149 proposals from start-ups, researchers, scientists and students. These proposals aimed to address the technological challenges in the forest prevention, protection, restoration and management, aligning with the national strategy for forest ecosystem managements. Notable applications awarded include ANANIAS SYSTEMS which is an automatic warning and fire detection system, AILApaths which is an artificial intelligence program

The Digital Transformation in Forest Services of other European countries

In Finland, a country with a long tradition of developing innovations in forest management, Kankaanhuhta, *et al.* (2021) introduce an innovative concept through a case study focused on developing flexible software tools to improve the productivity and experience of forest services' customers. This need arose from the context of opening forest data and developing service platforms for a forest bioeconomy in Finland. Based on the existing situation and prevailing service processes,

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[1] https://greece20.gov.gr/

models were developed to identify opportunities for improvements in business and ecosystem services, specifically, through flexible software concepts. The researchers examined the potential to create opportunities for flexible business models aimed at precision, resilience and protection of valuable microsites in forests. Beyond the practical implications of this innovation process, they discussed the potential for these flexible tools to lead to further development of knowledge.

In the Nordic countries, despite the increasing number of digital transformation initiatives, many forest organizations still use traditional, non-digital work practices in harvesting, felling and support functions. In the article of Jäntti and Aho (2024), we can see how digital transformation impacts in the quality of operational processes and service systems for forest machine operators. The main contribution of the paper is to demonstrate that digital transformation benefits not only the organization but also the ecosystem's environment by increasing transparency of operations, reducing travel costs, boosting productivity and creating a more proactive operating model. The research concludes that achieving digital transformation necessitates the coexistence of data quality, software quality, service quality and process quality.

In Sweden Holmström (2020) investigated the dynamics of digitizing the forestry value chain and new value creation opportunities related to an integrated digital information flow the entire value chain. The results indicate significant interest in digitization and artificial intelligence, although digital transformation processes have only just begun. Finally, key areas for the successful implementation of forest transformation are proposed, such as: strategies to enhance digital maturity, supply chains in ecosystems, programs to improve digital capacity and approaches to identify opportunities for service innovation.

Germany has one of the largest forest areas in Europe and plays a crucial role in mitigating climate change and providing ecosystem services to society. To fulfill this role, data collection is required by law for most forests in Germany. Pleger and Schiering (2023) examine the forest data collection process in German organizations as a first step towards digitization. The use of Internet of Things (IoT) devices in data collection improves the efficiency and accuracy of forestry operations, providing valuable information on forest health and productivity.

In Russia today, the development and introduction of digital technologies in the economy and social sphere is a national development goal. The national program "Digital Economy of the Russian Federation", as well as the introduction of digital technologies as a national development priority, raised the relevance of these issues at a high political level (Bespalova, *et al.*, 2021). This research examines the process of introducing digital technologies in forestry based on Venkatraman's model, demonstrating their effectiveness. The research considers examples of new achievements in forestry and highlights some difficulties in their implementation.

Based on the literature review, we formulated the central hypothesis of the research as follows: A significant percentage of Forestry Service employees do not understand the concept and importance of digital transformation, with men and younger executives demonstrating more knowledge. Additional research hypotheses were as follows:

H_1: The level of readiness of the Forestry Service for the introduction and operation of digital transformation is not yet at the level it should be according to the strategies outlined in the Digital Transformation Book of the Greek Ministry of Digital Governance Services.

H_2: The creation of an organizational culture based on public sector data and ensuring the coherent use of digital technologies in the fields of politics and governance, in the context of the digital transformation, shows statistically significant differences in their averages regarding the years of experience of the Forest Service executives,

H_3: Modern technology has hardly been adopted by the Forest Service.

METHODOLOGY

Sample - Survey population - Means of data collection

A primary pilot qualitative and quantitative survey was conducted among senior officials of the Central Forestry Departments of the Policy Implementation and Inspection of Greece. The aim was to reflect the current situation and to finalize the questionnaire. This focus group of the qualitative research shared common characteristics and knowledge related to the research topic, but they did not know each other. In this way, the detection of whether the basic concept of Digital Transformation is clear, was achieved.

During the next period, questions were designed based on the Maturity Model (Backlund *et al.*, 2015) to collect the data required for further research. Before creating the final Likert-type questions, a platform was used to define the maturity model of the respondents from the original survey. The Mendix platform (https://www.mendix.com) was used to position the questions in a way that allowed for piloting piloted by the initial respondents. Most questions in the questionnaire were closed, and included types such as ranking, dichotomous, Likert scale, multiple choice. The Likert scale questions were structured in 5 levels, where: 1 corresponded to the highest level and was the most ambitious level, triggering long-term planning, 2 represented a positive direction of cooperation regarding the issues in question, 3 denoted the established base, 4 indicated the level where the services were progressively starting and changing and as 5 pertained to services just beginning to meet the demands of human resources administration in line with green data..

The data collection process

The sample of the research consisted of 232 forest employees from all the Regions of the country, with their demographic characteristics, as shown in Table 2, i.e., approximately 20% of the total population of 1.160 forest employees who received the questionnaire link via email. The survey's data collection took place from May 2023 to February 2024. There was an initial pilot survey with ten (10) respondents to resolve any ambiguities.

Statistical Data Analysis

The main statistical analyses performed to calculate the results using SPSS version 26 were the calculation of means and frequencies of the demographics, and the non-parametric Kruskal-Wallis tests. In order to answer all three (3) research hypotheses, the data were analyzed using the non-parametric Kruskal-Wallis statistical test for independent samples, because the sample did not follow a normal distribution after applying the Kolmogorov-Smirnov test ($p < .05$).

After collecting the questionnaires, the statistical processing of the research data followed with the program IBM SPSS Statistics, ver. 29 (Norris, *et al.,* 2013).

Before conducting the statistical analyses for each question, it was necessary to calculate the internal reliability index using the Cronbach's Alpha coefficient, to enable further statistical analyses. According to Netemeyer *et al.* (2001) the Cronbach's Alpha coefficient is considered acceptable when it is 0.60-0.70, indicating the tool is reliable. A coefficient greater than 0.80 indicates a very good degree of reliability of questionnaire. In the present research, the Cronbach's Alpha reliability coefficient of the total sentences of the tool is 0.901, so the tool is reliable (Netemeyer *et al*., 2001).

The profile of the research participants

In this section, the demographic characteristics of the participants are analyzed. These characteristics include gender, age, educational level, professional status and work experience (Table 1).

Gender	Percentage %	Education	Percentage %
Men	44.0	Bachelor	58,6
Women	56.0	Postgraduate	36,6
		Phd	4,7
Age	Percentage %	Work Experience	Percentage %
≤25	0.9	<1 year	14.2%
26-35	4.3	1-5 years	19.0%
36-45	17.2	6-10 years	10.8%
46-55	47.4	11-15 years	14.7%
55-65	27.6	16-20 years	10.8%
>65	2.6	>20 years	30.6%

Table 1. The frequency distribution of socio-demographic characteristics of the sample (N=232)

RESULTS

A significant percentage (40.9%) of the executives of the Greek Forest Services did not know the concept and purposes of digital transformation (Fig.1), This lack of awareness is notable given that Greece has, for years, implemented a National Strategy for Digital Transformation. This strategy includes actions aimed at developing digital infrastructures, strengthening the digital skills of citizens and improving governance. The remaining percentage (59.1%) who had some knowledge about digital transformation answered 62.9% that it mainly concerned the utilization of Information and Communication Technologies (ICT) for more efficient service provision and for developing the organizational culture.   The crosstabulation analysis showed that knowledge about digital transformation depends on gender (X_2=4.365, df=1, a<0.05) and age (X_2=12.894, df=5, a<0.05). Specifically, men know more about the subject of digital transformation than women with a rate of 60%. Additionally, the youngest group (25-36 years old) exhibited higher knowledge levels. However, this knowledge is independent of the level of education and the region in which they live. Thus, the central hypothesis of the research is confirmed.
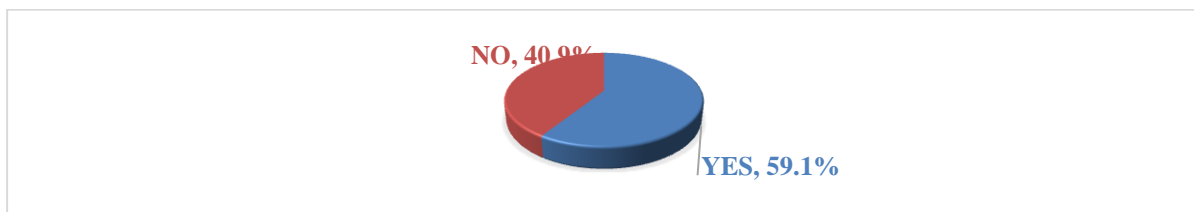
Figure 1. Knowledge of the digital transformation of employees of Forest Service

The factors considered most important to facilitate the adoption of innovative digital technologies in the Forest Service, on a Likert scale (1-5, 1=Very much, to 5=Not at all) mainly showed in order of importance (Table 2): the availability of personnel with the appropriate knowledge/skills (Mean = 1.73, S.D.= 0.907), public funding through targeted programs (Mean = 1.81, S.D.= 0.957), sufficient information about new technologies (Mean = 1.84, S.D. = 0.936), as well as the availability of technical infrastructure (broadband networks, 5G, cloud infrastructure) (Mean = 1.94, S.D. = 1.063).

Because the above-mentioned factors in Table 2 seem to be mutually influencing, a correlation analysis was performed with the Pearson correlation coefficient (Pcc) criterion and the results of this showed (columns 5-9) that, at a significance level of 0.01, the followings: a) Public funding through targeted programs has a statistically significant effect on adequate information about new technologies (r=0.745**, df=232, p<0.001), b) The availability of specialized structures and services to support organizations positively enhances the availability of technical infrastructures (broadband networks, 5G, cloud infrastructures) (r=0.784**, df=232, p<0.001), but also the sufficient information of executives about new technologies (r=0.734**, df=232, p<0.001).

	N	Mean	S.D.	Pearson Correlation				
				[1]	[2]	[3]	[4]	[5]
[1] Availability of employee with appropriate knowledge/skills	232	1,73	0,907	1	,669**	,659**	,549**	,581**
[2] Public funding through targeted programs	232	1,81	0,957	,669**	1	**,745****	,725**	,666**
[3] Adequate information about new technologies	232	1,84	0,936	,659**	,745**	1	**,734****	,697**
[4] Availability of technical infrastructures (broadband networks, 5G, cloud infrastructures)	232	1,94	1,063	,549**	,725**	,734**	1	**,784****
[5] Availability of specialized structures and services to support organizations	232	1,93	0,997	,581**	,666**	,697**	,784**	1
**. Correlation is significant at the 0.01 level (2-tailed).								

Table 2. Correlation analysis (Pearson correlation) of the factors that facilitate the adoption of innovative digital technologies in the Forest Service (Scale 1-5: 1= Very much, 2= Much, 3= Moderate, 4= A little and 5= Not at all)

For the implementation of digital transformation in a public organization, it is necessary to have the appropriate digital infrastructures (broadband networks, 5G, cloud infrastructures, computers, internet, servers, peripheral systems, etc.). To determine the degree of readiness of the Forest Service for the introduction and operation of the digital transformation, in a related question formulated, a significant percentage (48.3%) of the respondents stated that their systems are partially upgraded, while 33.2% of them state that these are not upgraded and therefore their Service is not mature for the introduction of digital transformation (Fig. 2**).** Based on the above, the H$_1$ research hypothesis is confirmed.
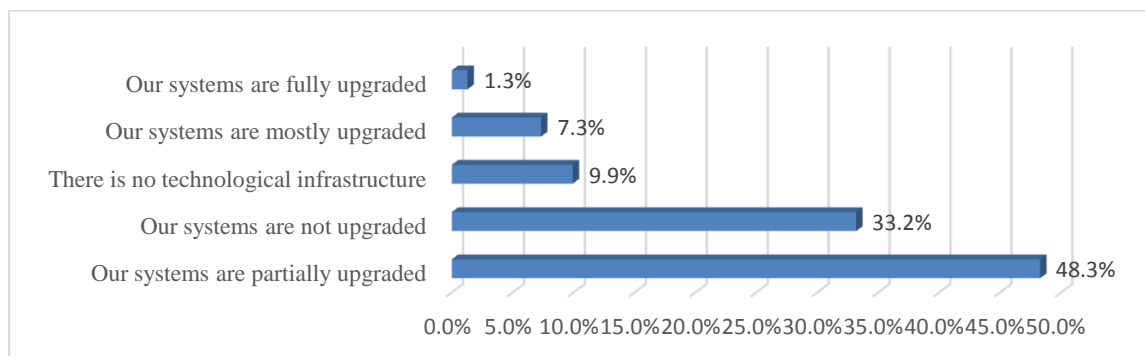
Figure 2. Current Status of Digital Systems in the Forest Service

The adoption and implementation of digital transformation in the Forest Service that is rated on a Likert scale (1-5, where 1=Very much, to 5=Not at all) and it will create a culture that will rely on public sector data and ensure coherent use of digital technologies in politics and governance (Mean=2.22, S.D.=0.925), improve collaborations (Mean=2.28, S.D.= 0.910), improve social inclusion (Mean=2.64, S.D.= 0.915), as well as improve government accountability (Mean = 2.69, S.D. = 1.093). One Way Anova test (F=1.617, Sum of Square =52.582, df=42, p=0.017<0.05) showed that there are statistically significant differences in the means between the variable of years of experience of Forest

Service executives and the creation of a culture which will be based on public sector data and will ensure the coherent use of digital technologies in the policy and governance areas, in the context of digital transformation. As a result, the H$_2$ research hypothesis is confirmed.

In particular, the areas in which forest digital transformation can help on a Likert scale from 1-5 (where: 1= Very much, 2=Very much, 3=Moderately, 4=A little and 5=Not at all), are (Table 5): in the creation of maps and information of soil properties, groundwater depth (Mean=1.88, S.D.= 0.871), in the application of real-time monitoring of the forest environment in terms of monitoring fire accidents (Mean=2.07, S.D.= 0.955) , as well as monitoring forest's fauna and flora (Mean=2.13, S.D.= 0.860).

Because the forest aspects that can be improved by the forest digital transformation during the operation of the Forestry Service in Table 3, seem to influence each other to a greater or lesser degree, a correlation analysis was conducted using the Pearson correlation coefficient (Pcc) criterion. The results showed (columns 5-14), at a significance level of 0.01, the followings: a) Monitoring of the fauna and flora of the forest with the forest digital transformation has a statistically significant effect on both the continuous assessment of the vegetation (r=0.730**, df= 232, p<0.001), as well as the application of real-time forest environment monitoring for fire accident monitoring (r=0.705**, df=232, p<0.001), and real-time logging monitoring (r=0.633**, df=232, p<0.001), b) Providing quality control data for artificial forest regeneration positively enhances the creation of maps and information of soil properties, groundwater depth (r=0.659** , df=232, p<0.001), and c) Marketing of forest ecosystem services contributes positively to highlighting recreational role of forests (r=0.11**, df=232, p<0.001).

Forest objects	N	Mean	Std. Dev.	Pearson Correlation									
				[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
[1] The application of real-time monitoring of the forest environment in terms of monitoring fire accidents	232	2,07	0,955	1	,705**	,646**	,597**	,563**	,603**	,477**	,454**	,474**	,506**
[2] The monitoring the fauna and flora of the forest	232	2,13	0,860	**,705****	1	**,730****	,633**	,603**	,617**	,563**	,498**	,561**	,532**
[3] The continuous assessment of vegetation,	232	2,18	0,927	,646**	,730**	1	,602**	,563**	,559**	,616**	,452**	,508**	,579**
[4] Logging monitoring in real time	232	2,34	1,045	,597**	,633**	,602**	1	,560**	,504**	,569**	,336**	,541**	,474**
[5] The support services for making smart decisions	232	2,21	0,907	,563**	,603**	,563**	,560**	1	,520**	,588**	,410**	,528**	,567**
[6] the creation of maps and information of soil properties, groundwater depth	232	1,88	0,871	,603**	,617**	,559**	,504**	,520**	1	**,659****	,557**	,370**	,487**
[7] Providing quality control data for artificial forest regeneration	232	2,24	0,971	,477**	,563**	,616**	,569**	,588**	,659**	1	,479**	,550**	,550**
[8] Keeping financial books, invoicing	232	2,28	0,973	,454**	,498**	,452**	,336**	,410**	,557**	,479**	1	,446**	,592**

[9] Recreational role of forests	232	2,52	1,048	,474**	,561**	,508**	,541**	,528**	,370*	,550**	,446**	1	**,711****
[10] The marketing of forest ecosystem services	232	2,34	0,998	,506**	,532**	,579**	,474**	,567**	,487**	,550**	,592**	,711**	1
**. Correlation is significant at the 0.01 level (2-tailed).													

Table 3. Pearson correlation analysis of the factors that forest digital transformation can improve in the operation of the Forest Service (Scale 1-5, where: 1= Very much to 5= Not at all)

We found the degree of use of certain basic applications and programs in the Forestry Service interesting, as they will primarily aid in the implementation of forest digital transformation (Table 4). So on a Likert scale from 1-5 (where: 1= Very much, 2=Very much, 3=Moderately, 4=A little and 5=Not at all), the Table shows that the most used digital applications are: forestry maps (Mean=1.72, S.D.= 1.106), which are fundamental tools of almost all the Forestry Services of Greece, for drafting the forestry and land register, the DIAVGEIA and IRIDA programs (Means=1.84 and 1.85, respectively), the applications GPS and GIS (Geographic Information Systems) (Means=2.22 and 2.32). Of course, it is worth noting that the modern technologies such as path and poaching detection systems, drones and electronic calipers are used very little, if at all (Means=4.12, 4.14, 4.17 and 4.21 respectively). Thus the 3rd research question is confirmed to a significant extent.

Forestry applications	N	Mean	Std. Deviation
Forestry map	232	1.72	1.106
DIAVGEIA	232	1.84	1.232
IRIS 2.0	232	1.85	1.312
GPS	232	2.22	1.361
GIS	232	2.34	1.438
AutoCAD	232	2.43	1.473
Posting of EPEA decisions or characterization acts	232	2.58	1.572
Publicity of Public Contracts (KIMDIS)	232	2.77	1.522
Method of calculating the value of forest land forest value app	232	2.86	1.435
Digital signature	232	2.87	1.543
Digital Transaction of Expenses	232	2.88	1.556
Codification of Forestry Legislation	232	2.88	1.444
Application for Natura areas, etc.	232	3.08	1.463
Application for tender procedures (ESIDIS)	232	3.11	1.495
Digital conferences	232	3.12	1.184
Application for vegetation, slopes, elevations	218	3.60	1.389
Social media of Forest Services	232	3.68	1.381
Copernicus application	232	3.70	1.415
Automated resource's management	232	3.76	1.289
Forest digital management application	232	3.77	1.347
E-pde	232	3.81	1.389
detection systems of Forest fire	232	4.02	1.340
Greek Forest	232	4.03	1.330
Path detection systems	232	4.12	1.263

Systems for detecting incidents of illegal logging & poaching	232	4.14	1.270
Drones	232	4.17	1.287
Electronic calipers	232	4.21	1.280

Table 4. Degree of the use of IT applications and forest digital transformation programs in the Forest Service (Scale 1-5, where: 1= Very much to 5= Not at all)

DISCUSSION – CONCLUSION

Although in recent years the digital transformation based on digital technologies and digital data is evolving to a very large extent and it is supported and financed by the Recovery Fund, while recently the European Commission (2021) presented its vision for the Digital Transformation of Europe by in 2030, the Forest Services of quite advanced countries in the field of forestry, such as in Scandinavia, Germany, Russia, etc. have begun to adopt elements of digital transformation only in the last 1-2 years (Bespalova, et al., 2021; Holmström, 2020; Jäntti and Aho, 2024; Kankaanhuhta, et al., 2021; Pleger and Schiering, 2023).

In Greece, the present research showed that a significant percentage of Forestry Service's executives are still unaware of the concept and purposes of digital transformation, although the country has implemented the National Strategy for digital transformation, which includes actions for development of digital infrastructures which strengthen the digital skills of citizens and the improvement of digital governance (Kassimatis and Papadopoulou, 2021; Oikonomopoulos, 2022; Pramatari and Theotokis, 2019;Vassilakis and Xenos, 2020).

Although there is a pressing need for the of digital transformation in a public organization, like the Forestry Service, the digital economy is imperative (Ghobakhloo, 2020; Javaid et al, 2022) and it is necessary to have the appropriate digital infrastructures (broadband networks, 5G, cloud infrastructures, computers, internet, servers, regional systems, etc.). Unfortunately this modern technology has hardly been adopted by the Forestry Service and therefore its degree of readiness for the introduction and operation of the digital transformation will require significant effort and reinforcement from the State and its executives, as it will benefit not only the organization but also the ecosystem environment by increasing the transparency of operations (Jäntti and Aho, 2024), and create new opportunities related to an integrated end-to-end flow of digital information throughout the value chain (Holmström, 2020).

Our research also underscored that digital technology for continuous improvement and development of goods or services is a crucial development strategy (National Center for Documentation and Electronic Content, 2022) contributing positively to the reorganization of the Forestry Service's

processes, based on new digital technologies, and significantly improving its communication with citizens.

The adoption and implementation of digital transformation in the Greek Forestry Service are pivotal in fostering a culture based on public sector data and ensuring coherent use of digital technologies in policy and governance, while enhancing partnerships, social inclusion, and government accountability.

The necessity of the transition of the Forestry Service to a modern digital economy and society is now considered as imperative in the context of shaping an Industry 4.0 development model, as emphasized in related research by Ghobakhloo, (2020) and Javaid et al (2022).

Smart forestry based on the digital transformation and utilizing artificial intelligence (AI) will greatly improve the efficiency of protection, management and promotion of forests thereby decisively reducing environmental impact (Ehrlich-Sommer et al., 2024; Project Smart Forest Innovation Challenge 2022).

In particular, the research also highlighted that, through digital transformation, the digital monitoring of forest fauna and flora significantly influences both the continuous assessment of vegetation and the application of real-time monitoring of the forest environment in terms of monitoring fire accidents and monitoring logging in real time. Additionally, marketing forest ecosystem services contributes positively contributes to highlighting the recreational role of forests.

Given that significant portion of the sample of Forestry Service executives across Greece was informed through this research, about new insights into digital transformation, it is considered appropriate that the Ministries of Environment and Energy, as well as Digital Governance, take the results seriously for effective implementation of digital transformation in the Forestry Service. For this purpose, conducting personal interviews with senior officials from these ministries to determine necessary adoption measures for digital transformation is deemed appropriate. Furthermore, continuing literature reviews to explore best practices in forest digital transformation globally is recommended. This research should extend to creating a measurement model or framework to assess the performance of digital transformation in Forest Services towards achieving smart forest, as it has been done in Finland (Kankaanhuhta, et al. 2021). Lastly, it is suggested to investigate the situation of the other Public Services of Greece in order to extract particularly important results and to make a comparative evaluation (benchmarking) for the entire Public Sector in the issue of digital transformation.

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ASSESSING THE BENEFITS OF A BLOCKCHAIN-BASED WINE SUPPLY NETWORK TO COMBAT WINE FRAUD

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ABSTRACT

Food fraud is a growing economic problem. Cases are on the rise, particularly affecting wine and olive oil. One potential reason for this increase is the increasing complexity of supply chains, which complicates fraud detection and prevention. This study investigates the economic benefits of blockchain-based anti-counterfeiting solutions in the wine supply chain and comparing them to traditional methods. Utilizing an integrative literature review and a cost-benefit analysis, the research highlights that while blockchain technology offers long-term benefits like enhanced transparency, market trust, and brand loyalty, it requires higher initial investment and ongoing costs. Traditional solutions, though simpler and less costly initially, fall short in achieving the same level of anti-counterfeiting efficiency and supply chain transparency. This study enhances the understanding of anti-counterfeiting strategies in the wine industry. For managers the cost-benefit framework can guide them to plan effective measures that ensures product authenticity and integrity.

Keywords: wine fraud, cost-benefit analysist, supply chain, blockchain, wine industry

INTRODUCTION

The economic impact of wine counterfeiting is a serious issue affecting both the wine industry and consumers. While the exact scale of wine fraud remains unknown, numerous articles, both for general audiences and scientific communities, have cited that up to 20% of wines may be counterfeited (Anson, 2022). However, the sources of these estimates remain unclear. The problem of wine counterfeiting stretches back centuries, with methods ranging from simple quality improvement measures to sophisticated counterfeiting. Modern wine fraud can include diluting wine, marketing cheap red wine as luxury products, and includes prominent cases such as that of Rudy Kurniawan, who forged a significant number of wines (Gibb, 2023). Beyond the economic impact, these fraudulent activities pose health and safety risks to consumers, can damage the reputation of producers and wine-growing regions, and can even have negative environmental impacts.

Consumers nowadays require information about the origin, quality, and supply chain journey of the products they consume (Saitone and Sexton, 2017). Central to this issue is the concept of trust in supply chains, essential in an industry where authenticity and provenance are critical and trust builds on the competence, honesty, and reliability of stakeholders (Sahay, 2003). Trust is built over time between producers and consumers and is essential for maintaining the value and reputation of wine (Psychogiou and Tsoulfas, 2024). Fraudulent activities undermine this trust, causing significant economic and reputational damage. For producers, retailers, and consumers, ensuring the authenticity of wine is of high importance for maintaining trust in the wine industry.

In response to these challenges, various technologies have been developed to combat wine fraud, aiming to ensure the authenticity and integrity of wine products. In the field of information technology, innovative solutions such as blockchain and zero-knowledge proof (ZKP) surface as promising solutions for wine authentication. Blockchain emerges as a reliable technology to combat counterfeiting in the wine industry. By providing a decentralized and immutable ledger, blockchain ensures that every transaction related to a bottle of wine is transparently recorded and cannot be changed. This transparency creates a trustworthy record of the path the wine takes from vineyard to consumer. With blockchain, each bottle can be tracked and verified, significantly reducing the risk of counterfeiting and increasing consumer trust. Zero-knowledge proofs (ZKP) have the potential to further enhance the blockchain solution in combating wine counterfeiting. ZKP allows one party to prove to another that a statement is true without revealing any specific details. This results in enhancing the privacy while maintaining trust and authenticity. The integration of ZKP with blockchain could provide a secure, private, and verifiable method to confirm the originality of wines.

The study is based on a theoretical framework for how blockchain technology can combat counterfeiting, drawing on the dynamic capabilities of the Resource-based view (RbV) theory. The Resource-based view of the firm is a widely recognized theory of strategic management (Barney, 1991). Dynamic capabilities build upon the RBV, highlighting that for firms to maintain competitive advantage in fast-changing markets, it's not enough to just have quality resources. They also require dynamic capabilities to incorporate, organize, and reconfigure internal and external resources to cope with swift changes in markets and technologies (Teece et al., 1997). With counterfeiting issues and a crisis of trust in the marketplace, wine companies need to improve product traceability and consumer confidence to maintain and enhance their competitive advantage.

An aspect revealed during the literature review is the significant gap in research on cost-benefit analysis related to the use of technology to combat wine fraud. As blockchain provides a new

opportunity to reconfigure traditional wine supply chain relationships the costs to implement and operate fraud-combating solutions must be taken into consideration as they can impact the decision-making process. Therefore, this study presents a cost-benefit analysis as part of a financial framework comparing blockchain-based anti-counterfeiting solutions with traditional methods. As a result, the following research question was formulated:

RQ1: How do blockchain-based solutions compare to traditional methods for combating wine fraud from an economic perspective?

The results of the study indicate that blockchain-based anti-counterfeiting solutions offer substantial long-term benefits such as enhanced transparency, increased consumer trust, and improved brand loyalty. However, these solutions require a higher initial investment and ongoing operational costs. Traditional solutions may have lower initial costs and be simpler to operate but often fall short in providing the anti-counterfeiting and supply chain transparency that blockchain can achieve.

LITERATURE REVIEW: COUNTERFEITING IN THE WINE INDUSTRY

2.1 Overview and supporting data

The World Trade Organization defines counterfeiting as the unlawful application of a trademark to products that are identical or similar to those for which the trademark has been legally registered, intended to mislead consumers into thinking they are purchasing authentic items (WTO, 2019). The issue of counterfeiting within the wine supply chain has been a longstanding and ongoing concern for both stakeholders in der wine industry and consumers. Various forms of fraud, including the use of substandard raw materials, dilution, alteration of packaging contents, and falsification of packaging and labels, are identifiable at different points in the wine supply chain (Gayialis et al., 2022).

Unlike other commodities and luxury goods, wine is subject to rigorous regulation, primarily because of health concerns and its significant contribution to government tax revenues (Lecat et al., 2017). Despite this strict regulatory environment, the issue of counterfeit wine persists. According to a study conducted by the European Union Intellectual Property Office (EUIPO, 2019), the annual sales of wine and spirits in the European Union amounted to approximately 38 billion euros. However, the prevalence of counterfeit products leads to an estimated annual revenue loss of 1.3 billion euros, which accounts for about 3.3% of the total market. In 2020, seizures of counterfeit alcoholic beverages in Europe exceeded one million liters, rising to over 1.7 million liters in 2021, primarily wine, during operations regularly spearheaded by the European Anti-Fraud Office (OLAF) as part of the Europol-

Interpol joint OPSON operations (OLAF, 2021). Estimating the proportion of counterfeit wines is deemed highly challenging, as wines fall under the broader food and beverage sector, where data is often ambiguous. The vast diversity within the wine industry further complicates this issue, underscoring the necessity for more granular segmentation within the sector. Moreover, the counterfeiting of exportable wines frequently occurs within the producing country's borders before export, which further complicates the detection of such counterfeit products (Gayialis et al., 2022). However, some scholars have estimated that counterfeit wines may constitute approximately 20% of the global wine market. For instance, Romano et al. (2021) conducted an analysis of fraudulent activities in the Italian wine market from 2007 to 2015, estimating that such activities accounted for 25% of the market. The figure of 20% counterfeit wine is also cited in various sources, including a report by Business Insider in 2021 (Hellman, 2021). This statistic likely pertains only to the most renowned wines, rather than the entire market. A prime illustration is the case of the 1982 Lafite-Rothschild, where the quantity of bottles sold exceeded the number originally released (Lecat et al., 2017). Unlike spirits and beer, the production of wine is highly dependent on weather conditions, leading to potential scarcity. This variability in production, coupled with the presence of counterfeit wines in the market, creates a dilemma in distinguishing authentic wines from fakes. Such a disparity between supply and demand opens avenues for fraudulent activities (Lecat et al., 2017). Wine fraud and counterfeiting have long plagued the wine industry, with forgers continually devising novel methods of imitation. Producers, in response, have increasingly turned to modern technologies to combat these fraudulent practices. The growing importance of traceability in fine wines has led to evolving dynamics between producers, who are keen to ensure the authenticity of their estate wines, and consumers, who are eager to receive the exact bottles they purchased. This challenge has transformed into a marketing opportunity for wine producers (Lecat et al., 2017). The wine industry faces a significant and multifaceted challenge of counterfeiting, impacted by factors like diverse production conditions, regulatory complexities, and market demand. Despite advancements in technology and rigorous regulations, counterfeit wines continue to pose a threat to both the industry's integrity and economic viability. Despite advancements in technology and stringent regulations counterfeit wines continue to pose a threat to the integrity of the wine industry. This persistent issue highlights the need for creative tools at every stage of the supply chain, from upstream to downstream to effectively combat upstream counterfeiting.

2.2 Upstream and downstream counterfeiting in the wine supply chain

The wine supply chain entails various processes and collaboration between different stakeholders. Wine production involves a series of steps transforming grapes into wine, including harvesting,

crushing, fermentation, pressing, aging, and bottling. The process begins with grape harvesting and progresses through various stages to the bulk wine distributor. Beyond production, additional stakeholders engage in bottling, transportation, warehousing, and retail distribution (Tokkozhina et al., 2021). The wine supply chain currently utilizes the 'Global Standard 1' (GS1) barcode system, which requires stakeholders to provide specific information at each stage of the supply chain. This information includes vineyard details, grape variety, and contract specifics from grape growers; identification of wine producers and products, along with batch numbers; container codes for bulk distributors; product and container identification and wine quality for transit cellars; pallet codes and dispatch locations for distributors; and item numbers, lot numbers, and packaging dates for retailers (GS1, 2005).
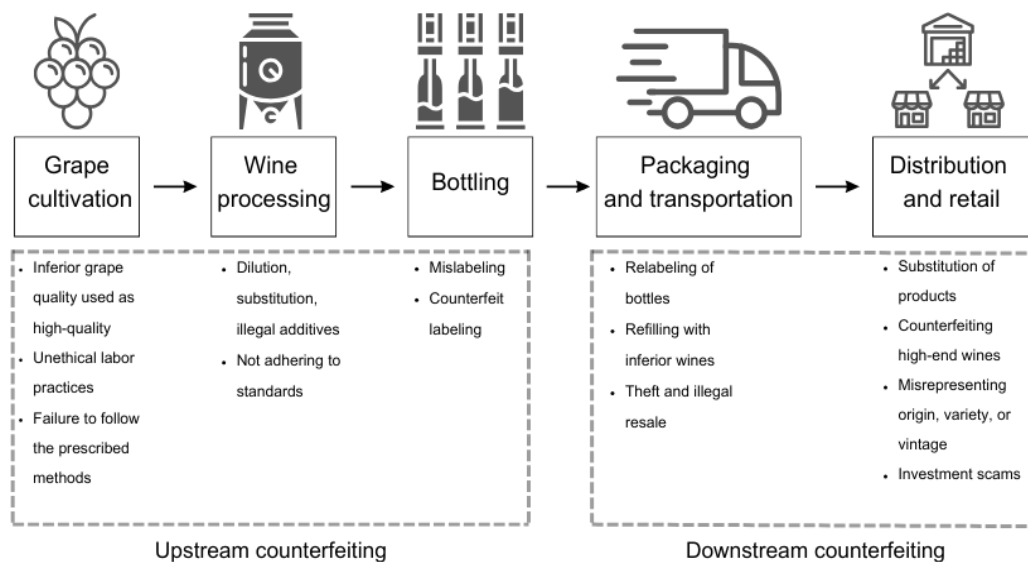
Figure 1. Wine supply chain and potential counterfeiting activities

Counterfeiting activities can originate from various segments within the supply chain. Concerning the potential for fraud, the initial three stages of the wine production process—grape cultivation, wine processing, and packaging—are considered particularly significant. The key players in these phases are the grape growers, winemakers, and bottling operators (Romano et al., 2021). For instance, grape growers might sell lower quality grapes as coming from more esteemed vineyards. During fermentation or aging, risks include dilution, substitution, or illegal additives. Bottlers might engage in mislabeling, while packers and transporters could substitute or mix wines. At the importer or distributor level, the potential for fraud extends to investment scams, counterfeiting, and further substitution of products (Lee, 2022). Common types of wine fraud in the supply chain include dilution with water or cheaper wine, substitution with inferior or artificial products, illegal additions to enhance appearance and taste, relabeling to mimic prestigious brands, misrepresenting wine's origin,

grape variety, or vintage, counterfeiting high-end wines, theft and illegal resale, and investment scams like Ponzi schemes targeting buyers (Lee, 2022).

In the context of counterfeiting, a differentiation is drawn between "upstream" and "downstream" activities. Upstream counterfeiting involves violations in sourcing and production, such as not adhering to international or national production standards or misrepresenting product characteristics, including unethical labor practices and failure to follow organic, vegan or eco-friendly methods (Danese et al., 2021). One case of upstream counterfeiting is the March 2008 "Brunellopoli" scandal, in which Brunello di Montalcino producers were accused of illegally blending other grape varieties into wines labeled as 100% Sangiovese, allegedly to increase yields and profits (VinoWire, 2008). Downstream counterfeiting takes place in distribution and retail, defined by practices such as counterfeit labeling, relabeling of bottles, or refilling with inferior wines (Danese et al., 2021). An illustration of this kind of fraud is the well-known case of Rudy Kurniawan, who was apprehended on March 8, 2012, and indicted for fraudulent activity. Kurniawan acquired a significant amount of wine from Burgundy merchants and changed the labels to make them appear as more expensive wines (Steinberger, 2012). Figure 1 illustrates the main stages in the wine supply chain and the possible fraudulent activities at each stage, distinguishing between upstream counterfeiting and downstream counterfeiting.

2.3 Traditional anti-counterfeiting solutions

Various technological solutions exist to prevent counterfeiting. Lecat et al. (2017) outline six anti-counterfeiting techniques. These include tamper proofing for product integrity, visible features like holograms, covert features requiring specialized detection, forensic analysis involving physical and biological markers, logistics-derived track and trace technologies, and tamper-evident procedures such as seals (Lecat et al., 2017). Regarding traditional methods of combating counterfeiting within the wine industry, Danese et al. (2021) conducted a more in-depth analysis. They have discovered three general categories that companies use to reduce product counterfeiting, depending on the applicability of addressing upstream and/or downstream counterfeiting. These categories are measures related to product and packaging, customer education and information, and measures related to processes (Danese et al., 2021).

 Downstream Counterfeiting Measures:

- Product/Packaging-Related Measures: These are designed to enhance the complexity of replicating original products or packaging, incorporating overt technologies like holograms, watermarks, and

seals, along with covert technologies such as machine- readable inks and hidden messages (Li, 2013). Despite their sophistication, these measures have limitations, such as being unsuitable for the average consumer and requiring the involvement of certification agencies or law enforcement services in the certification process (Li, 2013). Additionally, they can be vulnerable to cloning, which may facilitate the reuse of authentic packaging for counterfeit goods (Pustjens et al., 2016), while upstream counterfeiting is difficult to prevent (Danese et al., 2021).

- Customer Information/Education-Related Measures: Aimed at empowering consumers and intermediaries with the knowledge to distinguish genuine from counterfeit products, these measures focus on the dissemination of information (Stevenson and Busby, 2015). However, their effectiveness can be limited by the end-users' ability to comprehend and apply complex information, which poses a substantial obstacle (Lybecker, 2007). And customers have no chance of knowing whether unfair practices have been identified before the product is sold (Danese et al., 2021).

Upstream Counterfeiting Measures:

- Process-Related Measures: On-site audits verify that production processes and product consistency meet safety and quality standards through external evaluations. These evaluations include chemical and physical assessments, as well as organoleptic evaluations. Advanced techniques, such as laser surface profiling, DNA analysis, and isotopic examination, are utilized to ensure the authenticity of the products (Berman, 2008). Such measures may not be practical for average consumers (Berman, 2008) and are constrained to sampled analyses (Pustjens et al., 2016), when a product is released onto the market, these steps are ineffective at stopping counterfeiting, therefore not providing a comprehensive safeguard against counterfeiting (Danese et al., 2021).

Measures Addressing Both Upstream and Downstream Counterfeiting:

- Process-Related Measures: Track-and-trace systems have gained attention for their ability to provide comprehensive data on the origin of products and their compliance with safety and quality standards, thereby ensuring their authenticity (Biswas et al., 2017). Such systems commonly utilize well-recognized smart labels, such as QR codes and barcodes, as well as advanced tagging technologies, such as NFC and RFID tags, which facilitate the retrieval of product information via smartphones (Creydt & Fischer, 2019). Although innovative, these systems face challenges. The risk of tag duplication is present, where counterfeit goods may use the same smart labels (Lo et al., 2019). Moreover, the integrity of product data can be compromised due to possible unauthorized manipulation, especially since this data is usually centralized post-data entry (Biswas et al., 2017).

Furthermore, the effectiveness of these systems relies heavily on the accuracy of the input data, which, if not carefully verified through stringent controls and processes, can lead to the dissemination of false product information (Danese et al., 2021).

Traditional anti-counterfeiting solutions have seen innovations with different stages of development. However, the effectiveness of different measures to prevent counterfeiting and the level of protection upstream and downstream in the wine supply chain remains a challenge.

2.4 Blockchain-based anti-counterfeiting solutions

Combating counterfeiting is a potential application of BCT in the supply chain area. Research on and applications of BCT in different supply chain areas can be found in the literature. However, research on utilizing blockchain for preventing product counterfeiting is still in its nascent stage. Most existing studies are primarily at the initial exploratory phase or are largely anecdotal and descriptive. They often take a conceptual or purely technical approach, relying mainly on secondary data derived from isolated cases (Cole et al., 2019). There are several use cases for blockchain-based anti-counterfeiting solutions. For example, in early 2017, Alibaba and Australia Post investigated blockchain solutions to address food adulteration. Later that year, top global food and fast-moving consumer goods (FMCG) companies, such as Wal-Mart, Nestle, Dole, and Golden Food, collaborated with IBM to integrate blockchain into their supply chains, aiming to expedite the detection of supplier misconduct (Xiong et al., 2020). Since September 2017, China and the European Union have collaborated on the "EU-China-Safe" project, utilizing BCT to strengthen food safety regulation and combat food fraud. Arc-Net is a partner, creating a blockchain platform to track animal proteins at the source for improved transparency (Huang, 2017). According to the research (Cole et al., 2019), BCT has the potential to significantly reduce illegal counterfeiting by providing traceable information regarding a product's origin. This capability extends to various items such as food, pharmaceuticals, and minerals. Provenance, a UK-based startup, collaborates with companies to monitor the origins and trajectory of products, including details like production location, global movement, and storage conditions. Additionally, in a pilot project orchestrated by the World Wildlife Fund (WWF) in Australia, Fiji, and New Zealand, blockchain is utilized to document data gathered via RFID and QR code tags, managing the supply chain of tuna from ocean catch to consumer plate. However, challenges in implementing include its affordability for less affluent suppliers. Even major companies like M&S and Primark have only managed to integrate it up to the first-tier supplier level, indicating that a comprehensive deployment across the entire network presents significant obstacles (Cole et al., 2019). In the wine and spirits industry, Chai Vault is a company that provides anti-counterfeiting solutions based on BCT,

enabling buyers to verify a bottle's authenticity and provenance before purchase. This system utilizes certified authenticators globally to inspect and validate authentic bottles, subsequently recording this information such as thorough notes, photographs, and a unique identification or 'thumbprint' of each bottle during production or post-inspection on the blockchain as a permanent digital record (Chai Vault, 2020).

The literature review on counterfeiting in the wine industry highlights the extent and impact of counterfeiting, including both in the upstream and downstream realm of the supply chain. It compared traditional anti-counterfeiting methods with novel blockchain-based solutions, providing the background for a deeper analysis of these technological approaches in the next chapter.

METHODOLOGY

The methodology combines an integrative literature review with a cost-benefit analysis. The integrative literature review approach was chosen as this leads to the advancement of knowledge and contributes to the literature by developing theoretical frameworks, taxonomies, or classifications. Cost-benefit analysis is a systematic analytical process for evaluating the advisability of a project or program based on a comparison of benefits and costs, and for answering questions about the value and optimal size of a proposed project and related constraints. It involves identifying and quantifying costs and benefits and assigning a monetary value to them.

RESULTS AND DISCUSSION

To comprehend the economic implications of implementing BCT in the field of combating counterfeiting in the wine supply chain, based on the results of the literature analysis, the factors related to measuring the two solutions in terms of their costs and benefits are listed for comparison, and a cost and benefit framework was developed to highlight their economic impact, as shown in table 1. From a cost perspective, the initial setup costs for a blockchain-based anti-counterfeiting solution are higher compared to a tracking solution. This can be attributed to the development or implementation of blockchain infrastructure and NFC technology, regardless of whether one chooses a public or private blockchain, develops independent BCT, or seeks out providers that offer blockchain solutions. Tracking systems rely on standard technologies and processes, potentially resulting in lower initial costs. However, both systems come with ongoing operational expenses, and implementing BCT is considerably more expensive. Furthermore, the frequency and intensity of transactions have a significant impact on operational costs. Integrating blockchain into a company's

infrastructure requires substantial effort, particularly for those without preexisting digital infrastructure. Blockchain systems may result in added expenses due to transaction fees and third-party administration. Additionally, implementing blockchain, being a novel technology, may incur significant costs and a different timeline compared to traditional solutions. The application of BCT may also necessitate supplementary expenses for marketing and promotion.

In terms of benefits, BCT outperforms traditional systems because of increased transparency, and with the security provided by its immutable ledger, can be more effective than tracking systems in reducing the incidence of counterfeiting. As a result, losses due to counterfeiting are reduced. This is the most directly relevant benefit to the counterfeiting problem. Potential long-term gains in other aspects are one of the key factors in adopting a blockchain solution. Blockchain enables lower transaction costs compared to traditional systems. Traditional tracking systems may have limited direct interaction with consumers, with a focus on supply chain efficiency. A major advantage of traditional solutions is that standardized processes comply with legal norms and regulations, facilitating cooperation between stakeholders. By providing detailed product information and authenticity verification, Blockchain has the potential to enhance consumer engagement, thus increasing consumer trust and brand loyalty. Additionally, Blockchain can mitigate the adverse impact of counterfeiting issues on a company's reputation and increase brand value.

In summary, blockchain anti-counterfeiting solutions encompass a range of costs, such as initial setup, operational, implementation, security and risk management, marketing and adoption, and indirect costs. Among these, the initial setup, operational, and implementation costs are particularly significant. The benefits derived from these solutions are multifaceted, including direct economic gains, operational and strategic enhancements, market, and competitive advantages, as well as intangible benefits. In contrast, traditional solutions necessitate consideration of initial expenses, operating costs, and indirect costs. Their advantages lie primarily in authenticity verification, supply chain management, regulatory compliance, and positively influencing market perception. Due to the complex nature of the cost and benefit factors in both frameworks, the blockchain solution presents a diverse range of input costs and offers a spectrum of potential and long-term benefits. In contrast, the traditional solution shows a less complex cost structure and a narrower range of benefits, reflecting a different balance between investment and potential returns. To calculate net benefits, the incremental costs are subtracted from the incremental benefits. The benefits and costs are summarized in table 2.

To compare the net benefits of the two solutions objectively, it is necessary to calculate the difference between the value of the benefit-related factors and the cost-related factors for each solution. It's

important to note that the fulfillment of BCT's potential to eliminate intermediaries and reinforce decentralization largely hinges on the manner and entities responsible for its implementation (Henten and Windekilde, 2019). Wine companies can assign monetary values to relevant factors based on the actual instances of counterfeiting experienced and the timing of implementing chosen solutions. Following this valuation, they can proceed with calculations and subsequent evaluations.

While many studies proposed that blockchain has high input costs, Kshetri (2019) argue that, on average, the advantages of blockchain systems in food supply chains surpass their costs, yet these systems remain largely inaccessible to smaller firms within the industry. However, it is anticipated that the costs of blockchain implementation in the food sector will decrease over time, potentially making blockchain-based solutions more accessible to small and medium enterprises.

The potential challenges and risks of BCT should not be overlooked, despite its economic impact. In their study, Pearson et al. (2019) suggest that blockchain can aid traceability, offering brand security and enhancing public safety against food safety issues. However, BCT extends beyond tracking and holds a transformative role in various industries. Although they recognize the advantages, it is necessary to address challenges such as standardizing data, improving user accessibility, establishing governance, addressing issues of scalability and privacy, and addressing gradual adoption across the supply chain. These issues must be taken into consideration before adopting these technologies in the wine industry. a comprehensive understanding of aspects of costs, benefits, risks and challenges is necessary to make informed decisions regarding the adoption of new technologies.

	Blockchain-based anti-counterfeiting solution	Traditional anti-counterfeiting solution
Costs	lnitial Setup Costs: ·Blockchain infrastructure development or implementation ·So ftware development for integration ·Hardware for NFC tags •System integration for NFC tags Operational Costs: • Blockchaintransaction fees ·Ongoing system maintenance • Third-party management fees lmplementation Costs: ·lntegration with existing IT systems ·Technical Support Costs ·NFC tagging materiais and labor •Staff training for new technology •Compliance and legal consultancy Security and Risk Management Costs: ·Cybersecurity measures ·Data redundancy and storage Marketing and Adoption Costs: ·Consumer education campaigns ·Market differentiation initiatives lndirect Costs: •Downtime during transition •Scalability adjustments	lnitial Costs: •Development and integration of lhe GS1 system into existing processes. ·Scanning and printing bar code or QR code equipment ·Software for storing product details ·Cosi of upgrading product packaging Operational Costs: ·Maintenance of central databases •Staff training for system use and maintenance •Maintenance of scanning and other associated hardware. ·Development and maintenance of web or mobile interfaces for end-user access lndirect Costs: ·Additional costs originally incurred by counterfeiting
Benfits	Direct Economic Benefits: • Reduce lasses from counterfeiting ·Improve inventory and supply chain management efficiency Operational and Strategic Benefits: ·Transform supply chain operations and management ·Optimize supply chain performance •Long-term transaction cost savings •Better data analytics for business insights Market and Competitive Advantages: • Enhance brand reputation ·lncrease consumer trust and loyalty • Price premium realized by market differentiation lntangible Benefils: ·Position as an industry leader in innovation ·Contribute to overall industry standards	Authenticity Verification: ·Improve lhe certification process with limrted anti- counterfeiting effects ·Facilitate cooperation among stakeholders Supply Chain Management: ·Improve inventory tracking wrth simple integration •Enhance efficiency in logistics and distribution Regulatory Compliance: ·Easier compliance with international trade standards Market Perception: •Maintaining industry standard practices lntangible Benefits: ·Brand reliability •Provide a degree of consumer confidence

	for authenticity	
References	Pincheira et al. (2022). Amling et al. (2021), Demir et al. (2019), Richard et al. (2023), Kshetri (2019), Osmani et al. (2020), Rimba et al. (2020), Jabbar & Oani (2020), Xiong et al. (2020), Li, et al. (2020), Rainero & Modarelli (2021}, Tian (2017), Gatteschi et al. (2018), Dutta et al. (2020), Queiroz et al. (2019), Hasan et al. (2019), Westerkamp et al. (2019), Jamil et al. (2019), Salah et al. (2019), Bumblauskas et al. (2019), Behnke & Janssen (2019), Saberi et al. (2019), lvanov et al. (2019), Thiruchelvam et al. (2018), Tijan et al. (2019), Pournader et al. (2020), Catalini & Gans (2016), Henten & Windekilde (2020), Roeck et al. (2019), Longo et al. (2019), Galvez et al. (2018), Ko et al. (2018)	Kostanecki, (2016), Biswas et al. (2017), GS1 (2005), Dutta et al. (2020), Lo et al. (2019), Danese et al. (2021)

Table 2. Comparison of the costs and benefits of the two solutions

The contribution of this study to the theory is in enhancing the understanding of anti-counterfeiting strategies in the wine industry. It adds value to the academic field by providing a comprehensive cost-benefit analysis, offering new insights into their effectiveness and applicability to the wine supply chain. From a practical point of view, it provides stakeholders from the wine sector with insights and a robust framework to consider effective anti-counterfeiting measures, which can result in product authenticity and integrity.

CONCLUSION

This study aimed to investigate the economic benefits of blockchain-based anti-counterfeiting solutions in addressing the problem of counterfeiting in the wine supply chain and compare them to traditional anti- counterfeiting solutions. When considering the choice between BCT and traditional

solutions, it is not always obvious that blockchain will provide greater net benefits. A comprehensive assessment of multiple factors is required. The evidence supports that blockchain solutions offer significant long-term and diverse benefits, such as enhanced transparency, increased market trust, and improved brand loyalty. However, blockchain solutions demand greater initial investment and ongoing operational costs. Conversely, traditional solutions may offer lower initial costs and operational simplicity, but they may not achieve the anti- counterfeiting and supply chain transparency capabilities of blockchain solutions. The. evidence's strength lies in synthesizing information from various sources. However, it is crucial to acknowledge that research in this field is rapidly evolving, and new data can further calibrate these economic assessments. Future research could employ Monte Carlo simulations to be used in conjunction with NPV and IRR analysis to address uncertainties and diverse solutions. As a method for modeling realistic systems, it is one of the most useful scientific computational methods due to its simplicity and general applicability.

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CARTHAGE UNVEILED: "TRANSFORMING HERITAGE TOURISM THROUGH DOURB'IA IN A TURBULENT GLOBAL LANDSCAPE"

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ABSTRACT

Purpose: The aim of this study is to explore the significance of ICT, particularly mobile applications, in enriching cultural and heritage tourism experiences. The objective is to investigate the ways to optimize the cultural and heritage visit experience via mobile applications from the perspective of multidisciplinary experts.

Design/methodology/approach: a qualitative approach, utilizing individual semi-structured face-to-face interviews with experts in IT and cultural heritage tourism to gather insights on the "Dourb'ia" application. Seven experts were interviewed over a two-month period. The interviews focused on three main themes: the significance of archaeological sites, the impact of the "Dourb'ia" application on tourism, and recommendations for enhancing the visitor experience.

Findings: Post-health crisis, visits to archaeological sites declined in frequency and quality. "Dourb'ia" helps promoting heritage tourism through relaunching these visits, engaging tourist guides, and revitalizing the regional ecosystem. It enhances visitor experiences, attracts new audiences, and meets expert expectations for interactive, accessible information. Experts emphasized the need for engaging content and remote guided tours via avatars. Identified risks include access difficulties, user interface issues, and resistance from guides. To mitigate these, the study recommends ensuring an intuitive user experience, securing personal data, and developing strong communication strategies. Active involvement and incentives for guides are crucial for the application's success.

Practical implications: This study highlights the importance of archaeological sites in cultural heritage tourism, emphasizing their preservation and promotion. It demonstrates the effectiveness of mobile applications, like "Dourb'ia," in enhancing tourist engagement and autonomy, and supports the recovery of tourism sectors. The findings underscore the potential of digital tools to drive economic and cultural revitalization, providing valuable insights for sustainable tourism strategies.

Originality/value: This paper uniquely integrates digital tools into cultural heritage tourism through the "Dourb'ia" application. It underscores the importance of preserving archaeological sites and demonstrates how ICT can enhance visitor engagement and support tourism recovery. The study offers practical recommendations for using technology to create a sustainable tourism ecosystem, highlighting the potential for digital applications to drive economic and cultural revitalization.

Keywords: Carthage, Dourb'ia, Digitalization, Mobile Technology, Economic revitalization, Sustainable tourism, Tourism Experience innovation

INTRODUCTION

Heritage tourism, linked to the preservation of the past, encompasses various natural and cultural elements. Archaeological sites contribute economically by attracting visitors motivated by authenticity and discovery (Santa Cruz *et al.*, 2017; Cudny *et al.*, 2022). In recent years, technology has profoundly changed our lives, providing cultural venues with the opportunity to modernize their offerings through technological advancements (Sigala, 2018; He *et al.*, 2018). Information and Communication Technologies (ICTs), such as mobile applications and social media, have transformed visitors' perception and interaction with cultural heritage (Tscheu and Buhalis, 2016; Hausmann *et al.*, 2021). In this evolving context, understanding how ICT can enhance the cultural and heritage tourism experience becomes essential.

The aim of this study is to explore the significance of ICT, particularly mobile applications, in enriching cultural and heritage tourism experiences. The objective is to investigate the ways to optimize the cultural and heritage visit experience via mobile applications from the perspective of multidisciplinary experts.

Technological advances, particularly ICT, make it possible to personalize tourist experiences, promoting fun and entertaining learning (Pantano and Corvello, 2014; Elshaer *et al.*, 2024). They improve the appeal of cultural monuments by helping tourists to better understand the heritage and enrich their experience (Tscheu and Buhalis, 2016). However, research on tourism autonomy is limited, and the use of ICT in cultural tourism is still at an early stage, with an information gap between visitors' expectations and what providers can offer (Wang *et al.*, 2016). It is crucial to integrate the perspectives of experts and suppliers to guide the sector holistically, including exploring the importance of ICT, particularly mobile applications as tourist guides, to enhance cultural and heritage tourism experiences (Tscheu and Buhalis, 2016; Cranmer *et al.*, 2020). In this context, this research addresses the following issue: how can the cultural and heritage visit experience be optimized via

mobile applications, according to multidisciplinary experts? To respond to this problem, an exploratory qualitative study was developed with multidisciplinary experts around a novice virtual tourist guiding application "Dourb'ia" dedicated to visiting the archaeological site of Carthage. The study centers around experts' understanding of the importance of archaeological sites as a component of cultural heritage. Particular attention is paid to the opinions of experts on the "Dourb'ia" application and its role in relaunching the activity of visits to archaeological sites. Additionally, the study looks at how the application can help boost the regional ecosystem surrounding archaeological sites by promoting cultural heritage tourism. Among the objectives is the identification of experts' expectations, thus determining the potential designation of "Dourb'ia" as a preferred tool to guide and satisfy visitors exploring the archaeological sites of Carthage. The research also seeks suggestions and recommendations from experts regarding possible improvements to the application to optimize the experience of both regular visitors and to attract new audiences. At the same time, the study evaluates the importance of the involvement of tourist guides in the experience of the application, finally exploring the potential risks of failure of the "Dourb'ia" application which must be prevented.

THEORETICAL REVIEW

Cultural heritage tourism: a form of tourism with its own requirements: Cultural tourism encompasses a diversity of definitions, ranging from personal enrichment to the search for new authentic and cultural experiences (Debeş and Taçgey, 2020; Ruhanen *et al.*, 2021). An essential component of this type of tourism is heritage, including both tangible elements such as historical monuments, museums and archaeological sites, and intangible elements such as traditions, festivals and techniques (Origet Du Cluzeau, 2013). This cultural heritage, whether tangible or intangible, is of undeniable artistic or historical importance and is preserved and presented to the public by public or private entities (Duthion and Walker, 2014).

The cultural heritage tourism market: needs, demand and motivations of visitors: The demand for heritage tourism is influenced by a variety of factors, including a growing awareness of heritage, the ability to immerse oneself in historic environments, financial affluence and access to the arts, and the need to transcend contemporary experiences to meet psychological needs for continuity (Adongo *et al.*, 2017). Heritage experiences are a priority for many travelers, highlighting the importance of history in their motivation to travel (Rasoolimanesh *et al.*, 2021). The value of cultural heritage lies in its ability to integrate the tangible and intangible meanings of historical and cultural sites (Lee *et al.*, 2010). This motivation to understand and make sense of cultural exposure attracts millions of tourists to cultural destinations each year (Li, 2014), thereby spurring the growth of cultural tourism due to the growing demand for travel fueled by economic growth (Ismagilova *et al.*, 2015). Learning, enjoyment,

and escape are key motivations for visitors to heritage destinations. Understanding the entire tourist experience in these cultural destinations is therefore essential to meeting visitor expectations. In heritage tourism marketing, strategies are often focused on the short term and cultural positioning, emphasizing visitor spending and prolonging their stay (Pike, 2004). Attention is turning to market segmentation to better understand diverse groups of heritage visitors (Tsiotsou and Vasaioti, 2006). This segmentation uses different variables such as demographics, motivation, activity, attitude, well-being, and acceptance of use (Caserta and Russo, 2002). However, this approach may neglect long-term strategies and aspects of research and education, essential for creating a culturally appealing representation of heritage and meeting the unique needs of visitors (Tsiotsou and Vasaioti, 2006).

Technology for cultural and heritage tourism experiences: Memorable tourism experiences (MTE) and tourism experiences in general are two concepts that are related, but have different meaning and scope (Zhang *et al.*, 2017). Experiences play a crucial role in travel journeys and are a direct result of the consumption of tourism products (Chen *et al.*, 2020). On the one hand, experience occupies an essential place in the field of tourism, because it is mainly based on intangible services. And on the other, the products and services of this industry are intrinsically linked to lived experience (Williams, 2006), and tourists experience it by staying in hotels, dining in restaurants, and visiting tourist destinations (Yuan *et al.*, 2008). Therefore, creating unforgettable experiences is very important for the tourism industry business. The rapid growth in the use of smartphones and their mobile applications has transformed the way the tourism industry interacts with travelers, with smartphones becoming essential tools for tourists (Dickinson *et al.*, 2014; Dias *et al.*, 2021). In cultural tourism, tourist destination apps play a crucial role in providing a comprehensive description of sites and contributing to the promotion of cultural heritage, which influences travelers' decision (Lerario *et al.*, 2017). For tourists, these applications facilitate the destination selection process and influence their behavior as consumers by enabling two-way communication, while they offer virtual tours and additional information according to their interests (Fang *et al.*, 2017). The advancement of self-motivated learning methods in cultural tourism includes the use of audio guides and personalized mobile applications, while the introduction of augmented (AR) and virtual reality (VR) offers new perspectives to improve the visitor experience (Raptis *et al.*, 2018). The effectiveness of these mobile guides depends on their integration into the overall context of the guided environment, including visitors, historical exhibits, and cultural or social aspects (Sung *et al.*, 2010). The design of these guides aims to foster close interaction between visitors and the context of the exhibitions, going beyond traditional visitor-computer interaction to encompass deeper interaction with the historical and cultural context (Bain and Ellenbogen, 2002; Li *et al.*, 2023). Thus, these technological advances aim to enrich the visitor experience by further immersing them in cultural and historical heritage. Technological advances in

the fields of information and communication technologies, such as social media, mobile applications, location services and augmented reality, have profoundly influenced tourism businesses as well as cultural and heritage stakeholders (Tscheu and Buhalis, 2016). These advances have facilitated tourists' access to an increasing amount of information adapted to their specific needs (Ndou, 2011), thus transforming their perception and interaction with cultural heritage (Were, 2014). For example, tourists use emerging technologies to share their experiences, creating direct competition with traditional promotional materials and influencing the choices of other travelers (Du Cros and McKercher, 2015). Service providers must therefore adapt to this transformation by becoming centers of communication and interactive information, taking advantage of the opportunities offered by digital technology (Lytras *et al.*, 2011; Tscheu and Buhalis, 2016). However, despite these advances, traditional tools such as brochures and guidebooks continue to dominate the practice of cultural and heritage tourism (Pröbstle *et al.*, 2016), although ICT has fundamentally changed the collection, storage, management, and distribution of information (Buhalis, 2003; Ali and Frew, 2013; Saydam *et al.*, 2022).

METHODOLOGY

Choice of Site: In 2018, the archaeological site of Carthage welcomed 300,000 visitors (Source: AMVPPC). The UN, in a 2012 report on the tourist management of Carthage, highlights the difficulty of reading the site, suggesting the need to make visible the link between its components. Currently, information on the site is generally obtained through maps or blue guides, often reserved for enthusiasts, or by hiring a human guide in advance. Signage on site is dilapidated, making access to information a personal challenge. However, a solution is emerging with the mobile tourist guidance application "Dourb'ia", created by a Tunisian multidisciplinary team. This application, focused on the archaeological site of Carthage, presents itself as an intelligent guide offering an experience enriched by real-time GPS navigation and varied multimedia content. "Dourb'ia" has a cultural and social impact, contributing to the United Nations Sustainable Development Goals, particularly in the areas of education, decent work, innovation and infrastructure, as well as in the promotion of sustainable cities durable. By promoting access to heritage through adapted content, by involving local guides and by creating a link between the monument and its ecosystem, the application addresses several aspects of the sustainable development objectives.

Methodological choices: A qualitative approach is recommended, given that the "Dourb'ia" application represents a major innovation in this context (Malhotra, 2014). For this preliminary phase, individual semi-structured face-to-face interviews were carried out, promoting greater openness (Gavard-Perret *et al.*, 2008). These interviews involved experts in IT and in the cultural and sustainable

heritage tourism sector, selected for their expertise in mobile applications and their in-depth knowledge of cultural tourism issues (Décaudin and Elayoubi, 2009; Evrard *et al.*, 2009) . An interview guide was prepared, addressing three main themes to understand the points of view, expectations and recommendations of the experts, covering the importance of archaeological sites, the impact of the "Dourb'ia" application on tourism, and recommendations to improve the visitor experience while avoiding the risk of failure.

Procedure:7 interviews with experts (appendix 1) were carried out, each lasted on average 1 hour. Contacting the various experts took 2 months given their commitments and took place between December 2022 and February 2023. The experts shared their opinions using either the Tunisian dialect or French, and they agreed to reveal their identities rather than remain anonymous. Following this approval from the participants, all interviews were fully translated and harmonized into French, then transcribed for subsequent analysis.

RESULTS ANALYSIS

For the analysis of semi-structured interviews, the method used is thematic content analysis (Paillé and Mucchielli, 2016), carried out using the NVIVO 12 plus software, recognized for the study of interviews or qualitative observations and based on a technique of decontextualization of the corpus, thus allowing the data to be explored in depth and interpreted in depth. To begin with, the 7 interviews with the experts were all transcribed in Word format, then exported to the NVIVO 12 plus software to create the study database. Then thematic coding was developed.to group similarities among the many answers obtained by each expert interviewed to facilitate the analysis and processing of the data.

Theme 1: The importance of archaeological sites in the promotion of heritage: This first theme aims to understand the importance of archaeological sites in Tunisia and the role they have in promoting national heritage, while evoking the dilemma of the decline in cultural and heritage tourism activity following the crisis. health conditions experienced in recent years.

The decline in the frequency and quality of visits following the health crisis: All experts affirm that there has been a remarkable and significant drop-in activity in the cultural heritage tourism sector, following the health crisis linked to Covid in recent years, which has been notable in frequency and in the quality of visits to archaeological sites. As an example, Azzedine declared: "I can say, as an eyewitness, that for the first time in thirty years the flow of visitors to the archaeological sites has practically stopped and that is because of Covid and the pandemic which changed everything. When the site is deserted, all economic activity linked to it is also suspended. ". And in the same context, Nejib, a retired archaeologist, who operated in the field for 40 years announced: "Because of Covid

there have been disastrous consequences on the fall in attendance at museums and archaeological sites from Tunisian and foreign visitors. On the other hand, Chérifa, added an additional aspect by emphasizing that archaeological sites were neglected not only before, with the previous crises experienced by the country, but especially after the Covid period. They have been abandoned both by tourists and by the structures responsible for them (maintenance, development, weeding, cleanliness, etc.). This observation highlights the broader consequences of the health crisis on the management and maintenance of archaeological sites, as well as on their attractiveness for visitors.

Theme 2: The attribution of the "Dourb'ia" tourist guide mobile application in favor of cultural heritage tourism. This topic discusses experts' ideas and their views of application attribution "Dourb'ia" in favor of cultural heritage tourism, under three essential sub-themes. Firstly, the relaunch of the activity of visits to archaeological sites, then the involvement of tourist guides in the experience of the application and finally the revitalization of the regional ecosystem around archaeological sites through the "Dourb'ia" application.

The relaunch of the activity of visits to archaeological sites: At this level, the experts interviewed in this study share the idea that the assignment of the "Dourb'ia" application will help to relaunch visits and activity within the archaeological site of Carthage, after the health crisis, it will obviously have positive and promising consequences, especially since it offers a well-instructed guided tour. "Dourb'ia" will help improve the experience of tourist visitors or any type of visitor, but also it will help attract a new audience and this is part of the promotion of cultural heritage tourism in Tunisia. Like Nejib, he announces: "Such an application will certainly improve the quality of cultural tourism, first by reaching residents, and then after the resumption of organized trips from abroad. ". Among other things, as an illustration of MohamedAli "The relaunch of visits will take place after the resumption of tourism because tourists represent most visitors. This application could contribute to this and will improve the visiting experience and could attract a new local audience. ". In addition: "Submitting a list of thematic circuits and circuits adapted to the profile of each visitor with rich and diversified content in a properly designed and well-prepared application will be able to revive the activity of visits to archaeological sites. » says Azzedine.

The involvement of tourist guides in the application experience "Dourb'ia": The involvement of tourist guides in the experience of the "Dourb'ia" application is of undeniable importance in the development and promotion of the application, for their level of knowledge and expertise. , but also because they constitute a stakeholder in the cultural tourism sector. In addition, the development of this digital tourist guide application aims to respond to the SDG8 sustainable development objective issued by the United Nations mentioned in the previous chapter, which is decent work and economic growth, and this through involve local guides. The experts interviewed at this level expressed their

views and recommendations on how to involve them in the experience of "Dourb'ia", in fact they mentioned that the "Dourb'ia" application must offer guides a platform to showcase their unique skills, emphasizing their vision, their creativity and their authenticity. It should be designed to make it easier to prepare for tours by allowing users to find suitable itineraries and search for knowledgeable local guides. In addition, the application will be able to offer content that enriches the visitor experience, while ensuring that the irreplaceable role of guides is respected. It is crucial to explain to guides that the objective of the application is in no way to replace them, but rather to boost cultural activity in the sites. They must be assured that the influx of additional visitors generated by the application will represent a favorable opportunity for them. Khaled, who has been an IT teacher trainer for 10 years, says this: "Provide a platform to exhibit know-how: Vision, creativity and authenticity. He can use it as a source of information during the visit, a pre-visit preview or to provide post-visit reminders. The application can call upon a list of guides. " Also, MohamedAli illustrates: "Guides could adopt it if it is designed and presented as a tool to prepare the visit, identify the circuit, find a local guide, or as a support offering content that could enrich the visit, and above all not Do not replace the guide. ". The same goes for Azzedine, he says: "To get them involved, we need to explain to them what the "Dourb'ia" application is (and that it is not intended to replace them). We must reassure them that this application will revive cultural activity in the sites and that the increase in the number of visitors constitutes a mass for them".

The revitalization of the regional ecosystem around archaeological sites through the "Dourb'ia" application: To ensure the revitalization of economic activity and the regional ecosystem around archaeological sites, particularly that of Carthage, it was a question of exploring the experts' recommendations regarding the development of the application in this direction. The experts' answers revolve around making "Dourb'ia" an application that offers various features such as events, meeting groups and an online store. It will allow users to create an account with their profile and will include sections dedicated to restaurants and hotels. However, local artisans will have the opportunity to be listed in the application, which will offer a list of artisans, guest houses and hotels. To design this application, it would be relevant to draw inspiration from popular sites such as Airbnb and TripAdvisor. The success of the application in terms of revitalizing the regional ecosystem will then depend on the quantity of actors highlighted and the number of users. It is essential that these players provide regular services and maintain consistent quality to ensure user satisfaction. For example, Hamdi declares: "Events, meeting groups, an online store, allow them to create an account with their profile, add restaurants section, hotels section. ". On the other hand Issam announces: "For artisans around the sites they can be referenced in the application. Put a list of artisans, guest houses, hotels. Take inspiration from the RBNB and TripAdvisor sites. » And MohamedAli, illustrates: "It will

depend on the number of actors highlighted in the application and the number of users. These players will also have to offer regular services of consistent quality. ". Furthermore, Chérifa expressed the following idea: "Create a gastronomic, cultural, commercial dynamic and promote them via digital and why not also exhibit them in real life. Marketing of local products. ", by incorporating its recommendations, the "Dourb'ia" application could play a key role in promoting tourism of local products, by creating a gastronomic, cultural and commercial dynamic through digital, while also considering exhibitions in real life to promote these products.

Theme 3: Improving the visitor experience of the archaeological site of Carthage through the "Dourb'ia" application. The third theme is the last mentioned in the interview guide with the experts, it aims to extract the recommendations of the interviewees for improving the visitor experience of the archaeological site of Carthage through the digital tourist guidance application "Dourb'ia". The aim behind the questions in this part of the study was to obtain instructions from experts to improve the experience of regular visitors but also to attract a new audience on the one hand, and on the other to explore the expectations of specialists. and their visions on the risk of failure of the "Dourb'ia" application to avoid, and to take into consideration in the development and promotion of the application.

Improving the regular experience: The conclusive idea according to the experts interviewed, to improve the experience of regulars visiting the archaeological site of Carthage through the "Dourb'ia" application, is to ensure that the application is interactive and community based, Khaled explain that this could be implemented by ""Adding reviews, engaging visitors in content creation, sharing experiences, building community", this will be helpful in the construction of a dynamic community around the site. Since, regulars are more demanding because they have already experienced the visit, Cherifa explain that "it is therefore essential to integrate new experiences within the existing experience through new immersive technologies which can play a key role in offering increasingly attractive and enriching experiences". Additionally, experts explained that a personalized avatar for each site, with the guides' faces, could be added to provide information and guide visitors. It would be essential to ensure the stability of the application, avoiding bugs and guaranteeing proper functioning. However, a lightweight approach to the application could be favored, using a robust server, potentially by purchasing a cloud, which would allow data to be stored while guaranteeing the lightweight and rapid operation of the application. Ultimately, to improve the experience of regulars, we must find the right balance between preserving familiar landmarks and introducing innovations to maintain visitor interest and satisfaction.

Attracting new audiences: To attract a new audience, each of the specialists interviewed declared a set of recommendations to make the "Dourb'ia" application an element attracting new visitors and

users of the application, it would be necessary to create immersive and interactive experiences, by putting the focus on young users. Khaled indicate that "this could be achieved by using new technologies and integrating games and quizzes into the application". To specifically attract young people, Issam explained "it would be wise to integrate games adapted to their profile and to link the circuits offered in the application with the routes popular with hikers". Néjib emphasises also on the "importance to promote the application through targeted advertising and establish contacts with educational institutions, associations, and the general public". By offering immersive, interactive experiences and responding to the interests of young people, the "Dourb'ia" application would be able to effectively attract a new audience. Finally, it was also suggested to create immersive experiences for children in archaeological sites to promote the identification of young people with their history and to invest in school visits in order to offer an experiential approach to the history rather than a purely educational approach. This approach aims to promote the reconciliation of young people with their identity and to establish proximity with their history as it was highlighted by Cherifa. To do this, it is necessary to rethink these sites by offering them a new, innovative, and digital experience.

The expectations of the experts of the "Dourb'ia" application: The expectations expressed by the experts of the "Dourb'ia" application reveal several key points. Khaled explain "They are looking for a fluid, easily accessible source of information that offers content rich in fun and interactive information, with an emphasis on the concept of "storytelling" to make the visitor experience more captivating". In addition, for Issam "it is crucial to provide quality content, easily accessible on site, allowing users to quickly find the information they are looking for". The experts also want to offer the possibility of carrying out guided tours remotely using avatars, with fixed times and reservations. This would expand visiting opportunities and provide a flexible experience for visitors. Finally, one of the key objectives set out by the experts as Azzedine summarize "is the necessity to promote the widespread adoption of digital tools in tourism activity, by emphasizing to decision-makers and guides the importance of information and communication technologies. to enrich visits to the sites". Considering the expectations of the experts of the "Dourb'ia" application, will help to guarantee a fluid, interactive and immersive experience, as well as the benefits of a wider adoption of digital tools in the tourism industry to meet the needs and to visitor expectations.

Risks of failure of the "Dourb'ia" application to avoid: The experts' analysis reveals several possibilities of failure of the "Dourb'ia" application which it is crucial to avoid ensuring its success. First, Khaled says "we must ensure that users can easily find relevant information, by improving the search and organization of content. Access difficulties must also be resolved, by making the application user-friendly and accessible on different platforms. It is essential to pay particular

attention to the ergonomics of the application, ensuring an intuitive and fluid user experience. Personal data security should be a top priority, putting strong measures in place to protect sensitive user information". Issam point to a very important issue "Reluctance to change on the part of guides and public institutions is a major challenge, so it is essential to actively engage them and raise awareness of the benefits of the app". Furthermore, MohamedAli mention "it is important to consider the possibility that guides, and travel agencies may question the legitimacy of the initiative, highlighting the need to implement strong communication strategies aimed at actively promoting the benefits of the application for tourists". By developing convincing messages and highlighting the concrete benefits they can derive from using the "Dourb'ia" application, it is possible to counter any attempt to discredit and strengthen the support of guides and travel agencies. Effective and targeted communication, focused on the strengths and functionalities of the application, will generate interest and confidence among tourists in particular and visitors in general, thus strengthening the position of the application in the tourism market. Finally, it is crucial to promote frank and active involvement of guides, by creating incentives and developing mutually beneficial partnerships. By taking into consideration these possibilities of failure and implementing appropriate measures to avoid them, the "Dourb'ia" application will be better prepared to offer a quality cultural tourism experience and achieve its objectives.

DISCUSSION OF RESULTS

The Importance of Archaeological Sites in National Heritage: The findings of our qualitative study highlight the pivotal role of archaeological sites as integral components of national heritage, aligning with existing literature that underscores their significance as living testimonies of history (Duthion and Walker, 2014). These sites not only provide direct immersion into the past, sparking curiosity and encouraging research but also serve as tangible traces of heritage that enhance their valorization. This perspective is supported by Origet Du Cluzeau (2013), who emphasizes the dual importance of tangible and intangible cultural elements in heritage tourism. Experts in our study recognize the exemplary state of conservation and the international recognition of these sites for their scientific and historical values. This resonates with Rasoolimanesh *et al.*, (2021), who note that the motivation to understand and appreciate historical contexts is a significant driver for heritage tourists. Furthermore, our findings corroborate the assertion by Lee *et al.*, (2010) that the value of cultural heritage lies in its ability to integrate the tangible and intangible meanings of historical and cultural sites.

Mobile Applications as ICT for Cultural Heritage Tourism in Carthage: Our study underscores the transformative role of information and communication technologies (ICT), particularly mobile applications, in enhancing cultural heritage tourism. This is consistent with the observations of

Dickinson *et al.*, (2014) and Tscheu and Buhalis (2016), who highlight the profound impact of smartphones and mobile apps on the tourism industry. These technologies facilitate access to a wealth of information tailored to tourists' needs, thereby enhancing their overall experience. The "Dourb'ia" application, as revealed by our study, offers significant advantages for visitors to the archaeological site of Carthage. These benefits include interactive opportunities that allow tourists to enjoy unique experiences, as noted by Gretzel *et al.*, (2015). Tunisian visitors, in particular, emphasize the application's role in sharing experiences and promoting cultural heritage via social networks, which aligns with Fang *et al.*, (2017) who discuss the influence of mobile applications on travelers' decision-making processes.

Perceived Benefits of Using Mobile Applications during Cultural Visits: Our findings indicate that mobile applications like "Dourb'ia" enhance both autonomy and the quality of visitor experiences, echoing Martín-Sánchez *et al.*, (2012). Tourists highlight the importance of these apps in planning activities and accessing information, which is crucial for meeting their expectations and enhancing their engagement with cultural sites. This is in line with the insights of Sung *et al.*, (2010) and Raptis *et al.*, (2018), who stress the importance of integrating mobile guides into the visitor experience to foster deeper interactions with the historical and cultural context.

The positive impact of the "Dourb'ia" application on post-health crisis visits is particularly noteworthy. Experts anticipate its contribution to revitalizing cultural, heritage, and economic tourism activities at the archaeological site of Carthage. This aligns with the views of Pröbstle *et al.*, (2016) who acknowledge the continuing relevance of traditional tools while recognizing the transformative potential of ICT in tourism.

Revitalization of Cultural and Economic Activity through "Dourb'ia": Experts foresee the "Dourb'ia" application playing a crucial role in diversifying the public and improving the quality of cultural tourism. This expectation is supported by Tsiotsou and Vasaioti (2006), who highlight the importance of market segmentation and understanding diverse visitor groups in heritage tourism. Additionally, the application is expected to foster a gastronomic, cultural, and commercial dynamic, which could significantly boost regional economic activity. This aligns with the broader literature that emphasizes the need for tourism strategies to focus not only on short-term gains but also on long-term cultural appeal and sustainable economic benefits (Pike, 2004).

In conclusion, the "Dourb'ia" application exemplifies the intersection of technological advancements and cultural heritage tourism, demonstrating how digital tools can enhance visitor experiences, promote cultural heritage, and drive economic revitalization. These findings underscore the importance of integrating technology with traditional tourism practices to meet the evolving needs and expectations of cultural tourists.

CONTRIBUTIONS

This study offers significant contributions to the field of cultural heritage tourism by highlighting how archaeological sites can be leveraged as pivotal elements of national heritage. It emphasizes the necessity of their preservation and promotion as key components of cultural tourism strategies. The findings align with the current literature, underscoring the critical role these sites play in offering immersive historical experiences that spark curiosity and encourage research. By valuing both their tangible and intangible elements, the study supports a comprehensive approach to heritage tourism that can enrich visitors' understanding and appreciation of history.

Furthermore, the study demonstrates the effectiveness of mobile applications in enhancing tourist engagement and autonomy, showcasing the potential for information and communication technologies (ICT) to revolutionize the way cultural heritage is experienced and promoted. The "Dourb'ia" application serves as a prime example of how digital tools can be seamlessly integrated into tourism strategies, effectively meeting the evolving needs of modern visitors. This application not only facilitates access to tailored and interactive experiences but also plays a crucial role in supporting the recovery of tourism sectors affected by crises. By reviving visitor interest and participation, such applications can significantly contribute to the economic revitalization of cultural heritage sites.

Additionally, this study highlights the broader implications of technological advancements in driving economic and cultural revitalization. It demonstrates how digital tools can foster a dynamic and sustainable tourism ecosystem, providing valuable insights for policymakers and stakeholders. By leveraging these technologies, there is a substantial opportunity to enhance the cultural appeal and economic benefits of heritage tourism, ensuring long-term sustainability and growth in this sector.

CONCLUSION

This research makes significant contributions on several fronts. First, it fills an important gap in the landscape of Tunisian studies by exploring the motivations, obstacles and needs for using a mobile tourist guidance application during cultural visits to the archaeological site. Unlike previous studies, which have mainly focused on individual cases and the user's point of view, this research adopts an exploratory approach by presenting the perspectives of multidisciplinary experts thus enriching the existing literature. Additionally, the specific recommendations of the interviewed experts reinforce existing theoretical knowledge. Focusing on the application of digital and interactive technologies in Carthage, this research aims to address the challenges of cultural and heritage tourism, revitalize the site, and promote it in accordance with the expectations of visitors and experts. In conclusion, this study offers a better understanding of the requirements of cultural heritage tourism through the analysis of the archaeological site of Carthage and the "Dourb'ia" application. The results identify

avenues for optimizing the visit experience, certainly contextualized specifically in Carthage but easily adaptable to other archaeological sites of world heritage.

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LIST OF ANNEXES

ANNEX 1

Table 4: Characteristics of the expert sample

Last name First Name the expert	Occupation	Expertise field	level of studies	Duration of experience professional
Khaled junior Hafaiedh	IT teacher trainer	IT	PhD	10 years
BEN LAZREG Nejib	Retired archaeologist	Archeology and Roman Christianity	Research authorization	40 years
Issam Barhoumi	Computer engineer	IT	IT engineer	6 years
Mohamed Ali Midani	CEO DCX	Digital heritage enhancement	Master degree	11 years old
Azzedine Beschaouech	University professor, Unescopourle expert heritage	Cultural heritage in relation to development sustainable	Associate professor of the university	Half a century including around forty at UNESCO
Chérifa Lakhoua	University professor	Tourism marketing, networking in the tourism ecosystem tourism	PhD	A twenty years
Hamdi Sansa	Engineer in mobile development	Ux design EU design		

BEYOND KAMIKAZE: OUTER SPACE TREATY AND JAPAN

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ABSTRACT

The informally called ''Constitution of outer space'' consists in the Outer Space Treaty, which was inspired by the Antarctic Treaty, was signed in 1967 and is rather conservative and fragmentary. Unlike the 1979 Moon Treaty, it does not take an approach to outer space as common heritage of mankind. It is quite vague as for the space exploitation whilst nowadays mainstreaming terms, such as ''exploitation'', ''sustainability'', ''outer space heritage'', ''hospitality'' and ''tourism'' are inexistent. It has gained acceptance by many States, including the spacefaring ones, and has proved to be respectable. Besides, new trends have emerged, such as privatization of space activities and space tourism. The current research highlights the fact that the Cosmic Constitution is intensively similar to the 1946 version of the formal Constitution of Japan. Although the Constitution does not allow any Japanese armed forces and other war potential, that country achieved its re-militarization, being enhanced through the amendment of the Outer Space Law in 2008, which emphasized the military approach to space, for security reasons. Furthermore, it expanded its tendency to international democratization of consumption, as it has helped non space-faring countries in the satellite domain. So, militarization and democratization, two of the mainstreaming axes of its postwar policy on Earth have been much or less applied also in space. Based on the managerial method of organizational simplification since 2003, Japanese public sector has achieved elements of technological perfection and in January 2024 even smooth landing on the Moon whilst private sector attempted it, in 2023.

Keywords: Artemis Accords; Cosmic Constitution; Cosmic Law; Japan; JAXA; kamikaze; Moon Treaty/Agreement; Outer Space Law; Outer Space Treaty (OST); space business

INTRODUCTION: THE OUTER SPACE LAW OR COSMIC LAW

Public International Law is a diachronic body of rules, whose autonomous discipline is the Law of the Sea. The modern Law of the Sea emerged as a customary law in the 17th century, being marked by the emergence of a new maritime zone, called territorial sea or territorial waters. The current codification of this branch consists in the United Nations Convention on the Law of the Sea

(UNCLOS), concluded in 1982, which constitutes the first single code on the matter and is sometimes at the doctrinal level called ''Constitution for the Oceans'' (De Pooter).

Ancient Greeks made use of the Greek word ''cosmos'' to declare the space whilst this term means the order. The vocable ''order'' is currently very common in the field of legal science, in reference to the legal order, in general. A much recent development consists in the combination of the two concepts, through the emergence of the expression ''Outer Space Law'' or commonly ''Space Law''. This term refers to the set of rules on objects and activities beyond the Earth's atmosphere. It was first mentioned in a journal article in Paris, in 1910, but Space Law was an idea without shape or substance (Doyle, 2011). Its initial phase in the 20th century took place from 1910 till 1957, when Sputnik 1, the first artificial satellite, was launched, by the Soviet Union into an elliptical low Earth orbit, and it was marked by the development of concepts on this law (Doyle, 2011). The ten-year exploitation of outer space by the U.S. and the Soviet Union (1957-1967) without specific legal regulations as well as the various legal issues that resulted led to the creation of Space Law (Kolovos, 2006), in a narrow sense.

Initially, space legislation emerged as a field within Public International Law, including basically international treaties and soft law instruments regulating the conduct of States. However, over time, it acquired a very rich profile, as it is based inter alia on domestic legislation as well as Private International Law on the relations among non-State actors of different nationalities. More precisely, Space Law was actively developed in the 20th century, then there was a period of long stagnation but in recent years, its development has begun to revive, as it is the case of the UK which in 2018 adopted the ''Law on the space industry'' (Halunko, 2019). The new wave of this branch is attributed to various factors, such as the emergence of private business in outer space, a significant increase in the amount of space debris and potential attempts by some States to move the arms race into outer space (Halunko, 2019).

This paper deals with the mainstreaming international text on the matter, consisting in the Outer Space Treaty and also examines the case of both the State and the business sector of Japan in the space domain.

RQ: We assume that the Outer Space Treaty is an actual legal instrument for the international community, including Japan.

THE HISTORY OF THE OUTER SPACE TREATY

The Outer Space Treaty is officially titled ''Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies'' and is also known with the acronym OST. In June 1966, both superpowers of that era, namely the U.S. and the Soviet Union, submitted draft treaties on the uses of space to the United Nations. Those texts were reconciled in the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space (COPUOS). Since its establishment in 1959 by the General Assembly of the United Nations, its membership has continued to expand. It is about an institution of major importance, given that it constitutes the unique committee of the General Assembly dealing exclusively with the international cooperation as far as peaceful use of the outer space is concerned. An agreement was reached in the General Assembly in the same year of the preparation of the text, in virtue of resolution 2222 (XXI).

The Treaty was largely based on the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space, which had been adopted by the General Assembly in its resolution 1962 (XVIII) in 1963. The first international space legal act contains the fundamental principles of International Space Law, in form of recommendations, including the exploration and use of outer space for the benefit and in the interests of all mankind.

These principles later formed the basis of the OST, but a few original provisions were added (United Nations, Office for Outer Space Affairs). The new text was opened for signature by the three depository Governments (the Russian Federation, the UK, and the U.S.) in January 1967 and entered into force very soon, just in October 1967, unlike other important conventions of Public International Law, such as the UNCLOS. With the leading intervention of the U.S., being no contracting party of the UNCLOS to date, an attempt was made to modify the relevant part XI of the Convention, which is titled "The Area". The amendment was achieved through the 1994 New York Agreement and formally is a complement of the initial Convention.

The Outer Space Treaty has gradually gained a wide acceptance by the members of the international community, given that it was ratified by 113 States as of August 2023. Nevertheless, it is about still a rather limited number, at least in comparison with the current number of sovereign States. This tendency of abstention could be rather interpreted by the lack of interest of some countries, such as developing ones with no particular space activities.

The treaty has been called ''Magna Carta Libertatum'' or simply ''Magna Carta'' (Eleftheriou, 2018), for the Outer Space Law (Argyrou, 2021). Although this expression is the most common, there is also

in use the term ''constitution'' of outer space (Stuart, 2017). It results that the mainstreaming name is comparable to the aforementioned denomination ''Constitution for the Oceans'' for the UNCLOS whilst the second one is identical.

In a period of twelve years since the entry into force of the treaty, to further develop the legal framework on space activities some other treaties related to the United Nations were signed. It is about:

- The Rescue Agreement (1968),

- The Space Liability Convention (1972),

- The Registration Convention (1975), as for space vehicles and

- The Moon Treaty or Moon Agreement (1979).

The Moon Treaty had only eighteen parties in March 2023, without including space-faring nations. Saudi Arabia, which has become a contracting party of the 2020 Artemis Accords, namely the soft-law arrangements of the U.S. and other States on the norms expected to be followed in outer space, notified the Secretary-General of the United Nations of its withdrawal from the Moon Agreement in January 2023 (Bartóki-Göncz, 2023). With the exception of this Treaty, all other Space Law conventions have been ratified by most mainstreaming space nations.

Besides, the Cosmic Constitution was subject to a first challenge in case of the ''Declaration of the First Meeting of Equatorial Countries''. This text, commonly known as the Bogota Declaration, was promulgated in 1976 by eight equatorial States to assert sovereignty over those portions of the geostationary orbit that continuously lie over the signatory nations' territory. Those claims did not receive wider international support and were abandoned. According to a doctrinal approach, international space agreements that will be implemented by the world community can only be adopted by permanent members of the UN Security Council, which includes all the leading space States (Halunko, 2019). Nevertheless, this opinion is not fully convincing, especially from 2023 and on, given that India and Japan, which are no permanent members, have achieved their first smooth landing on the Moon.

Last but not least, it is notable that for all the years of its existence, the OST has never been directly violated (Halunko, 2019). However, in February 2024 the U.S. announced that Russia was developing a space-based capability to attack satellites using a nuclear weapon (Davenport et al., 2024). The use of

a nuclear bomb would amount to a ''suicide kamikaze attack''. This revelation has brought back fears relevant to the use of nuclear weapons in outer space, which go back to the Cold War. Anyway, it is clear that an installation of that weapon in space would constitute a violation of the Treaty.

THE CONTENT OF THE OUTER SPACE TREATY

The OST provides the basic framework on International Space Law, including the following principles (United Nations, Office for Outer Space Affairs):

1. Good for all mankind

According to Article I, ''The exploration and use of outer space, including the moon and other celestial bodies, shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind''.

The Moon Agreement is not limited to those provisions about the Earth's satellite, but it adds that due regard shall be paid to the interests of present and future generations as well as to the need to promote higher standards of living and conditions of economic and social progress and development in accordance with the Charter of the United Nations.

It is to clarify that there is no use of the term "exploitation" as far as outer space is concerned, in the entire text of the OTC. Similar remarks are valid for the term ''mining'' activities. The U.S. position has been consistent: the OST does not ban the exploitation of space resources, which is a freedom guaranteed by Article I (Bartóki-Göncz, 2023). It is notable that the Commercial Space Launch Competitiveness Act of 2015 cites that the ''*United States citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States*''. Furthermore, the executive order of the President of the U.S., issued in April 2020, declares that ''*outer space is a legally and physically unique domain of human activity, and the United States does not view it as a global commons. According, it shall be the policy of the United States to encourage international support for the public and private recovery and use of resources in outer space, consistent with applicable law*''.

2. Openness – Equality

Pursuant to Article I, outer space shall be free for exploration and use by all States, without

discrimination of any kind. It is to underline that there is an explicit reference to ''equality''. This principle is mentioned twice in this text, with the second time in Article X as for the opportunity of States Parties to observe the flight of space objects launched by a State Party.

3. Exclusion of national appropriation by claim of sovereignty

According to Article II, outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means. The formulation is vague and odd, particularly as long as it is not quite clear whether national appropriation (in terms of the classical right to ownership) is permitted or not. The sovereignty is limited to certain regions of the Earth, not in traditionally inaccessible parts, such as the Area of the International Seabed.

4. Ban on nuclear weapons or other weapons of mass destruction

According to Article IV, States Parties shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space in any other manner. It is notable that this text does not prohibit the deployment of conventional weapons in orbit (Halunko, 2019).

Besides, in 2007 China was thought to have violated the treaty when it shot down one of its own weather satellites with a ground-based medium-range ballistic missile. This fact was regarded as aggressive by Japan, but since the missiles did not come under the definition of weapons of mass destruction, it was found that it did not violate the OST. There was, however, international outcry because of the debris cloud it caused within the orbit (Stuart, 2017). Such practices have been repeated by other countries, like Russia.

5. The principle of peaceful purposes

The doctrine highlights the fact that OST has been significantly inspired by the Antarctic Treaty, signed in 1959 and regulating Antarctica, the unique continent being deprived of autochthonous inhabitants. According to Article IV of the OST, the Moon and other celestial bodies shall be used by all State Parties exclusively for peaceful purposes, as it is the case for Antarctica pursuant to Article, paragraph 1, of the Antarctic Treaty. In a similar way, the establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden, just like in Antarctica.

6. The status of astronauts as the envoys of mankind

According to Article V, States Parties shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. It is plausible to guarantee the right of ''astronauts'' (USA) or ''cosmonauts'' (Russia) or ''taikonauts'', namely space travelers (China), to safety. Although there is no use of this term, the Treaty cites that when astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle. Furthermore, even assistance among astronauts of different States Parties in carrying on activities in outer space and on celestial bodies is previewed.

7. State responsibility for national space activities, even of non-governmental entities and ''lifting the veil''

According to Article VI, States Parties shall bear international responsibility for national activities in outer space, including the Moon and other celestial bodies, whether such activities are carried on by governmental agencies or by non-governmental entities, and for assuring that national activities are carried out in conformity with the provisions set forth in the Treaty. It is about a strong publicization of the responsibility for space activities, of each Member State. This phenomenon has been institutionalized as a dominance of the State over all entities involved. No freedom is consecrated, but just the opposite, a system of public control which justifies the aforementioned responsibility of the polity. More precisely, the activities of non-governmental entities in outer space shall require authorization and continuing supervision by the appropriate State Party.

Besides, it is to put the stress on the fact that the Treaty has a quite original approach to the legal person of international organization against its members, exemplifying the doctrine being known as ''lifting the veil''. It cites that when activities are carried on in outer space by an international organization, responsibility for compliance with this Treaty shall be borne both by the international organization and by the States Parties participating in such organization. It is comparable to this application of the theory on lifting the veil that according to Article XIII in fine, any practical questions arising in connection with activities carried on by international intergovernmental organizations in the exploration and use of outer space shall be resolved by the States Parties to the Treaty either with the appropriate international organization or with one or more States members of that international organization, which are Parties to this Treaty.

8. State liability for damage caused by its space objects

Pursuant to Article VII, each State Party that launches or procures the launching of an object into outer space, including the Moon and other celestial bodies, and each State Party from whose territory or facility an object is launched, is internationally liable for damage to another State Party to the Treaty or to its natural or juridical persons by such object or its component parts on the Earth, in air or in outer space, including the Moon and other celestial bodies.

9. State avoidance of harmful contamination of space and celestial bodies

Article IX is marked by environmental concern, a few years before the emergence of the the branch of Environmental Law, in the framework of the United Nations Conference on the Human Environment, which took place in June 1972. States Parties shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extraterrestrial matter and, where necessary, shall adopt appropriate measures for this purpose. If a State Party has reason to believe that an activity or experiment planned by it or its nationals in outer space, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment.

THE CASE OF JAPAN

Kamikaze means literally ''divine wind'' in Japanese, a word which has been used since August 1281 to refer to the two typhoons that sank or dispersed Kublai Khan's fleets which invaded Japan in 1274 and 1281. Furthermore, the same term is related to a member of air attack corps of the Japanese Empire in World War II, assigned to realize a suicidal crash on a target, like a ship.

The Land of the Rising Sun has been one of the most important States technologically and economically, in the post-war era. The military occupation of Japan by the Allied Powers, which was carried out almost uniquely by the U.S. forces under General Douglas MacArthur, began in 1945 and ended in 1952. The 1946 version of the 1889 Constitution of the Empire of Japan, the oldest Constitution without being formally amended even once worldwide, essentially incorporated the political volunteer of the U.S. The amended Constitution is best known for Article 9 on renunciation of war, though the Kellog-Briand Pact of 1928 was the first international legal tool to ban the war as a

means of settling international disputes (Maniatis). According to paragraph 1 of this Article, aspiring sincerely to an international peace based on justice and order, the Japanese people forever renounce war as a sovereign right of the nation and the threat or use of force as means of settling international disputes. It is to signalize that there is a negative formulation of the approach to peace, in the sense that any war methodology is excluded, whilst the preamble is not based uniquely on that formulation but emphasizes peace. The emblematic explicit consecration of the guarantee of peace, which is an authentic fundamental right that emerged in the framework of the second generation of constitutional rights, can be read in the following disposition: ''*We recognize that all peoples of the world have the right to live in peace, free from fear and want*''.   Paragraph 2 cites that in order to accomplish the aim of the preceding paragraph, land, sea, and air forces, as well as other war potential, will never be maintained. The right of belligerency of the State will not be recognized.

  MacArthur's plans turned from demilitarization and democratization, being mainstreaming axes of the postwar Constitution, to re-militarization and economic stabilization (Goto-Jones, 2009). Indeed, the focus of interest very quickly shifted from democracy, which was neither abolished nor limited, to economic stabilization, according to this new doctrine (Maniatis). It is to put the stress on the fact that the comeback of the economic democracy implicated an important democratization inter alia of consumer consumption worldwide, due to the affordable prices of exported manufactured goods, such as watches (Maniatis).

  Pursuant to the U.S.-Japan Treaty of Mutual Cooperation and Security, concluded initially in 1960, Japan was not allowed to develop aviation and aerospace technologies whilst those restrictions were loosened in 1969, although not fully. Currently, this country has successfully modernized its organizational structure in the matter of space, on the basis of the promising managerial method of organizational simplification. Authorities elected to merge the three competent groups into one, in 2003, by creating a single independent administrative agency, the ''Japan Aerospace Exploration Agency (JAXA)''. So, the fusion of those components was a landmark moment in the process of emergence of Japan as an important space power.

  Another political initiative of major importance took place five years later. One year after the aforementioned episode consisting in destruction of a satellite by China, the Japanese Parliament amended the Basic Space Law, to bring Japan in line with the OST (Vijayakumar, 2020). That amendment has enabled the country to deploy defensive capabilities in space, paving the way for increased military use of outer space, for various reasons, such as inter alia the perceived doubts regarding the reliability of its security guarantee from the U.S., the North Korea's threat and its own

resurgence through the placement of strategic assets in space (Vijayakumar, 2020). This polity has so far been unique in refraining from participating in the space weaponization bandwagon, it clearly has the technological capability to do so, if required (Vijayakumar, 2020).

It is notable that it has made use of space diplomacy as a mainstreaming part of its strategy to emerge as a space power. This is the case of its technological expertise in the framework of the International Space Station (ISS), whose elements were constructed in its territory.

Moreover, the Land of the Rising Sun has contributed significantly to the democratization of the use of space. The ''BIRDS'' project (Joint Global Multination Birds Satellite Project), supported by the Kyushu Institute of Technology that is a national university of Japan, has demonstrated a successful model of technological assistance in facilitating space launches for non space-faring nations (Vijayakumar, 2020). This mediation is exemplified by the fact that Nigeria, Mongolia, Bangladesh, and Ghana could launch their own cube satellites aboard SpaceX's Falcon-9 rocket in 2017.

Besides, Japan has attempted to find out a solution for the space debris and has been endowed with world records in space exploration the last decades, such as the following ones:

- The Hayabusa spacecraft, which was launched in 2003, became the first to return asteroid dust to Earth.

- Japan launched the first robotic astronaut, Kirobo, in 2013, to the ISS (which successfully demonstrated that it could perform tasks upon receiving verbal instruction from a human, like astronaut Koichi Wakata).

- The successor of the aforementioned spacecraft, called ''Hayabusa-2'', which was launched in December 2014, was the first to collect surface and subsurface samples from an asteroid.

After being the world's second largest economy, in terms of gross nominal domestic product, from 1968 until 2010, Japan fell behind China and since 2023 also behind Germany, to fourth place, with the U.S. occupying the first place. This economic giant slips into recession, but it achieved a smooth landing on the Moon with an uncrewed spacecraft, the Smart Lander for Investigating the Moon, called SLIM, on 20 January 2024. As indicated by its name, SLIM is endowed with precision-landing technology. It is designed to land within a 328-foot (100-meter) zone, far smaller than previous lunar landers which have had landing zones spanning multiple kilometers and, as a result, this technology could assist future landings by allowing spacecraft to land in relatively small areas amid rocky or uneven terrain (Borowitz, 2024).

JAXA's launch comes only six months after India's Moon landing and just weeks after a failed attempt by a U.S., non-public company, commonly referred to as Astrobotic, whilst both Russia and the private enterprise iSpace made unsuccessful landing attempts in 2023 (Borowitz, 2024). It is to underline the fact that even iSpace is a Japanese private company, which was founded on 10 September 2010 in Tokyo and develops robotic spacecraft and other technology to compete for transportation and exploration mission contracts from space agencies and other industries which do not belong to the public sector. The robotic Hakuto-R aimed to become the first private spacecraft, and the first Japanese-built vehicle, ever to land softly on the surface of the Moon, but in vain. In the meanwhile, the Texas-based private company ''Intuitive Machines'' made this achievement. Its spacecraft landed near the Moon's south pole on 22 February 2024, the first U.S. touchdown on the lunar surface in more than half a century and the first ever achieved by a private entity. It was also the first time any spaceship had visited a spot so far in the Moon's south, down in a region where ice is preserved in permanently shadowed craters (Kluger, 2024). The second lunar mission of the Japanese company aims to perform a soft landing in late 2024.

JAXA is about a major player in the global endeavor of Moon exploration whilst the U.S. keep being the leader in space exploration, in general. Furthermore, the independent agencies JAXA and NASA of the two countries involved have established essential bonds on the matter. Furthermore, those polities have been two of the eight initial signatories of the aforementioned Artemis Accords, demonstrating their foundational commitment of peaceful space exploration. JAXA has partnered with the U.S. and taken on a very important component of the NASA's Artemis missions – the development of a pressurized lunar rover, which is a new and complex technology that will be critical to human missions on the Moon, in coming years (Borowitz, 2024).

CONCLUSION: AN ASSESSMENT OF THE OUTER SPACE TREATY

The current research comes to the conclusion that the RQ has been partly confirmed, as the OST is not fully actual. First of all, the main drawback of the Treaty as a source of law is the lack of an international law enforcement Agency that would ensure its implementation with the help of international coercion (Halunko, 2019). This text makes no reference to the outer space as ''common heritage of mankind'' and so it is about a rather conservative and fragmentary text, even in comparison to some regions of the Earth, such as the Area according to the UNCLOS. It is also notable that article 11, paragraph 1, of the Moon Agreement goes further, citing that '*'The moon and its natural resources are the common heritage of mankind, which finds its expression in the provisions of this Agreement, in*

particular in paragraph 5 of this article'', which provides for the establishment of an international regime on the exploitation of natural resources of the Moon, as such exploitation is about to become feasible.

Besides, the OST essentially does not directly regulate the activities of private companies in outer space, whilst nowadays there has been an advanced privatization and commercialization of the exploration and use of it (Halunko, 2019). For instance, a lot of private enterprises, such as lunarland, have offered to sell plots of land on celestial bodies, such as the Moon, on the ground that the OST cites that territory is not subject to national appropriation. Therefore, private companies or individuals could make claims to celestial territories because they are not polities.

It is also notable that the OST is deprived of explicit reference to space tourism, which has recently made significant progress in contradiction to underwater tourism (Jégouzo, 2018). Space law should be modernized, through inter alia the regulation of the rights and legitimate interests of space tourists. To sum up, nowadays mainstreaming terms, such as ''exploitation'', ''sustainability'', ''outer space heritage'', ''hospitality'' and ''tourism'' are fully inexistent in the Cosmic Constitution.

In a similar way, the terms ''exploitation'', ''sustainability'', ''heritage'', ''hospitality'' and ''tourism'' are fully inexistent in the postwar Japanese Constitution, whilst there is the civil law term ''inheritance''. Moreover, this text is also deprived of other vocables that are mainstreaming at least in Constitutions, like ''democracy''. Twenty years after the first and unique amendment of the initial version of the Japanese Constitution, the OST was formed, with the contribution of the U.S. whilst Americans had also made the draft for the amendment of the Japanese Constitution. The treaty implicated disarmament of the space to a big extent, but it did not ban the role of the military bodies for scientific purposes, so it did not impose a full demilitarization. However, it banned certain military activities of major importance, such as the deployment of weapons of mass destruction in space and on celestial bodies, which was an innovative development in comparison to earlier guidelines for international space conduct. It is notable that both texts are explicitly based on the model of peaceful approach to their scope.

It is to put the stress on the fact that the OST is intensively similar to the current Japanese Constitution. This similarity is both terminological, including the question of terms that are fully inexistent but are nowadays very common in legal texts, and material, as it is the case of peace and demilitarization or disarmament. Nevertheless, it has some modern aspects, like the environmental concern, which is inexistent in the Japanese Constitution.

Furthermore, it is notable that the State of Japan acquired one of the most powerful armies nowadays worldwide, despite the fact that the formulation of the Constitution does not seem to allow such development. This re-militarization according to MacArthur's new doctrine has been enhanced through the amendment of the Outer Space Law in 2008, given that Japan has emphasized for the first time the military approach to outer space, for security reasons. This country did not expand in space merely its approach to militarization but also its tendency of democratization of consumption, having an internal aspect and an international one, given that it has helped non space-faring countries in the satellite domain.

To sum up, the OST is to a big extent an actual international legal tool for the international community in the current context, let alone the fact that outer space has already evolved into the fourth dimension of military force, beyond the classical set of the land, the air and the sea (Kolovos, 2006). This remark is valid mainly for space-faring countries like Japan, which has formally realized a reform in its internal law, to take full advantage of this text. In spite of the questions that have emerged, the treaty is endowed with a positive assessment, as a general rule. It has long formed the basis for International Law with regards to outer space and it remains as the important backbone of outer-space governance (Stuart, 2017), let alone for endeavors of both the public sector and the private one, as it is the case inter alia of Japan, being endowed with elements of technological perfection on the matter.

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After the 1904 war between Russia and Japan, the term ''Japanese'' became the synonym of the word ''modernized'', 120 years later this vocable is also applicable for humans in outer space.

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THE HYDRATION OF SEAPLANES & RIGHTS

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ABSTRACT

The year 1910 in France was inaugural for seaplanes, as Henri Fabre successfully flew the first autonomous seaplane, called the Fabre Hydration, and for Outer Space Law. Littoralization, which emerged in the 19th century, exists foremost in the Northern Mediterranean, whilst in that century also cruise ships appeared, and sailboats began to be devoted to recreational purposes. Besides, leisure has acquired a maritime conceptual autonomy, exemplified by French vocables (''plaisance'', ''plaisancier'', ''nautique'', ''nautisme''), and Italian ones (''diporto'' and mainly ''diritto nautico''). Seaplane is related to littoralization and fits in with leisure travels, let alone due to its leisurely pace against the pace of landplane. After the WWII, it was led to decline for both civil and military purposes, like ocean liner business did. According to the theory on hydration of rights, hydration, in the sense of influence of water-based rights, like to water and thermalism, not only has a positive impact on the sector to which it specifically addresses, but also it is indirectly beneficial for others. This theory is applicable to seaplanes, as the right to water influences the right to transport and through it many others, including the right to development. Businesses should valorize floatplanes and the hydration of rights, by commercializing all types of use of these vehicles and by utilizing the term ''hydration'' in advertising. The comeback of seaplanes is positive, particularly in the macroregional context of littoralization, in the framework of the European Union Strategy for the Adriatic and Ionian Region (macroregion), established in 2014.

Keywords: Adriatic-Ionian Region; ad/advertisement; Fabre hydration/Fabre hydravion; floatplane; hydration of rights; innovative business; leisure; littoralization; military aviation; Seaplane Law

Your task is not to foresee the future, but to enable it.

Antoine de Saint Exupéry, Citadelle

INTRODUCTION: THE SEAPLANE, A VEHICLE BEYOND LIMITS

In the nineteenth century took place the first recorded military use of an unmanned vehicle. It occurred on 22 August 1849, when the Austrians attacked the city of Venice with unmanned balloons loaded with explosives (Aposporis, 2020). That century is associated not only with drones, but also

with seaplanes, also known as floatplanes. Besides, it is notable that the noun ''hydroplane'' or ''hydro'' means a powerboat designed for racing that skims the surface of the water (over-the-water craft), but it has also the meaning of seaplane.

Speaking about this type of air vehicle means referring to a sui generis invention, beyond conventional limits, such as those of the physical dimensions of space, such as water (being exemplified by sea, river and lake) and air. Amphibious planes were among the first to bring a halo of panache to air travel, and not just thanks to their leisurely pace: Many models, among them the Martin M-130 "China Clipper" and the Sikorsky S-40 "Flying Forest," remain paragons of aircraft design (Wasef, 2024). Seaplanes are slower than landplanes and as a result they are much closer to the concept of leisure activities and tourism. Indeed, most seaplanes cruise around 70-80% of a landplane on the same horsepower.

RQ We assume that the seaplane constitutes a vehicle of the new era, for the promotion of human rights.

TOWARDS THE FABRE HYDRATION

A Frenchman, Charles-Alphonse Pénaud, filed the first patent for a flying machine with a boat hull and retractable landing gear, in 1876. This pioneer's interest in constructing a device that could carry a human being was turned down by the Aerial Navigation Society of his homeland. Due to the lack of the expected correspondence in his project, he killed himself in 1880, at the age of thirty years. His achievements were underappreciated but the American inventors of the first successful airplane worldwide, Wright brothers, and also other pioneers were inspired by him. It is also notable that a compatriot of his, the famous aviator, engineer and author Antoine de Saint-Exupéry, could achieve many inventions and patents on early civil aviation and was related to seaplanes. For instance, at the end of 1932, he was hired as a test pilot by the entrepreneur Pierre-Georges Latécoère, who was constructing seaplanes in his Toulouse workshops (Fondation Antoine de Saint Exupéry). Saint-Exupéry tested some forty torpedo-boats for the French Navy, earning 5,000 francs a month (Fondation Antoine de Saint Exupéry).

Wilhelm Kress built the first seaplane, called the Drachenflieger, namely hang-glider, in 1898, but it was underpowered and did not take off. What was achieved by that Austrian constructor, became a reality some years later. The first experimental flight of a seaplane was carried out by the French aviation pioneer Gabriel Voisin on the Seine at Boulogne-Billancourt, on 6 June 1905, with a first hydro-glider version of its Voisin Biplane from 1907, being pulled by runabout boat Antoinette.

On 28 March 1910, his compatriot, Henri Fabre, successfully flew the first true seaplane, the Fabre Hydration (Defensebridge, 2023), namely just six years after the historical flight of the Wright brothers, on 17 December 1903. He realized an autonomous flight in France, where his innovative design demonstrated the feasibility of waterborne flight (Defensebridge, 2023). That fragile hydro was developed over a period of four years by the Marseille pioneer, who was assisted by a former mechanic of Captain Ferdinand Ferber, named Marius Burdin, and Léon Sebille, a naval architect form Marseilles. Besides, the year 1910 seems to be a starting point not only for autonomous aviation by the use of seaplanes but also for the doctrine of a new field of legal science, like Outer Space Law. The term ''space law'' was first mentioned in a journal article in Paris, in that year, but it consisted in an idea without shape or substance (Doyle, 2011). From 1957 and on, Cosmic Law leads its current, mainstreaming period, as a branch clearly separate from Air Law. It is also notable that in French there is a tendency to avoid adjectives as for the name of legal branches, like inter alia Tourism Law. (Maniatis, 2022). Besides, in the same language there is a distinction between ''droit spatial'', an expression available for the corpus of international instruments, and ''droit de l'espace'', which means the law applicable to outer space, celestial bodies and space activities (Couston, 2014).

SEAPLANE LAW

The current research makes use of the term ''Seaplane Law'' to refer to the legal status of seaplanes, without implying that they correspond to an ad hoc field. Indeed, this vocable has not been established since the rules on the matter do not yet seem to have acquired such a level of autonomy as to result in a distinct branch of law. In that context, it is probably accurate to speak about an emerging separate field. It is also notable that the aforementioned vocable is preferable than the expression ''Hydro Law'', whose eventual use might cause misunderstandings due to the variety of different meanings of the word ''hydro''. For instance, hydro, has, besides the meanings already cited, the sense of hydroelectric energy. Furthermore, the doctrine has already made use of the term ''Hydro Law'' for the rules on this phenomenon, which is the oldest major source of noncarbon, renewable energy in the United States (Tarlock, 2012). Moreover, it is about one of the great technological achievements of the twentieth century (Tarlock, 2012), namely as it is the case of seaplanes.

Being flying machines, those vehicles are objects, non-subjects of law, just like ships. The Italian doctrine today peremptorily rejects the theory that configured the ship as a legal person, advocated by some authors at the beginning of the 20th century (Fiale, 1992). Seaplanes are subject to the general rules of Air Law, whose mainstreaming international tool consists in the 1944 Convention on International Civil Aviation, which is commonly known as the Chicago Convention. This branch is

marked by the five freedoms of air transport, being a set of commercial aviation rights granting a country's airline company the possibility to enter and land in another country's airspace.

The legal liberalization of the civil aviation market constitutes a very important question, which is also related to the rules of another field, such as the Law of the Sea. Some rules of this oldest branch of International Law are also applicable, in particular the principle of the liberty of flight in the international airspace. Article 87 of the United Nations Convention on the Law of the Sea, called mainly by scholars ''Constitution for the oceans'' (De Pooter), cites that freedom of the high seas comprises the freedom of overflight.

Furthermore, as long as seaplanes come back to use, rules on the status and operation of those vehicles are produced and applied. As far as the legal order of the European Union is concerned, Regulation (EU) 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency was applicable inter alia in the case of seaplanes. It was repealed by Regulation (EU) 2018/1139 with effect from 11 September 2018 whilst not later than 12 September 2023 the implementing rules adopted on the basis of the repealed Regulation and the repealed Regulation (EC) No 552/2004 would be adapted to the new Regulation. According to article 1, paragraph 1 of this text, its principal objective is to establish and maintain a high uniform level of civil aviation safety in the European Union.

The current Regulation in principle does not apply to aircraft, and their engines, propellers, parts, non-installed and equipment to control aircraft remotely, while carrying out military, customs, police, search and rescue, firefighting, border control, coastguard or similar activities or services under the control and responsibility of a Member State, undertaken in the pubic interest by or on behalf of a body vested with the powers of a public authority, and the personnel and organizations involved in the activities and services performed by those aircrafts. However, a Member State may decide to apply any, on any combination, of Section I, II, III, or VII of Chapter III of the Regulation, to some or all activities referred to in the aforementioned disposition of point (a) of the first subparagraph of paragraph 3 and to the personnel and organizations involved in those activities, where it considers that, in light of the characteristics of the activities, personnel and organizations in question and the purpose and content of the provisions concerned, those provisions can be effectively applied. So, seaplanes of public services, such as Fire Brigade or Coastguard, may be subject to this Regulation, upon the political volunteer of the State involved, which constitutes another aspect of the general remark that those vehicles are at the limit of various technological and other statuses.

Seaplanes are also subject to Commission Implementing Regulation (EU) No 923/2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation, which has been amended by Commission Implementing Regulation (EU) 2023/1772 as regards the operating rules related to the use of Air Traffic Management and Air Navigation Services systems and constituents in the Single European Sky.

In Italy, before the entry into force of Royal Decree of 30 March 1942, No. 327, ''Maritime Code'', seaplane sparked widespread debate in the Maritime Law doctrine of the first half of the last century. Experts were divided into two categories, those who supported its classification in Maritime Law and others, who considered that it belonged to a separate field, such as Aeronautical Law (Mignone, 2023). It is also notable that it was endowed with the freedom of access to ports, enshrined in the Convention, signed in Geneva on 9 December 1923, on the international regime of seaports.

It is to signalize that Italy has remarkable peculiarities in its Aviation Law, on international scale. For example, the politician Antonio Scialoja during the fascist regime authoritatively imposed the (Naval and Aviation) Maritime Law as a single law, with the joint legislative codification of Maritime Law and Aviation Law, namely in form of the aforementioned Maritime Code. It is emphasized that this country is at the world's leading edge of Maritime Law and by extension of Tourism Law by adopting for the first time a stand-alone Code on the Law of Pleasure Craft. It is about legislative decree No. 171 of 2005 ''Code of Pleasure Craft''.

The Italian legal order is a multifaceted scope of interest of comparative research, in particular with:

(a) the common treatment of Maritime Law and Aviation Law, particularly with regard to a complex means of transport, such as seaplanes,

b) the legislative provision for the potential coexistence of seaplanes and ships on the operational area (waterways),

c) the legislative autonomy of the Code of Pleasure Craft in relation to the broader, traditional Maritime Code, which indicates a significant opening up to the Leisure Law and Tourism Law.

Besides, those two codes, regulation of 8 February 2008 of the National Civil Aviation Agency, decree of the President of the Republic of 9 July 2010, No. 133, and also article 2054 of the Civil Code are also applicable on seaplanes. According to the first disposition of article 2054, as it is currently in vigor, the driver of a non-rail-guided vehicle shall be obliged to pay compensation for the damage produced to persons or property by the operation of the vehicle, unless he proves that he did everything possible

to avoid the damage. Seaplane is incorporated in the group of vehicles on which is applicable this mainstreaming rule, in contraposition to the category of rail-guided vehicles in land.

As far as Greece is concerned, recently it has been endowed with an ad hoc set of rules. It is about law 4663/2020 on establishment, operation and exploitation of airdromes on water surfaces as well as on transport regulations, which has repealed the provisions of the former basic law 4568/2018 and has been amended mainly by law 4903/2022. The current legal regime has liberalized the status of the official waterways, given that the private sector is enabled to operate them, no more uniquely the public sector.

THE TOURIST USE OF SEAPLANES

Some scholars characterize tourism prior to the Industrial Revolution as ''pre-tourism'' and consider that the authentic version of the current phenomenon of tourism emerged in the era of Industrial Revolution, when people began to work as salaried industrial workers and acquired the right to paid vacations (Jégouzo, 2018). Seaplanes emerged in that first revolution of tourism, which has given its place to the second revolution, being marked by mass tourism, and the current one, in the era of globalization and the dominance of Internet, from the end of 20th century and on. The shift of the center of gravity of the world economy towards the East, global hypercompetition, waves of technological innovation but also societal transformations and the emergence of new social demands contribute to shaping an unstable, complex and uncertain environment, to which tourism adapts while participating in its dynamic of evolution (Clergeau, 2016).

Tourism has an intensively cross-sectorial nature, given that it includes various operations. Each of them is not uniquely devoted to tourists but it may be offered to a wider category of consumers. This is the case of transports through seaplanes or other means, being available for tourists and other travelers. Besides, tourist activity is not limited to a classical trip devoted to tourism, but it is likely to be conducted even in the free time of a travel which is in principle dedicated to other purposes, exemplified by business travel.

A sui generis form of tourism is cruise tourism, with the cruise ship being considered a floating hotel, far away from the aforementioned phenomenon of heterogeneity of tourism, as this kind of ship is reserved for tourists, not serving other categories of passengers. In 1844, the first passenger cruises were introduced, to conduct sea tours from Southampton to Athens, Malta and Gibraltar, while four years earlier the same company started to deliver mail to Alexandria of Egypt, via Gibraltar and Malta (Anonymous, 2014). This fact was the birth of modern-day cruises (Anonymous, 2014). In a

comparable way, the British firm Supermarine (which would go on to design the WWII Spitfire) operated the world's first flying boat service in 1919 (Hollings, 2020). Four years later, the government of the UK ordered five aviation firms to merge into their state-owned Imperial Airways of London, which provided distant colonies with both passenger and mail transport links (Hollings, 2020).

A challenge for the tourism development consists in the operational combination of seaplanes with cruises, for the conduction of excursions of cruise passengers to other destinations, such as nearby islands. So, seaplanes are particularly suitable to promote regional and insular development, especially for underdog tourist destinations. Anyway, those vehicles are intrinsically connected with littoralization. As a form of concentration of population and human activities in the littoral, it has gradually evolved into a mainstreaming phenomenon, since the 19th century (Maniatis et al., 2023). The emergence of littoralization was functionally combined with a very dynamic means of public transport, such as train. Northern Mediterranean is the worldwide symbol for littoralization whilst the common and more remarkable consequence of this phenomenon there is coastal urbanization.

Nowadays there is also the issue of the possible interconnection of two neighboring States with no land frontiers by seaplanes, as it is the case of Greece and Italy, being emblematic in terms of littoralization. That interconnection in form of a European Union co-funded program was attempted in 2013, with a pilot flight from Brindisi to Corfu.

It is emphasized that since 2014 the European Union Strategy for the Adriatic and Ionian Region (EUSAIR), with tourism as an official thematic area, has been in existence indefinitely. However, it is not widely known and, as a result, it is essentially too distant even for the inhabitants of the ten countries involved. It is quite odd for tourists to realize trips without having an idea on the existence of the novelty of ''Macroregion'', which includes not only European Union countries but also others. It is undervaluing for the Union itself that even the inhabitants of the unionist countries concerned are usually unaware of the existence of the macro-regional level (Maniatis, 2023). This problem is more serious as far as European citizens are concerned, given that they have a nationality and an identity in common, which deserve to be promoted in intra-Community relationships. What is more, the macroregional novelty has been partly blackened by the war in Ukraine, a country which is actively involved in one of these Macroregional Strategies, hence a question of undervaluation and threat against the values of the international peace and security (Maniatis, 2023).

THE MARITIME SPECIALIZATION OF LEISURE AND SEAPLANES

It is also worth clarifying expressions being relevant to leisure and potentially to tourism, such as ''diporto'' and ''diportista nautico'' in Italian as well as ''plaisance'' and ''plaisancier'' respectively, in French, particularly because of their linguistic, social or legal autonomy from the common concept of leisure. The noun ''diporto'' means pleasure, in general, but it is mainly connected with the idea of movement, including yacht boating. The connection with the maritime context is more intensive in French, as for the word ''plaisance'', which means navigation when practiced as a hobby whilst the general sense of pleasant character is considered ancient. It is notable that pleasure boating (namely ''plaisance'' in its maritime sense) has been developed since the 19th century, with the appearance of sailboats intended for the pleasure of sailing and no longer solely for commerce. In a comparable way, in French the adjective ''nautique'' is related to navigation in general, for instance there is the legal term of Maritime Law ''faute nautique''.

but also it has a specific meaning, consisting in swimming and other recreational activities conducted in the water. In a similar way, the noun ''nautisme'' means all sporting activities practiced on the water, particularly pleasure boating. Furthermore, it is to underline the fact that while in Italian the term ''nautical law'' is used, this is not the case in French, where the pure term ''nautisme'' or rather ''droit du nautisme'' is used (Maniatis, 2022) for the branch of law on recreational activities related to navigation.

To sum up, leisure (in French ''loisir'' in the singular or ''loisirs'' in the plural, with no conceptual difference between these versions) is not a mere concept. It constitutes an important naval good after the emergence of the Industrial Revolution, especially in the dual conceptualization of the Navy, namely maritime and aeronautical.

On the one hand, it is about the nautical meaning (in French ''plaisance''), symbolized by the sailboat. It is to add that sea tourism is mainly symbolized by cruise ships, which emerged and began to develop their activity in the same century of the devotion of sailboats to recreational purposes.

On the other hand, leisure and tourism have an aeronautical meaning, symbolized by the seaplane. However, it is to signalize that if seaplanes nowadays have been associated to a leisurely pace against the pace of landplanes, about a century earlier they were faster than that alternative. Indeed, for nearly the entire period of the 1930s, the fastest planes belonged all to the category of seaplanes.

THE MILITARY USE OF SEAPLANES

First of all, war is a multifaceted phenomenon, including the version of economic war that has been important since centuries (Tsaousi, 2018). It has been related to war, already at the dawn of seaplane aviation.

Seaplanes have been used for military purposes, although landplanes were the first to be used on the matter. In 1911, Italy fell into a brief conflict with Turkey and invaded Libya, at that time a Turkish colony (Nevin, 1981). The world's first combat reconnaissance flight began at 6:19 a.m. on 23 October 1911, when Captain Carlo Piazza took off from Tripoli and flew along the road to Azizia. He was back at 7:20 a.m. with a report on enemy troop placements. In a comparable way, the first bombing mission took place shortly afterwards, on 1 November, when a pilot dropped four bombs on Turkish troops. Each was exploded by a grenade after the pilot pulled the pin with his teeth and dropped the four-pound package over the side. Early the next year Captain Piazza borrowed a camera, took it aloft and originated aerial photographic reconnaissance. And air war came full circle when Turkish troops shot down an Italian plane with rifle fire.

Seaplanes were used for military purposes already by the Greek State in the First Balkan War. Furthermore, Italian seaplane pilots made transatlantic voyages under the guidance of Italo Balbo in the early 1930s. Military seaplanes played an important historical role even in areas that were not yet part of the Greek State, as it is the case of the Dodecanese. The Italian air force, officially called ''Reggia Aeronautica'', made extensive use of seaplanes to connect the Italian-occupied Dodecanese with Italy and Libya until the end of the WWII. In that war, the Greek 12 Naval Cooperation Squadron with three Dornier Do 22 seaplanes continued naval cooperation missions until the last days of the German invasion of Greece, in 1941.

In the postwar era, seaplanes were decommissioned from military use, for various reasons, including major investments in jet-powered aircrafts and longer runways during the war whilst a general decline was remarked also as far as the civil use is concerned. This development is comparable with the fact that the introduction of large commercial jet aircrafts in the 1960s caused people to switch from ships to planes, so besides seaplanes ocean liner business was sent into a decline, too (Anonymous, 2014). High fuel consumption, the inability to dock at shallow docks and windowless cabins with no regard to comfort put passengers off the idea of cruises (Anonymous, 2014).

Today, the value of seaplanes is diminished inter alia because of the prevalence of heavy payload helicopters, that can reach remote areas, and of course the use of aircraft and helicopter carriers

(Hollings, 2020). Nevertheless, those vehicles are not a thing of the past in the military context, in particular due to the fact that a current superpower, such as China, makes use of them. A Chinese-made aircraft, called the AVID AG600 ''Kunlong'' (which roughly translates to ''fish dragon''), was in 2020 officially the largest amphibious aircraft in the world (Hollings, 2020).

It is also noteworthy that seaplanes are widely used to extinguish fires in forests. This is the case of the amphibious aircraft ''Canadair CL-415'', which has been used for decades in firefighting operations. It is about an important tool of both the Air Force, on behalf of the Fire Service, in Greece and the Fire Service in Italy.

Besides, the reuse of seaplanes is highly recommended, for the Armed Forces of Greece. For instance, flying at low altitude makes seaplanes coming from the mainland almost invisible to enemy radar, as the terrain of Greece is scattered with islands interspersed between the Greek coast and the Turkish coast, namely in the region of Asia Minor (Tsiliopoulos, 2022). At the same time, all these territorial prominences can serve as hiding places as well as bases for seaplanes, should these vehicles be called upon to operate in the Aegean (Tsiliopoulos, 2022). As it is known and demonstrated in many operational exercises of the War Navy of the Hellenic State, missile boats and larger vessels hide in natural bays and behind islets, so hiding is much more possible for seaplanes (Tsiliopoulos, 2022). It is also notable that since 2021, the U.S. Air Force's Special Operations Command (AFSOC) has been developing the amphibious MC-130J.

Last but not least, the extension of the military use of flying machines, from landplanes to seaplanes, was completed later through the opening to outer space. Indeed, space has already evolved into the fourth dimension of military force, beyond the classical set of land, air and sea (Kolovos, 2006).

THE THEORY OF HYDRATION OF RIGHTS AND THE SEAPLANES

A relatively new theory deals with the phenomenon of ''hydration of rights''. This doctrinal approach is based on the influence of the human right to water on other rights within constellations of rights. (Maniatis, 2021). This phenomenon is the reverse of the fundamental principle of Environmental Law, which consists in environmental integration; according to the rule of integration, each sector must pay respect for the environment, while hydration consists in action that benefits at least one sector. For instance, the rights to a decent standard of living as well as to housing are updated and reinforced by the exemption from water cut-off in main homes in France. More precisely, France has enshrined since 2013 the right to water and energy sustainability in principal homes by

blocking power and especially water cuts. This legal development, which is original at the level of State sources of law worldwide, has been called ''French Revolution'' number II.

   Hydration not only has a positive impact on the sector to which it specifically addresses, but also on others. This is the case of the aforementioned right to water sustainability, in the sense of not being cut off, which directly reinforces other guarantees, like primarily the right to housing. However, the influence could be multiple, thanks to its impact on a broader set of guarantees. It is about an indirect influence on various rights, such as the rights to family and hospitality through the right to housing. In general, hydration could have a positive impact on a variety of guarantees, including those that are more or less marginal in terms of constitutional consecration. This is the case inter alia of the right to pursuit of happiness, which has been explicitly recognized uniquely in the Constitutions of Japan and South Korea, to tranquility, to hospitality and to tourism.

  It is also notable that the theory of hydration is not confirmed uniquely by the classical right to water, from which it was inspired initially. It is also confirmed by another, similar guarantee, related to thermalism. The right to thermalism, which has been very recently in process of specific recognition, can influence a series of related rights, such as the right to enjoyment of the environment, especially its natural aspect, but also its cultural one, for example if the spa facilities are located in a building that is a historical monument. It is also possible to directly promote other guarantees, such as the rights to health, culture, tourism, sport, recreation and leisure. Furthermore, the case of tourist thermalism, through the right promoted to tourist activity (primary hydration), benefits other related rights (secondary hydration), such as the rights to hospitality and development. To better understand this dual impact of the right to thermalism on rights rooted in the tourism sector market, the concept of the tourism cluster proves useful. Within the conceptual framework of spas as tourist resorts, the fact that the right to hospitality is promoted par excellence is already apparent. Since hospitality, strictly speaking, is about providing accommodation to those who lack it, customers of a tourism cluster have access to a comprehensive set of hospitality services.   Moreover, the right to thermalism implies the indirect hydration of the right to leisure of third parties, illustrated by the role of spectators of games conducted by persons exercising the right to thermalism in a thermal pool for recreational use. It should be pointed out that the secondary right may coincide with at least one of the primary rights, such as the rights to sport and recreation.

  As seaplane is sometimes called hydro or hydration, the formulation itself indicates the connection of this type of vehicle with the theory of hydration of rights. The classical right to water focuses mainly on potable water, which constitutes the most valuable category of uses. However, this right is a

multifaceted phenomenon, covering various types of use, including conveyance. So, it is applicable inter alia in the field of maritime and hydro transport.

As far as the relationship between the right to water and seaplanes is concerned, its primary influence is related to the right to transport, which is an authentic fundamental right, being recently recognized in an explicit way in various legal texts, especially of States, such as France, and the European Union. Furthermore, the secondary hydration is also confirmed, as it is the case of various rights that are enhanced through the right to transport. This is the case mainly of the rights to leisure, to tourism, to hospitality, and to development. It is also possible to refer to some original, specific guarantees, belonging to the current new wave, such as inter alia the principle of development of insular and mountainous regions, which has been consecrated in article 101, paragraph 4, of the Greek Constitution, through the 2008 amendment. In this vein of ideas, even littoralization is also promoted by the right to transport, as exercised by seaplane, whilst the aforementioned guarantee of insular regions constitutes indirectly a legal fundament for this phenomenon.

CONCLUSION: THE HYDRATION, A CHALLENGE FOR BUSINESS WITH EMPHASIS ON AD

The RQ, according to which seaplanes are a symbol of the new era, for the promotion of human rights, has been confirmed. Those vehicles are essentially new, given that they have almost been marginalized in the post-war era. It has been remarked that the idea of the seaplane was not due to the romantic desire to combine water and sky in a single hybrid machine, but to much more concrete considerations (Anonimo). In a comparable way, it is possible to formulate the conclusion that the gradual comeback of this aircraft does not result from a romantic approach to the past. It is about a question of realistic valorization of available devices, as long they are adapted to the current technologies and social needs, let alone in a very demanding context of global economy.

Besides, the current research has highlighted the fact that seaplanes are of major importance for tourism, exemplified by sea tourism, and also other uses. They have been valuable for the mission of Security Corpses, such as Fire Service, in the matter of firefighting in forests, and of Armed Forces. The hydro was used almost from scratch for the conduction of war attacks, it is also nowadays useful in the theater of war, against not only landplanes but also helicopters.

So, it results that the business sector should invest in the construction and commercialization of seaplanes, for any type of use, by making use of the appropriate tools of management and marketing. For example, the term ''hydration'' could be valorized for ad, as it is also the case of the theory on

hydration of rights. Indeed, businesses should not find these words too conceptual and therefore boring for the general public. As advertisements are usually based on puns and slogans, those words may be particularly useful, in the mainstreaming international language, like English.

It is notable that a century ago, William Mitchell, a picturesquely outstanding figure in the U.S. Military Service for twenty-seven years, signalized that there are two things in which an airplane excels all other carriers: one is its speed and the other is the fact that it is the only instrument of transportation which is capable of delivering its cargo to a terminal station in the air (Mitchell, 1988). The latter has been used to great advantage as a means of advertising commodities, such as sky-writing with smoke let out of the airplane in various ways and maneuvering the airplane so as to write letters or words that everybody can see (Mitchell, 1988). Another means of advertising is to paint the name of the article on the under surface of the airplane, and still another is to distribute pamphlets or sheets of paper describing the article being advertised (Mitchell, 1988).

To sum up, the concept of hydration consisting in the reemerging technology of seaplanes is a challenge for innovative business, for private companies. This remark is also valid for the competent public services, exemplified by national tourism organizations, like the legal person under public law ''Hellenic Tourism Organization'', whose age is almost equal to the one of seaplanes.

It is also recommended that stakeholders, such as inter alia this Greek public service and its homologue service of Italy, highlight the macroregional innovation of the European Union, and more specifically the Adriatic and Ionian Region (EUSAIR), far beyond the opportunity to devote seaplanes to intraregional travels of that type.

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Behind the words for leisure, lie two centuries of seamanship, which deserve to be combined with the hydration of both seaplanes and rights…

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ARTEMIS ACCORDS AND SPACE HOSPITALITY

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ABSTRACT

In the framework of NASA's Artemis program, a private sector spacecraft of the U.S., Odysseus, the first ever to launch on Moon's surface, let alone in a spot so far in the south, touched down on 22 February 2024 whilst this State races to return astronauts to the Moon, in late 2026, before China lands its own crewed spacecraft there. Linked to this program, the Artemis Accords have been a set of not legally binding, multilateral principles on peaceful exploration and use of the Moon, Mars and wider outer Space. This text is endowed with novelties, such as ''outer space heritage'' to preserve and ''safety zones'' for the deconfliction of the use of the outer space. Its originality ties in well with its gradual acceptance by a significant number of countries, including two of the spacefaring superpowers having succeeded in soft-landing a spacecraft on the Moon, India and Japan. Outer Space Law or Cosmic Law has been significantly enriched by those Accords, which should incorporate the principle of hospitality of the outer space and in it. The outer space, and especially the Moon, is available for humans and retains evidence of their presence whilst the principle of preservation of outer space cultural heritage essentially implicates recognition of space hospitality. The Earth's natural satellite symbolizes hospitality in contradiction to Earth's twin, Venus, which is a victim of climate change and therefore by association recalls Earth's current climate crisis, with which the new human right to Containing Climate Change (CCC) is connected.

Keywords: Artemis Accords; Artemis Program; Containing Climate Change (CCC); Earth's twin/Venus; Odysseus; outer space heritage; Mars; Moon; private sector business; space hospitality

INTRODUCTION: ASPECTS OF INTERNATIONAL LAW

The current codification of the Law of the Sea, which is a branch of Public International Law, consists in the United Nations Convention on the Law of the Sea (UNCLOS), concluded in 1982, This first single code on the matter is comparable to the formal Constitution of a sovereign State (De Pooter). However, to date it is not quite clear how this informal denomination emerged. It is not the doctrine that baptized it with this impressionist expression but an official of the lawmaking procedure. Indeed, this text was described as a ''Constitution for the oceans'' by the President of the third

Conference of the law of the sea, at the time of its adoption (Morin, 2022). Tommy T. B. Koh, coming from Singapore, made speech of the elaboration of a constitution for the oceans, which was a common dream of the participants (Anonyme). This text, as modified, includes almost all institutions of this branch, with some exceptions, such as the Exclusive Fisheries Zone or Exclusive Fishery Zone (EFZ) and the Fishery Protection Zone. In the initial version of the UNCLOS, an area of the seabed beyond the continental shelf and the EEZ was called Area and was characterized as ''common heritage of Mankind''. With the leading intervention of the USA, being no contracting party of the UNCLOS to date, an attempt was made to modify the relevant part XI of the Convention, which is titled "The Area". The amendment was achieved through the 1994 New York Agreement and formally is a complement of the initial Convention.

Besides, a new branch of the International Law consists in the Outer Space Law or Cosmic Law. This field is quite comparable with the Law of the Sea, although the latter is much older, being endowed with a very rich and dynamic content, especially since its first codification through the four separate Geneva Conventions, which were adopted in 1958. It would be interesting to shed light to one of the most recent aspects of this new set of rules, whose mainstreaming text is Outer Space Treaty (OST). It is about the Artemis Accords, which have the USA as a protagonist, on the basis of the Artemis program.

We assume that the Artemis Accords constitute a realistic way of getting benefit from the Moon.

THE HISTORY OF THE ARTEMIS ACCORDS

The Outer Space Treaty is a text considered by the Legal Subcommittee in 1966 and agreement was reached in the United Nations General Assembly in the same year, in virtue of resolution 2222 (XXI). This text, which was ratified by 113 States as of August 2023, has been called Magna Carta for the Outer Space Law (Argyrou, 2021), which is comparable to the aforementioned denomination ''Constitution for the oceans'', as for the UNCLOS. It provides the basic framework on international space law, including the following principles:

- the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind;

- outer space shall be free for exploration and use by all States;

- outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means;

- States shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space in any other manner;

- the Moon and other celestial bodies shall be used exclusively for peaceful purposes;

- astronauts shall be regarded as the envoys of mankind;

- States shall be responsible for national space activities whether carried out by governmental or non-governmental entities;

- States shall be liable for damage caused by their space objects; and

- States shall avoid harmful contamination of space and celestial bodies (United Nations, Office for Outer Space Affairs).

Grounded in this international tool, the Artemis Accords are a non-binding set of principles designed to guide civil space exploration and use in the 21st century (U.S. Department of State, 2023). They arose from the Artemis program of the National Aeronautics and Space Administration (NASA). This project has been characterized as a sister to the venerable Apollo project, by far the most expensive spaceflight endeavor in history, which kicked off in 1961 and, by the time it ended in 1972, nine missions and 24 astronauts had orbited or landed on the Earth's satellite (Drake et al., 2020). Neil Alden Armstrong became the first person to walk on the Moon. On 20 July 1969, he stepped from the Eagle onto the Moon's surface with the words: ''*That's one small step for [a] man, one giant leap for mankind''.* However, he left this world without seeing a next-generation astronaut following in his footsteps, that is, his walk on the Moon.

With Artemis mission, NASA will land the first woman and first person of color on the Earth's natural satellite. The Artemis programs seeks to put the first crew there in late 2026 whilst the official target, in September 2020, was to achieve this mission in 2024. This delay is indicative of the difficultness of the mankind's comeback. If Artemis goes well, then the near future might also see NASA and partners developing a space station in lunar orbit that could serve as a gateway to destinations on the Moon's surface – and beyond (Drake et al., 2020). Indeed, it is possible to launch from the Moon heavier spaceships to Mars or elsewhere more easily (Elafros, 2022).

Anyway, it is to signalize that the second nearest celestial body is not Mars but Venus, which comes closer to the Earth than any other planet and its orbit is closest to the Earth's one. This planet was named after the goddess of love and beauty and is often called the Earth's twin. Despite its evocative name, the brightest planet in the night sky is a very odd place, whose surface is extremely hot and

totally inhospitable. A severe climate change may have transformed an Earth-like climate to the present, uninhabitable-to-humans status. So, it would be plausible to highlight the principle of hospitality related to the cosmos, in Outer Space Law, including the Artemis Accords.

  Those Accords were launched on 13 October 2020 with Australia, Canada, Italy, Japan, Luxembourg, the United Arab Emirates, the United Kingdom and the USA. As of February 2024, there were 36 signatories, with the addition of Angola, Argentina, Bahrain, Belgium, Brazil, Bulgaria, Colombia, Czech Republic, Ecuador, France, Germany, Iceland, India, Israel, Mexico, Netherlands, New Zealand, Nigeria, Poland, the Republic of Korea, Romania, Rwanda, Saudi Arabia, Singapore, Spain, Ukraine and Uruguay.

 As far as Greece is concerned, it is about a new participant in this group including various countries of all continents. The Hellenic Republic became just the 35th country to have signed the Accords, on 9 February 2024. It has made a significant progress as for its role in the international context of space missions, given that it created, a few years ago, an ad hoc agency, which in its current form is officially called ''Hellenic Space Center''. The President of this non-profit organization, Dr Ioannis Daglis, declared that being named after Artemis, the ancient Greek goddess symbolizing the Moon, the Artemis program embodies the collective aspirations of the participants to expand the horizons of human exploration and knowledge. Indeed, ''Artemis'' is a noun of the ancient Greek, declaring in Greek religion the daughter of Zeus and Leto and Apollo's twin sister. That goddess was identified by the Romans with Diana. It is to emphasize that this name is symbolic, tying in well with the name ''Apollo'' of the aforementioned archetype program of the Moon exploration. It is also to underline the fact that in Greek the word ''Artemis'' in the English-language denomination ''Artemis program'' has been officially translated ''Artemis'' and not ''Artemi'', which is the current type of this noun, namely in modern Greek.

  Another name of the ancient Greek tradition has been directly associated to the Artemis program. It is about ''Odysseus'', the name of an uncrewed lunar lander which was constructed and flown by a private Texas-based company, Intuitive Machines. The spacecraft landed near the Moon's south pole on 22 February 2024, the first U.S. touchdown on the lunar surface in more than half a century and the first ever achieved by the private sector, not by a governmental space program (Gorman et al., 2024). It was also the first time any ship had visited a spot so far in the Moon's south, down in a region where ice is preserved in permanently shadowed craters (Kluger, 2024). Those deposits could be harvested to serve as drinking water, breathable oxygen, and even rocket fuel by future lunar astronauts (Kluger, 2024).

It is to put the stress on the fact that initially there was an interruption of communication contact with Odysseus, when it landed. The point of landing is full of craters and so it proves to be particularly dangerous for such an operation.

THE CONTENT OF THE ARTEMIS ACCORDS

According to Section I of the Artemis Accords, their purpose is to establish a common vision via a practical set of principles, guidelines and best practices to enhance the governance of the civil exploration and use of outer space with the intention of advancing the Artemis Program. It is about a very ambitious program, given that it is signalized that these activities may take place on the Moon, Mars, comets, and asteroids, including their surfaces and subsurfaces, as well as in orbit of the Moon or Mars, in the Lagrangian points for the Earth-Moon system (namely the regions of space being called ''Lagrange points'' and numbered from L1 to L5) and in transit between these celestial bodies and locations. It is also clear that synergies between the public sector and the private one are well encouraged, given that it is cited that the Signatories intend to implement the principles set out in these Accords through their own activities by taking, as appropriate, measures such as mission planning and contractual mechanisms with entities acting on their behalf.

Section 2 regulates the implementation of the Accords, by establishing the cooperative idea for the exploration and use of outer space, through the term ''cooperative activities''. Those activities may be implemented through appropriate instruments, exemplified by Memoranda of Understanding, Implementing Arrangements under existing Government-to-Government Agreements, and Agency-to-Agency arrangements as for the subordinate agencies of the Signatories, such as the aforementioned Hellenic Space Centre related to the Greek polity. According to Section 3, they are devoted uniquely to peaceful purposes and in accordance with relevant International Law, so they confirm the general principle, already consecrated in the Outer Space Treaty.

According to Section 4, the Signatories are committed to transparency in the broad dissemination of information regarding their national space policies and space exploration plans. If the consecration of the principle of transparency seems to be bold, beyond the inherent darkness of space, it is limited to the status of national rules and regulations on the matter. The Signatories plan to share scientific information resulting from their activities pursuant to these Accords with the public and the international scientific community on a good-faith basis, and consistent with Article XI of the aforementioned Treaty. According to this article, States Parties conducting space activities agree to inform the Secretary-General of the United Nations as well as the public and the international scientific community, to the greatest extent feasible and practicable, of the nature, conduct, locations

and results of those activities. On receiving the said information, the Secretary-General of the United Nations should be prepared to disseminate it immediately and effectively.

One of the most important principles consists in interoperability of infrastructure for space missions conducted by more than one factors. Pursuant to section 5, the Signatories recognize that the development of interoperable and common exploration infrastructure and standards, including but not limited to fuel storage and delivery systems, landing structures, scientific communications systems, and power systems, will enhance space-based exploration, scientific discovery, and commercial utilization. They commit to use reasonable efforts to utilize current interoperability standards for space-based infrastructure, to establish such standards when current standards do not exist or are inadequate, and to follow such standards.

Besides, Section 6 cites that the Signatories commit to taking all reasonable efforts to render necessary assistance to personnel in outer space who are in distress, and acknowledge their obligations under the Rescue Agreement as well as the Return one. As far as the Rescue Agreement is concerned, it was created by a 19 December 1967 consensus vote in the United Nations General Assembly. It came into force on 3 December 1968 and its dispositions elaborate on the rescue provisions of Article V of the Outer Space Treaty.

Pursuant to Section 7 of this Treaty, the Signatories commit to determine which of them should register any space object relevant to their cooperative activities in accordance with the Registration Convention on Registration of Objects Launched into Outer Space, which was adopted by the United Nations General Assembly in 1974, opened for signature on 14 January 1975 and entered into force on 15 September 1976. For activities involving a non-Party to the Registration Convention, the Signatories intend to cooperate to consult with that non-Party to determine the appropriate means of registration.

Section 8 on release of scientific data is quite problematic. It should be incorporated on Section 4 due to its content and it cites that the Signatories retain the right to communicate and release information to the public regarding their own activities and are committed to the open sharing of scientific data. It is about quite vague dispositions whilst the commitment to openly share scientific data is not intended to apply to private sector operations, unless such operations are being conducted on behalf of a Signatory.

Pursuant to Section 9, the Signatories intend to preserve outer space heritage, which they consider to comprise historically significant human or robotic landing sites, artifacts, spacecraft, and other evidence of activity on celestial bodies in accordance with mutually developed standards and practices. It is notable that on the Moon cultural heritage includes more than 60 places where human and robotic missions have left their mark on the surface (Gorman, 2020). The aforementioned reference to ''other evidence of activity on celestial bodies'' perhaps offers an avenue to protect traces,

such as astronaut boot prints, in lunar ''soil'' (Gorman, 2020). With no atmosphere and consequently no wind to erode the soil, footprints are likely to be still there.

It is also notable that in 2020, three rovers from the Apollo 15, 16 and 17 missions were given historic landmark status in the US state of Washington, home of their manufacturers, Boeing, being a competitor in contracts to develop technologies to return to the Moon (Gorman, 2020), namely with reference to Artemis program. This action has combined cultural heritage with ''engineering heritage'', whereby a technology or company can prove it has a track record in space (Gorman, 2020). Besides, a scholar has remarked that a critical factor that has been omitted in thinking about lunar heritage (and indeed terrestrial heritage) is the aesthetic environment created by light and shade – or chiaroscuro (Gorman, 2020).

Anyway, Section 9 is considered as unique, given that its principle consists in essentially novel elements (Bartóki-Gönczy et al., 2023). NASA issued very detailed recommendations in 2011 on How to Protect and Preserve the Historic and Scientific value of U.S. Government Lunar Artifacts. Furthermore, the U.S. Congress adopted the One Small Step to Protect Human Heritage in Space Act, in 2020, noting that the landing sites are the first archaeological sites with human activity that are not on Earth, which provide evidence of the first achievements of humankind in the realm of space travel and exploration and contain artifacts and other evidence of human exploration activities that remain a potential source of cultural, historical, archaeological, anthropological, scientific, and engineering knowledge (Bartóki-Gönczy et al., 2023). Besides, according to Space 9 the Signatories intend to use their experience under the Accords to contribute to multilateral efforts to further develop international practices and rules applicable to preserving outer space heritage.

Section 10 provides that the Signatories note that the utilization of space resources can benefit humankind by providing critical support for safe and sustainable operations and that they affirm that the extraction of space resources does not inherently constitute national appropriation under Article II of the Outer Space Treaty. It is to point out that according to Article II, ''*Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means*''. The U.S. position is that the Treaty does not ban the exploitation of space resources and the Commercial Space Launch Competitiveness Act of 2015 stipulates that the '' *United Nations citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States* '' (Bartóki-Gönczy et al., 2023). However, it is about a controversial matter, in particular because the term ''exploration '' is fully absent not only in Article I

but also in the entire text of the Treaty, so the economic exploitation of space resources seems to be rather a taboo.

Section 11, related to deconfliction of space activities, cites that the Signatories acknowledge and reaffirm their commitment to this Treaty, including those provisions relating to due regard and harmful interference. They affirm that the exploration and use of outer space should be conducted with due consideration to the United Nations Guidelines for the Long-term Sustainability of Outer Space Activities, adopted by the United Nations Committee on the Peaceful Uses of Outer Space (''COPUOS'') in 2019, with appropriate changes to reflect the nature of operations beyond low-Earth orbit. It is notable that a novelty consists in the ''safety zone'', which is the area wherein the Signatories intend to provide notification of their activities and commit to coordinating with any relevant actor to avoid harmful interference.

Section 12 on orbital debris provides that the Signatories commit to plan for the mitigation of those debris, including the safe, timely, and efficient passivation and disposal of spacecraft at the end of their missions, when appropriate, as part of their mission planning process.

Besides, it is notable that the Artemis Accords do not constitute a treaty (or an international agreement), as Section 13 states that the Accords are not eligible for registration under Article 102 of the Charter of the United Nations whilst Section 1 clarifies that those texts represent a political commitment (Bartóki-Gönczy et al., 2023).

CONCLUSION: MOON REVISITED AND SPACE HOSPITALITY

The current paper ends up to the following final critical remarks:

    a.   *The realistic character of the Artemis Accords and the challenge for safety*

The paper hypothesis has been confirmed, particularly because it has proved that the Artemis Accords are a flexible tool for political understanding, coordination and cooperation in a very crucial and demanding target, such as peaceful exploration and use of the Moon and other celestial bodies, as long as natural, technological and economic parameters allow this mission, in practice. In other words, the Artemis program itself has been marked by a very intense ambition of its creators to send astronauts on the Moon's surface, very soon. That turned out to be an unaccomplished ambition, as the Moon is still particularly dangerous to explore, even for unmanned missions like that of Odysseus, not to speak about comparable incidents of the past, such as inter alia the accident of the spacecraft ''Appollo 13'' on 13 April 1970 en route to the Moon and the disaster of the space shuttle orbiter ''Challenger'', on 28 January 1986. Astronauts are endowed with the right to safety whilst safety constitutes a fundamental principle of major importance.

Those Accords are endowed with an actual content whilst classical treaties of Outer Space Law are marked by serious problems, such as inter alia vagueness. It is to pay special attention to the fact that nowadays the exploitation and the commercial approach to the space become feasible. So, the opinion that the Accords have effectively put in place an alternate framework relating to the law of outer space (Din, 2022) is in principle plausible. It is also notable that the Accords have managed to gain the participation of spacefaring superpowers, such as India and Japan, and to initiate new participants, such as Greece. The social inclusion of the Artemis program, exemplified by the opening to the first woman astronaut and the first astronaut in color as well as to the private sector of business, is completed through those Accords with the international inclusion, especially of countries with limited experience in the exploration and use of the outer space.

   b.   *The principle of space hospitality and the right to CCC*

 Nevertheless, those Accords could also include new terms, such as mainly hospitality of and in the outer space and perhaps also tourism, which are inexistent in the classical Cosmic Law, exemplified mainly by the Outer Space Treaty.

 On the one hand, the Moon, which was historically thought, even by outstanding scientists, to be both unreachable and anhydrous, has gradually revealed its welcoming profile. Its hospitality towards uncrewed and manned missions is notable, let alone the fact that scientists have managed to localize water, in various areas, including the sunlit ones since 2020. The introduction of specific rules on the preservation of the outer space heritage is a serious legal development itself, but also it constitutes indirectly a kind of recognition of the principle of hospitality, given that the outer space, especially the Moon, is available for humans and it retains, to a certain extent, evidence of their presence. So, hospitality of the Moon covers both the robotic or crewed missions and also the heritage relevant to them.

 On the other hand, hospitality is highlighted in a negative way, on the basis of Venus. The Earth's twin is the hottest planet in our solar system, and extremely unhospitable, so on-the-field exploration and other activities, such as tourism, by humans constitute a mission impossible. This lack of natural contact of humans with this planet enhances the importance of the exploration of Moon as a visitable celestial body, let alone the fact that this body is the unique natural satellite of the Earth. It results that both Earth and its satellite are much or less related to the principle of hospitality. Besides, Earth's twin has been the victim of a serious climate change, which negated the welcoming character of his planet and therefore its similarity to the terrestrial environment. So, the current phenomenon of anthropogenic climate change in the Earth, which the last years has been transformed into climate crisis, highlights a similarity of the twins, as far as their history is concerned. Mankind has acquired legal tools to cope with the problem of climate change, in particular in Public International Law. As a

result, Cosmic Law is no more the most recent discipline in this wide field. In this dramatic context, a new guarantee has been recognized, consisting in the right to Containing Climate Change (CCC). This right is emblematic for the current, 4G set of Public Law rights, along with the right to participate in the Information Society, which has gained explicit consecration in the Greek Constitution.

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It is contradictory that outer space is reserved for peaceful purposes, including economic ones, but mankind is very far from the model of peaceful coexistence of States, on Earth.

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ADVANCING RESEARCH ON SUSTAINABILITY IN INTERNATIONAL BUSINESS: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

The concept of sustainability, increasingly prominent in the global economic debate, needs a balance between economic, environmental, and social aspects, crucial for both business success and social prosperity. International companies, aware of this interconnectedness, try to maximize economic performance while concurrently pursuing sustainability in the medium- long term. Despite the competitive advantages associated with sustainability, companies face complex challenges in the international arena, such as cultural, legal, regulatory, and social pressures, which have prompted them to integrate these issues into their business strategies. Academic literature has provided valuable insights into the relationship between sustainability and international business, investigating a multitude of aspects and features of connections between these two elements. Yet, there is still a gap in the full comprehension of this relationship and those issues that on one hand influence the adoption of sustainability practices and on the other hand the consequences and actions that this adoption requires. This literature review aims to offer a comprehensive overview of these elements through a systemic conceptualization, examining the challenges and opportunities that international companies face in pursuing sustainable objectives, thereby contributing to delineating potential opportunities for the future of the global economy.

Keywords: sustainability, international business, systematic literature review, conceptual model

INTRODUCTION

The concept of "Sustainability", understood as a multidimensional concept, encompassing economic, environmental and social principles, which are mutually indispensable for the development of social prosperity compatible with business performance growth (Griggs et al., 2013; Eccles, Ioannou, & Serafeim, 2014) plays a central role, both in the global political-economic debate and the actions of international economic players. These latter increasingly seek optimal performance while maintaining economic and social sustainability. In an era of constant economic growth within hyperglobalized context, the relationship between sustainability and international business has become one of the

dominant themes in both academic and practical sphere. The growing awareness of the importance, in fact, of environmental, social and economic sustainability has prompted international companies to integrate sustainability into their business strategies, aiming to align profitability with sustainable goals. A key starting point regarding the relationship between sustainability and international business is certainly represented by Kramer and Porter (2011) concept of "Creating Shared Value" (CSV), emphasizing how companies are able to generate economic value through the application of sustainable practices that create value for society and simultaneously respect the environment. This perspective has influenced many companies, leading them to recognize that sustainability is not only an ethical issue, but also a driver of innovation and competitiveness. The adoption of sustainable practices has been associated with several competitive advantages. As proposed by Eccles, Ioannou, and Serafeim (2014), companies that integrate sustainability into their business strategies tend to have superior long-term financial performance. This is also supported by a study by Khan, Serafeim, and Yoon (2016), which showed a positive correlation between disclosure of sustainability information and corporate financial performance. However, sustainability in the international context also presents significant challenges. Companies must therefore take an adaptive and flexible approach to navigate this complex environment influenced by cultural factors, as well as by legal, historical, and political institutions that establish distinct approaches and models (Doh and Guay, 2006). Again, consumer and stakeholder pressures have become a key driver for the adoption of sustainable practices. In fact, according to Luchs and Kumar (2017), consumers are increasingly demanding environmentally and socially responsible products and services. Investors' increasing focus on sustainability has led companies to integrate sustainability considerations into their investment decisions and business strategies (Friede, Busch, and Bassen, 2015). Innovation is another crucial aspect in the relationship between sustainability and international business. Industry studies have shown how sustainable innovation can create new market opportunities and rewrite competitive dynamics (Nidumolu, Prahalad and Rangaswami, 2014) highlighting how the adoption of sustainable technologies and business models can not only reduce environmental impact, but also generate economic and employment value. Sustainability governance is another key element that has received increasing attention in the scholarly literature. Waldman, Siegel and Javidan (2006) highlighted the importance of committed leadership, proposing an integrative framework on the role of leadership to ensure the effectiveness of sustainable practices. Also, Schaltegger and Wagner (2011) explored sustainable leadership practices and management education as key tools for achieving corporate sustainability. In addition, collaboration between companies, governments, and non-governmental organizations has been identified as a critical factor in addressing global challenges of social impacts, such as, above all, climate change (Kaplan, Serafeim, and Tugendhat, 2018). In conclusion, the relationship between

sustainability and international business is complex and multidimensional, influenced by a range of factors from consumer and stakeholder pressures to innovation and corporate governance. The scientific literature in recent years has provided a number of valuable insights into how companies can integrate sustainability into their business strategies to generate economic, social, and environmental value. However, it touched upon some established concepts without exploring emerging trends or innovations in sustainability practices and their implications for international business. The aim of this paper is to attempt to fill this gap, through a literature review on sustainability within the context of international business. We explore the current state of scholarly production, analysing the most investigated aspects of this relationship, and identifying potential gaps in the literature and future research opportunities, in order to better understand how international companies address sustainability challenges and their impact on the global economy. Our review aims to provide a comprehensive overview of existing knowledge and to identify the most promising areas of study for the future.

METHODOLOGY

With the aim of providing an overview of the literature that has investigated the theme of sustainability in International Business a Systematic Literature Review was conducted following the literature methodological approach in choosing the source proposed by Akbari et al. (2020) and Bretas and Alon. For the identification of articles, we chose to use the academic scientific indexing service ISI Web of Science (WoS) as the source. We then proceeded with the identification of the reference keywords for the investigated theme (Bargoni, Ferraris, Bresciani, Camilleri, 2022); regarding this, the identified keywords were "sustainab*", truncated, so that the terms 'sustainability' and 'sustainable' respectively can also be incorporated in the research query, and "international business." To identify scientific articles most relevant to the objective of our research, we decided to confine the selection in the use of WoS to those articles containing the selected keywords in topic (TS), or title (TI) or abstract (AB). The final query identified was as follows: TS= ("sustainab*" AND "international business") OR TI= ("sustainab*" AND "international business") OR AB= ("sustainab*" AND "international business"). The first output obtained was 434 articles. From this result we added further search criteria: we selected all the "Articles" categorie and all articles related to the specific categories proposed by WoS, namely "Business", "Management"; also we have set articles in the "english" language, which upon initial analysis already constituted 100% of the overall sample. The final sample obtained consisted of 200 articles. Differently to the established search criteria, we chose not to limit the timeframe, but in order to improve the quality level of our literature analysis, we used an additional selection criterion, i.e. we identified in the sample of 200 articles, only those papers published in journals included in the

Academic Journal Guide - AJG (https://charteredabs.org/academic-journal-guide). A preliminary analysis revealed that the overwhelming majority of scholarly output in the obtained sample was concentrated in the last decade. This aligns with the growing evolution of the theme, increased attention from economic practitioners, and the relevant academic and regulatory framework. The diagram below shows the various steps in the process of selecting the sample of articles obtained:

Query definition through the identification of *keywords and the use of boolean operators:*
TS= ("sustainab*" AND "international business") OR TI= ("sustainab*" AND "international business") OR AB= ("sustainab*" AND "international business")

Output: 434 articles

Filtering criteria used
Documents type
"Article"
Output: 321 articles

Web of Science Categories
"Business", "Management"

Output: 200 articles

Language
"English"
Output: 200 articles

Academic Journal Guide ranking
"4 and 4* score"
Output: 43 articles

Figure 1. *Sample selection process*

Firstly, the sample of selected articles was then analyzed using the software "Bibliometrix" (Aria and Cuccurullo, 2017) with the aim of conducting statistical and graphical surveys that could synthesize the research, emphasizing relevant aspects of the results obtained in relation to the scientific production on the topic. Bibliometric analysis, indeed, allows for more reliable and easily analyzable results in the systematic reconstruction process of scientific literature on a subject, without the risk of overlooking past articles, but especially through "transparent" and "reproducible" methods. We focused on the most relevant words present in the abstracts of the analyzed articles. "IB" (international business) and "MNEs" (multinational enterprieses) are the most frequently reported words in the abstracts, with frequency values of 38 and 36 times respectively; followed by words such as "international" (28), "sustainability" (22), and "sustainable" (18). Others words frequentily used are: "istitutional" (15), "multinational" (14), "development" (13).

FINDINGS

Subsequently, we proceeded to analyze the geographical data of the article sample. The bibliometric analysis revealed that the predominant productive nations are UK, USA and Netherland with 24, 16 and 16 articles produced on the topic, respectively. Following are Canada, Denmark and Italy, while the remaining countries, especially those in the West, such as Spain, Portugal and Norway show low values.

Country Scientific Production
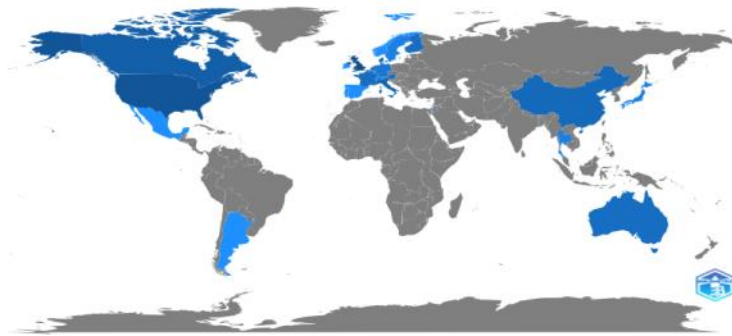
Figure 2. *Country Scientific Productions*

Further observation regarding the investigated article sample was conducted on the topics of the studies. The survey results confirmed previous observations, namely that topics such as IB (38) and MNEs (36) have garnered increasing attention from scholars and researchers, particularly in the most recent biennium, between 2022 and 2024. This data could be attributed not only to the growing centrality that the sustainability theme is assuming in the global economic system but also to the increasing regulatory attention involving nearly all economic operators. Additionally, it is possible to observe, in the same time frame, a growth in trends related to the words sustainability (22) and sustainable (18) and practices (11) thus suggesting how these themes are increasingly recurring and used in the studies on topic.
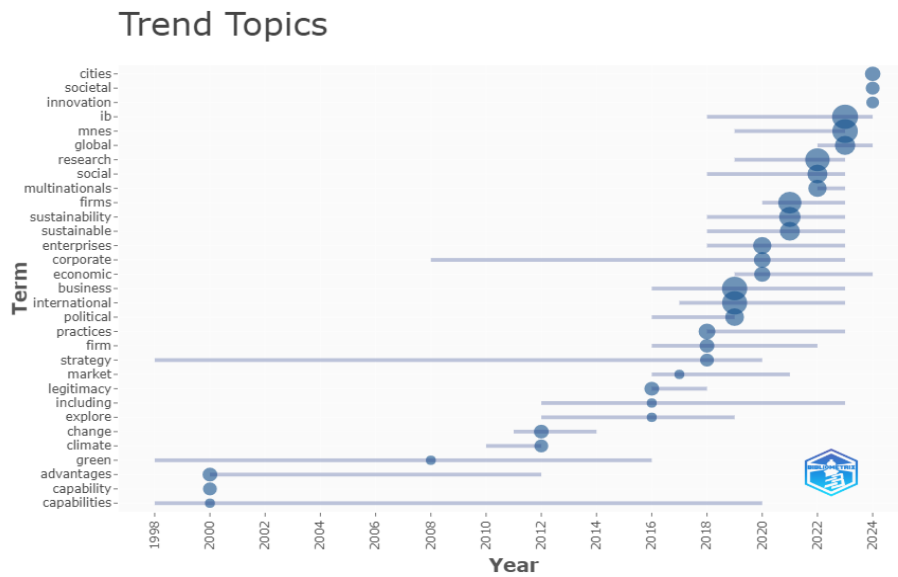
Figure 3. *Trend Topics*

Observing more specifically the characteristics related to the articles and the authors, we can observe that among the articles in the sample, the most cited one overall has 390 citations (Kolk, 2016), followed by Rugman and Verbeke (1998) and Luo (200); others that present significantly lower and quite homogeneous data (220 cit. Witt, 2019; 182 cit. Kolka and Pinkse, 2008; 160 cit. Darendeli and Hill, 2015).
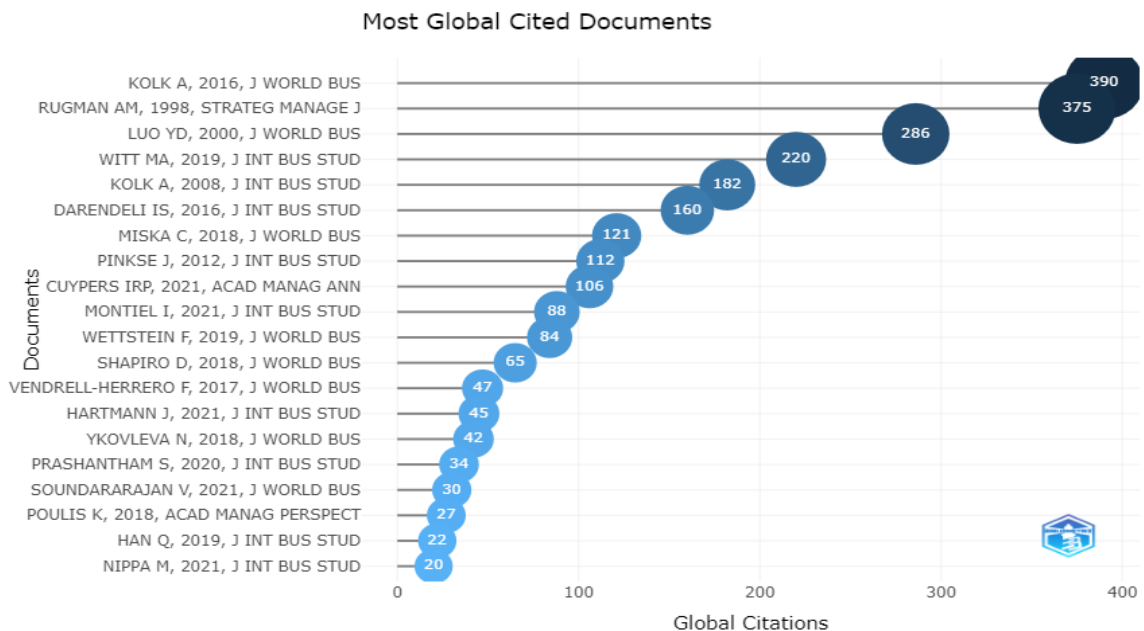
Figure 4. *Most Global Cited Documents*

The figure 7 shows that, among the keywords used by the authors, there are thematic links highlighted by the color of the words connected by the strands. Figure 7 mainly indicates that selecting the terms "sustainability" and "business international" forming the green and the red cluster, which are linked among each other, are also linked with the terms "MNEs" and "strategies", colored in blue cluster.
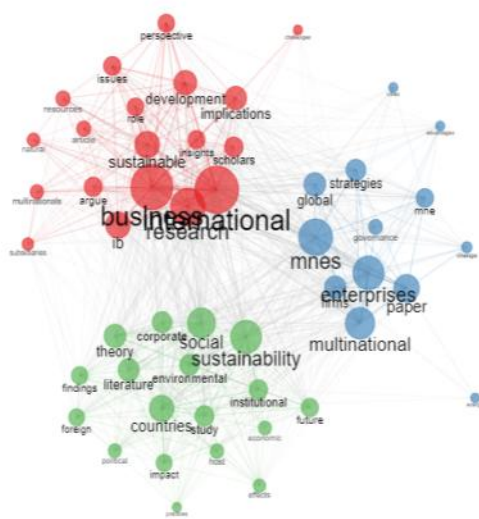
Figure 5. *Thematic map cluster*

Subsequently, upon close inspection of each individual article, 12 articles out of a total of 43 were found not to be in line with our search objective. Therefore, the analysis focused on the remaining 31 articles. After carefully reading their content, it was decided to categorise the relevant aspects, inspired by MacInnis (2011) and Hollebeek (2024), identifying the Antecedents and Consequences factors.

From the analysis of various articles, it is evident that contextual factors play a predominant role in the implementation of sustainability in international business. These factors include institutional aspects like governmental regulations and cultural influences, as well as company-specific factors such as economic conditions and knowledge. Foreign Direct Investments (FDIs) also emerge as significant elements, contributing to economic globalization and bringing benefits to both investing and receiving countries through technology transfers and market access.

Article(s)	Antecendents	Consequences
Rugman & Veerbke, 1998	Corporate Strategies: managerial decision considering the leveraging potential of the firm's resources and the flexibility of resource commitments	Environmental performance (green capabilities)
Kolk & Pinkse, 2008	Climate Change	Firm Specifics Advangates (FSA) investments (e.i. R&D)
Pinkse & Kolk, 2012	Istitutional factors (Provision of public subsidies, knowledge and infrastructure, Technology level, Degree of institutional change, political issue)	Climate change: Green Market Development
Kolk, 2016	Firms specifics (type, sector, country), Foreign Direct Investmens projects	Environmental and Social Sustanable issue (Ethic, Rights, Responsibility, Poverty)
Darendeli & Hill, 2016	Istitutional factors (political engagement, legitimacy)	CSR project adoption
Shapiro et al., 2018	Foreign Direct Investmens, Extractive Strategic choices	CSR Strategies
Yakovleva & Vazquez-Brust, 2018	Political strategy (state-based solution) and Cooperative strategy (stakeholder management solution)	Environmental issue: mineral resource mining
Miska et al., 2018	Culture factors (e.i. future orientation, gender equality, uncertainty avoidance, power distance)	Economic, social and environmenrtal sustainability practices (score)
Wettstein et al., 2019	Istitutional, Social and Economic factors (political gaps, cultural orientation, parent-subsidiary governance and value chain control, global-local context balance)	Business Human Rights
Han et al., 2019	Owner-Managers Characteristics (foreign experience, education/training)	CSR measures: sustainability initiative scope (entrepreneurial activities in remote, poor, or minority areas'', or, ''participated in forestation – dummy 1/0) and charitable donation intensity (amount donation/total equity)
Prashantham & Birkinshaw, 2020	MNE–SME cooperation dynamics (entrepreneurship skills, knowledge, cooperation in Supply Chain)	SDG achievement
Lundan & Cantwell, 2020	Istitutional factors (knowledge transfer and integration, government policy)	Climate Change & SDGs
Montiel at al., 2021	Investments in subsdiary and in host country (Foreign Direct Investments)	SDG implementations increaseing positive Externalities (Knowledge, Health, Wealth) and reducing negative Externalities (natural resource use, harm to social cohesion, overconsumption)
Soundararajan et al., 2021	Social, institutional and economics factors (institutional conditions, supplier capabilities, and cost structures)	Sustainability mechanism adoption (Agile Sustainability Governance-ASG model)
Nippa et al., 2021	Istitutional factor (carbon pricing regulation)	Environmental issue: transition to low-carbon economy (carbon performance, i.e. emission)
Hartmann et al., 2021	Istitutional factors (regulative and normative pressures, eesource endowments) firm specifics (environmental citizenship, renewable enery consumption, internationalization)	Environmental issue: energy transition (breadth and depth of management commitment)
Cuypers, 2021	Transaction Cost Theory	CSR activity
Preuss et al., 2022	Social movement's institutional entrepreneurship	Community Sustainability Orientation

Kiefner et al., 2022	Female rappresentation in Top Management Team	SDGs (score)
Song, 2023	Multistakeholder process (knowledge exploration, knowledge sharing, seeking synergy, implanting entrepreneurial mindsets)	Environmental and Social Sustainable issue:Natural Disaster, Drugs Traffing, Spreading diseases, minorities conflicts
Ciulli & Kolk, 2023	Digital Technologies (Blockchain, AI, Cloud Computing)	Evinronmental (emission reduction), People (povery and food insecurity reduction), Prosperity (innovation)
Asmussen et al., 2023	Global Value Chain (bargaining between MNE and supplier)	CSR practices adoption
Bu et al., 2023	MNE-subsidiaries relation (transfer practice)	CSiR practices (actions of a company are inconsistent with its commitments.)
Yu et al., 2023	Country-specific advantages-CSAs (natural resources, inexpensive labor, infrastructure, formal institutions) and Firm-specific advantages-FSAs (ntellectual capital, organizational expertise, entrepreneurship, and learning capacity)	Environmental issue: reducing, replacing, and regenerating mechanism.
Ioannou Serafeim, 2023	Istitutional factors (political system, education and labor system, financial system and the cultural system)	Corporate Social Performance (CSR)
Sena et al., 2023	Environmental regulations	Economic mechanis: reshoring subsidiaries
Liu &Heugens, 2023	MNE–NGO collaborations (n° activity score)	Sustainability Performance (CITI score)
Degbey et al., 2024	Customer's motivation (regulatory, business opportunity and socio-environmental motives)	Sustainable issue: emission reduction, health and safety, cybersecurity
Goerzen et al., 2024	Global Cities and MNEs characteristics	Sustainable issue: People (migration and immigration, equity, inclusivity), Place (climate change, emission, resource consumption), Things(digital evolution)
Awasaka & Clegg., 2024	Global Cities ecosystem approach (extensive non-equity collaborations and partnerships with external organizations such as customers, suppliers, universities, and competitors)	Sustainable issue: emissions, stakeholder demands, and the SDGs.
Wiessner et al., 2024	Foreign Direct Investments	Societal Impact (social and ecologica)

Figure 6. *Sustainability in IB nomological network (on model proposed by Hollebeek et al., 2023)*

"Global Cities" are another area of interest in sustainability implementation, acting as hubs for economic, financial, and cultural exchanges. These cities shape global trends and attract capital, talent, and ideas from around the world. Multinational Enterprises (MNEs) are naturally the primary focus in sustainability dynamics, with studies exploring their relationships with foreign subsidiaries and specific management practices. However, there is limited research on the role of digital technologies in sustainability, despite their transformative impact on global business operations. Digital innovations offer opportunities for efficient resource management and supply chain transparency, but challenges such as data security and digital exclusion must be addressed for sustainable outcomes.

IMPLICATIONS

This systematic review offers contributions to the literature at the intersection between International Business and Sustainability. First, to the best of our knowledge this study is the first attempt to systematically review the extant literature on the two above concepts. Second, by indicating the trends in theory and definition, adopted methodology, and the role of the concepts in the model specification within the extant body of research, it enables researchers and international managers a comprehensive overview of the topic. Third, drawing from the findings, it sheds light on the knowledge gaps as well as problems/issues/inconsistencies in the respective literature that require particular attention and offers several future research avenues accordingly.

In addition to its contributions to the related body of research, this systematic review also provides useful insights for practitioners. Firstly, antecedent factors such as the promotion of institutional policies and regulations encourage companies to adopt sustainable practices. The introduction of incentives for the adoption of "green technologies" can lead to a reduction in gas emissions and more responsible management of natural resources. Secondly, factors such as managerial experience and the capacity to make targeted investments can influence sustainability practices, especially in less developed countries hosting international operators, also supporting the social development of local communities and the sustainable exploitation of territorial resources. Furthermore, cooperation among economic operators (e.g., between MNEs and subsidiaries or SMEs) can improve entrepreneurial skills and facilitate the adoption of sustainable practices. Collaboration throughout the supply chain and participation in processes of exploration and knowledge sharing is certainly useful for developing innovative solutions for sustainability. Finally, the use of 4.0 technologies (e.g., Blockchain, AI, and Cloud Computing) can collectively promote sustainability by ensuring transparency and traceability in supply chains, optimizing resource use and reducing waste, and decreasing the carbon footprint through the centralization of IT infrastructures.

CONCLUSIONS AND LIMITATIONS

This study provides an overview of the relationship between sustainability and international business development, presenting a structured methodology and conceptual framework. Antecedent factors influencing sustainability implementation include institutional, firm-specific, economic, managerial, relational, and technological factors. These encompass regulatory pressures, company types, economic considerations, management characteristics, relationships between actors, and technological advancements such as AI and Industry 4.0.

This study highlights the importance of sustainability in international business and offers insights into how companies and institutions can address global challenges through sustainable practices and collaborative efforts.

We are aware of the many limitations of the study as it is a work in progress. Firstly, the sampled articles could be expanded to include reference articles from journals categorized in the Academic Journal Guide and classified with a ranking value of 1-2-3, not only focusing on those ranked 4 and 4*. Regarding the research methodology, the query should certainly encompass additional terms related to those used and should also be investigated in further research software (e.g., Scopus) to expand the universe of articles obtained. This could also benefit the rigor of the methodology used, as it could be implemented through the use of specific approaches such as the PRISMA method. These highlighted limitations can certainly serve as starting points for further development of the present work, and its evolution towards different perspectives investigating specific aspects of the relationship between sustainability and IB, starting from both specific antecedent and consequent factors.

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ESG PERFORMANCE AND FIRM VALUE: EVIDENCE FROM EU LISTED FIRMS

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ABSTRACT

The Environmental, Social and Governance (ESG) issues topic is currently the most debated topic among academics due to the Agenda 2030 of United Nations. Firms are complying with this agenda by disclosing non-financial information and issuing sustainability and CSR reports. We investigate how this information, the ESG performance affects firm value. We focus on listed firms of EU countries and extract the panel data from Bloomberg database from 2012 to 2021. Our final sample comprises 976 firms from 26 EU countries belonging to 11 industry sectors. We apply ordinary least squares technique to analyse the data. The results show that ESG performance positively and significantly influences firm value. It represents that ESG issues are relevant with respect to stakeholders' concern and addressing such issues increases firm value. This study provides important implications for practitioners and stakeholders.

Keywords: ESG issues, stakeholders' concerns, non-financial disclosure, ESG performance, firm value.

INTRODUCTION

The United Nations' Environment Programme (UNEP) coined the word "ESG" for the first time in 2004. Since then, it has gained popularity among investment communities connected to socially responsible investing (Eccles and Viviers, 2011; Fulton et al., 2012; Lapinskien and Tvaronaviien, 2012). ESG is a word that researchers are using more frequently to describe a wide range of company activities (Derwall, 2007). ESG performance or non-financial disclosure considered important for the companies to gain competitive advantage (Irawan & Okimoto, 2021) disclosing their non-financial activities as such activities becomes beneficial for different stakeholders (Lee et al., 2013), which ultimately enhance the firm value (Okafor et al., 2021).

The UN's directive for sustainable reporting also directs the firms to disclose their ESG performance for a sustainable working environment. The SDGs provide a ground to cognize the significance of

these notions & purposes and firms & organizations take initiatives for the compliance of these goals. Since last years, it is witnessed in the extant literature for the need of non-financial reporting and aligning it with reporting process (Christensen et. al., 2017). ESG covers the firm's contribution towards the environmental, social and governance issues and give insights that how firms respond to these challenges by integrating ESG matters in their strategy. Firms being ranked on the basis of their initiatives and contribution for the betterment of three pillars of ESG - Environment, Social and Governance; considered reliable for the different stakeholders by participating in sustainable activities and providing relevant sustainable information.

ESG fundamentally examines and integrates the performance of a company's environmental, social, and corporate governance activities. The environmental performance of a company shows how hard it works to cut emissions and resource use. According to a company's social performance, it respects community relations, employment standards, product responsibility, and human rights. Lastly, a company's corporate governance performance reveals the duties and rights of the management of a company (governance structure). ESG ranking helps organizations to attract not only investors but also helps them to become market leader by integrating important ESG issues; whereas many firms adopt non-financial disclosure in order to mitigate the risk of legitimacy (Muserra et. al., 2019). Many studies examined the impact of ESG performance on firm value or firm performance. However, results being inferred by those studies were inconclusive.

We investigate the impact of ESG performance on firm value considering the listed firms of EU countries. We find that ESG performance has a positive impact on firm value. Moreover, in case of individual ESG pillar, including environmental disclosure score, social disclosure score and governance disclosure score, all of them positively influence firm value. The robustness test confirms the main findings of the study.

This study significantly contributes to the literature in several ways. First, this study contributes to the literature by providing the empirical evidence for combined ESG and all the three pillars of ESG individually. Further, this study provide evidence based on listed firm of EU member states.

The rest of the paper is structured as follows. Section 2 provides review of the literature and hypothesis development. Section 3 discusses the research methodology, Section 4 presents empirical analysis and discussion, and Section 5 concludes the paper.

REVIEW OF THE LITERATURE

ESG Performance and Firm Value

The scholars investigated non-financial reporting by focusing, agency, institutional, legitimacy and stakeholder theories. Existing literature revealed that scholars mostly used agency theory and stakeholders' theory to examine the impact of ESG performance on firm value. The stakeholder theory provides the basic link among firm and different stakeholders involved around it. Firms by aligning ESG initiatives with their business strategy not only increase the shareholder value because of the firm's improved cash flow levels but also enhanced shareholder utility for owning shares in a sustainable firm (Gillan et al., 2010a, Gillan et al., 2010b). Shareholders could analyze the environmental and social repercussions of ESG operations as well as the cash flows generated. This will benefit the shareholders by investing or owning the firm responding actively to ESG issues. Integrating and participating in ESG activities increase the firms' market performance, internal stakeholders e.g., happy and confident employees more motivated to work; whereas satisfied suppliers offer discounts which leads to better reputation of the firm.

Agency theory has few limitations as it does not cover environmental and social information required by stakeholders and it focused on investors and financial considerations only (Gray, 2009 and Gray, 2014). Taking measures for ESG activities also create agency problem between managers and shareholders because these measures not only decrease the cash flow and value of the firm but also considered unfavorable by the shareholders. Managers by investing in ESG activities struggles to enhance the firm's reputation at the expense of shareholders (Barnea & Rubin, 2010) but also tries to get personal benefits by spending firms' resources (Brown et. al., 2006). Firms also invest in the social activities to compensate the inadequacies of ESG activities or to safeguard itself from the ESG risk in response to information asymmetry between managers and stakeholders (Duque & Aguilera, 2021). Accordingly, it supports the argument that ESG performance have negative impact on firm value.

Many studies provide country-specific impact of ESG on firm value and profitability. A positive impact of ESG has found on firm value and profitability for German firms (Velte, 2017) along with significant impact of governance on firm performance. Cross industry study by considering China's energy sector, Zhao et. al. (2018) found positive impact of ESG on financial performance. Another study to examine the impact of ESG provide positive effect on better financial results (Dalal and Thaker, 2019).

Few studies conducted on multiple countries also provide the same relationship between ESG and firm financial performance. In a study conducted on a large multiple countries provide evidence of positive impact of ESG activities on firm financial performance (Xie et al., 2019). Similarly, using more than 4500 firms a study revealed that three pillars of ESG, environment, social and Governance has been useful for raising market value of the firms (Bhaskaran et al., 2020). In European perspective, ESG provide positive impact on firm financial performance (De Lucia et al., 2020).

Another strand of literature contradicts these arguments and provide negative link between ESG performance and firm value. Scholars in view of agency theory argue that management engage in ESG activities on the expense of shareholders thus utilizing the scarce resources of the firms considered valuable in maximizing the wealth of shareholders hence decrease the firm value (Di Tommaso & Thornton, 2020).

Despite of these contradictory arguments and evidence, sustainability is considered to be the utmost importance for the researchers specifically the increasing demand and pressure from the stakeholders enforce the organizations to disclose their non-financial activities. Moreover, regulators and rating published by different agencies also have impact on the firm's reputation. Considering these arguments this study posits the following main hypothesis:

H1: ESG performance have a positive impact on firm value.

Impact of Individual ESG Pillar on Firm Value

Environmental Pillar and Firm Value

One of the most researched pillars of ESG considered to be the Environmental factor. The research stream started from the environmental impact resulted in development of regulators and standard setters. Later, introduction of ESG ratings bring awareness among society and stakeholders to enforce the enterprises to integrate sustainability into their business activities and operations. Several studies revealed positive impact of environmental disclosure on firm value (Cormier and Magnan, 1997; Aerts, Cormier and Magnan, 2008; Clarkson et al., 2013 and Plumlee et al., 2015). This research further segregated into two thoughts; first the perspective of competitive advantage reported that firms' environmental efforts bring transparency which results in increase towards the financial returns of the investors whereas cost-oriented perspective stress on the capital loss by participating in environmental activities (Hassel, Nilsson and Nyquist, 2005). Scholars also contributed that firms by participating in environmental causes and contributing towards community not only improve firms;

perception but also improve their firm performance (Buallay et al., 2020; Buallay, El Khoury, & Hamdan, 2021).

Alternately some studies also reported negative effect of environmental factor with the argument to investigate the extent to which incremental investments continue to be profitable given that environmental investment could become financially burdensome (Brammer et al., 2006).

H2: Environmental disclosure score positively influences firm value.

Social Pillar and Firm Value

Social interaction provides a platform to the firms to assess the feedback of different stakeholders to better manage their social investments. Keeping good social relations among internal and external stakeholders benefit firms to increase intangible value - linked with better market returns (Hillman and Keim, 2001) and better relations with such stakeholders perceived as good reputation of firm. Firms' engagement in socially responsible behavior respond in improved firm value (Buallay, 2019 and Shen et al., 2016).

Communicating with consumer, considered an important element for the firms to engage them in their business operations by valuing their feedback. Customer satisfaction effect market value of the firm; the lower the degree of client satisfaction the smaller the impact of CSR on market value (Luo and Bhattacharya, 2006).

Contrarily, firm value was positively impacted by employee motivation, but negatively by product responsibility and community involvement (Esteban-Sanchez et al., 2017). This study by considering the Socially Responsible Investment point posits that social disclosure positively impacted the firm value.

H3: Social disclosure score positively influences firm value.

Governance Pillar and Firm Value

After the global financial crisis of 2007–2009, the corporate governance landscape underwent a significant change. Policymakers and regulators have established various internal and external corporate governance measures over the time to improve the quality of corporate governance, resultantly, the confidence in corporate sustainable performance and reporting has increased by the stakeholders and investors. The literature focused on the association among governance and firm

value reported that good corporate governance linked with high firm value (Brown and Caylor, 2006; Cremers and Nair, 2005; Gompers, Ishii and Metrick, 2003). Firm value positively impacted by both internal and external governance mechanisms (Jo and Harjoto, 2012 and Ammann et al., 2011).

Another aspect regarding the adoption of governance disclosure that firms by increasing governance practices not only improves firm value but also increase their reputation, mitigating the internal conflicts and bolstering the regulations (Zehri & Zgarni, 2020).

Reviewing such supporting arguments in favor of positive association between governance disclosure and firm value this study posits the following hypothesis:

H4: Governance disclosure score positively influences firm value.

RESEARCH METHODOLOGY

We examine the impact of ESG performance on firm value. For this purpose, we consider a sample of listed firms in EU member states. We extract the panel data from Bloomberg database from 2012 to 2021 on annual basis. The EU currently has 27 member states and at the time of data collection there were 5327 listed EU firms. However, the data were not available for most of the firms. Further, we only consider firms with at least three years of the data. Therefore, our final sample is based on 976 listed firms of 26 EU countries. The detailed information about the firms belonging to each country is presented in Table 1. We further classify our sample firms with respect to industry sectors based on Global Industry Classification Standard (GICS). There are 11 industry sectors in GICS, and the sample firms cover all those sectors, as shown in Table 2.

	Country	Number of firms
1	Austria	36
2	Belgium	52
3	Bulgaria	1
4	Croatia	3
5	Cyprus	2
6	Czech Republic	1
7	Denmark	51
8	Estonia	6
9	Finland	70
10	France	153
11	Germany	116
12	Greece	26

13	Hungary	5
14	Ireland	9
15	Italy	79
16	Lithuania	4
17	Luxembourg	9
18	Malta	11
19	Netherlands	49
20	Poland	15
21	Portugal	20
22	Romania	11
23	Slovakia	2
24	Slovenia	6
25	Spain	85
26	Sweden	154
	Total	976

Table 1. *Sample firms with respect to countries*

	GICS	Number of firms
1	Communication Services	65
2	Consumer Discretionary	134
3	Consumer Staples	62
4	Energy	29
5	Financials	125
6	Health Care	74
7	Industrials	235
8	Information Technology	81
9	Materials	71
10	Real Estate	55
11	Utilities	45
	Total	976
Note: GICS is the Global Industry Classification Standard.		

Table 2. *Sample firms with respect to industry sector*

Table 3 presents the definitions of the study variables. The main variables are ESG performance and firm value. For ESG performance, we consider ESG disclosure score available in Bloomberg database. The Bloomberg uses number of sources to collect the company-reported ESG data including "corporate social responsibility (CSR) or sustainability reports, annual reports and websites, other public sources, as well as through company direct contact" (Coluccia et al., 2020). The ESG score in Bloomberg database is based on 120 environmental, social and governance indicators (Coluccia et al.,

2020). The score ranges from 0 to 100 where 0 equals that companies have not disclosed any of the ESG data and 100 equals that companies disclose every data point for ESG. Additionally, we also use each component of ESG score as a measure ESG performance such as environmental disclosure score (EDS), social disclosure score (SDS) and governance disclosure score (GDS).

Variable	Notation	Measure	Source
Firm Value			
Tobin's q	TQ	Market value of equity plus total assets minus the book value of equity, entire divided by total assets	(Giannopoulos et al., 2022; Tahmid et al., 2022; Wu & Chang, 2022)
ESG performance			
ESG disclosure score	ESGDS	Environmental, social and governance disclosure score (0 to 100)	(Aydoğmuş et al., 2022)
Environmental disclosure score	EDS	Environmental disclosure score (0 to 100)	(Aydoğmuş et al., 2022; Wu & Chang, 2022)
Social disclosure score	SDS	Social disclosure score (0 to 100)	(Aydoğmuş et al., 2022; Wu & Chang, 2022)
Governance disclosure score	GDS	Governance disclosure score (0 to 100)	(Aydoğmuş et al., 2022; Wu & Chang, 2022)
Corporate governance			
Board size	BS	The total number of directors on the board	(Cooper & Uzun, 2022)
Women on the board	WOB	The number of women directors on the board as a percentage of board size	(Cooper & Uzun, 2022)
Board independence	BI	The number of independent directors on the board as a percentage of board size	(Atif et al., 2021)
CEO duality	CEOD	A dummy variable, equals one if CEO and chairman of the board are the same person, zero otherwise	(Cooper & Uzun, 2022)
Firm characteristics			
Return on assets	ROA	Net income as a percentage of total assets	(Cooper & Uzun, 2022; Fatemi et al., 2018; Tahmid et al., 2022)
Cash reserves	CR	Cash and cash equivalents divided by net assets	(Atif et al., 2021)
Firm leverage	LEV	Total debt divided by total assets	(Aydoğmuş et al., 2022; Cooper & Uzun, 2022; Tahmid et al., 2022)
Firm size	SIZE	Natural log of total assets	(Fatemi et al., 2018; Tahmid et al., 2022)

Table 3. *Variables definitions*

We measure firm value by using the Tobin's Q computed as market value of equity plus total assets minus the book value of equity, entire divided by total assets. Further we use several control variables including corporate governance variables and firm characteristic. Corporate governance variables

include board size, board gender diversity, board independence and CEO duality. We use return on assets, cash reserves, firm leverage, and size as firm specific variables.

We use the following regression equations to examine the impact of ESG performance on firm value.

$$(TQ)i,t = \beta 0 + \beta 1(ESGDS)i,t + \beta 2(CV)i,t + \beta 3\Sigma(CE)\ i,t + \beta 4\Sigma(IE)i + \beta 5\ \Sigma(YE)t + \varepsilon i,t \quad (1)$$

$$(TQ)i,t = \beta 0 + \beta 1(EDS)i,t + \beta 2(CV)i,t + \beta 3\Sigma(CE)\ i,t + \beta 4\Sigma(IE)i + \beta 5\ \Sigma(YE)t + \varepsilon i,t \quad (2)$$

$$(TQ)i,t = \beta 0 + \beta 1(SDS)i,t + \beta 2(CV)i,t + \beta 3\Sigma(CE)\ i,t + \beta 4\Sigma(IE)i + \beta 5\ \Sigma(YE)t + \varepsilon i,t \quad (3)$$

$$(TQ)i,t = \beta 0 + \beta 1(GDS)i,t + \beta 2(CV)i,t + \beta 3\Sigma(CE)\ i,t + \beta 4\Sigma(IE)i + \beta 5\ \Sigma(YE)t + \varepsilon i,t \quad (4)$$

where TQ is a measure of firm value, ESGDS, EDS, SDS, GDS are measures of ESG performance. CV represents control variables, CE is country effects, IE is industry effects, YE is year effects, $\beta 0$ is a constant, Σ is the summation, ε is the error term, i is the firm and t is the year.

We use ordinary least squares (OLS) regression as a baseline method to estimate the empirical models. We control for country, industry, and year effects. Further, we use robust standard errors to control for heteroskedasticity and within-firm correlation in the residuals (Petersen, 2009). In the robustness analysis, we use the two-step dynamic panel data model, the generalized method of moments (GMM). This technique is able to address measurement errors, omitted variable bias, unobserved country heterogeneity (Bond et al., 2001) and potential endogeneity (Blundell & Bond, 1998; Bond et al., 2001). In GMM estimation, we also include country, industry and year dummies and use robust standard errors. In addition, we run post-estimation test to check for autocorrelation by performing Arellano–Bond test.

EMPIRICAL ANALYSIS AND DISCUSSION

Table 4 presents the descriptive statistics for the study variables. The mean value of TQ is 1.36 which indicates that, on average, the EU firms have better firm value representing that their stock is overvalued. Further, the average value of ESGDS is 43.40, depicting that on average, EU firms are disclosing almost 43% data related to ESG. Further, among each component of ESG, the EU firms on average disclose higher Governance (75.53) related data than environmental (29.02) and social (25.84) data. Moreover, the average board size of EU firms is 10 with on average 26.27% females on the boards. The board independence of EU firms is on average 58.78%. Further, the mean value of CEO duality is 0.16, representing lower CEO duality in EU firms. Moreover, the mean values for return on

assets, cash reserves, firm leverage and firm size are 4.00%, 0.31, 0.25, 22.59, respectively. Further, there is no extreme volatility for any of the study variable as per the standard deviation values.

Variable	N	Mean	SD	Minimum	Maximum
TQ	6,360	1.3584	0.4293	0.6607	2.0082
ESGDS	6,360	43.3978	13.1434	0.0000	80.8168
EDS	6,360	29.0171	19.4863	0.0000	82.7847
SDS	6,360	25.8421	13.3933	0.0000	77.1930
GDS	6,360	75.5349	14.0299	0.0000	100.0000
BS	6,360	10.2343	3.8563	3.0000	25.0000
WOB	6,360	26.2700	14.3971	0.0000	75.0000
BI	6,360	58.7765	23.9480	0.0000	100.0000
CEOD	6,360	0.1560	0.3629	0.0000	1.0000
ROA	6,360	4.0016	6.7855	-19.9022	30.7873
CR	6,360	0.3104	0.3640	0.0011	2.1156
LEV	6,360	0.2551	0.1591	0.0000	0.8579
SIZE	6,360	22.5884	2.1244	16.6909	30.7810
Notes: N is the number of observations. SD is standard deviation. Variables definitions are present in Table 3.					

Table 4. *Descriptive statistics*

Table 5 shows the correlation matrix, and the results indicate that there is statistically significant relationship between firm value and ESG performance measures along with all the control variables. The Table 5 further presents the multicollinearity diagnostic test, and the results show no issue of multicollinearity between the explanatory variables as the values of variance inflation factor (VIF) are less than 5.

Table 6 presents the OLS regression results for the impact of ESG performance on firm value. Column (1) indicates the impact of ESG disclosure score on the firm value. Column (2)-(4) represents the impact of each component of ESG on firm value, respectively. The results indicate that ESG disclosure score positively and significantly impacts Tobin's Q, indicating that higher ESG performance leads to higher firm value. Thus, these results support hypothesis 1 of the study. Similarly, in case of each component of ESG, such as environmental disclosure score, social disclosure score and governance disclosure score, the results depict positive and significant impact on Tobin's Q. These results indicate that each component of ESG also leads higher firm value, thus supporting hypotheses 2, 3 and 4 of the study. These results are consistent with the earlier literature (Buallay, 2019; Jo and Harjoto, 2012; Plumlee et al., 2015; Velte, 2017)

These findings represent that ESG performance is quite relevant for firms as it increases the firm value. It shows that firm's consideration of stakeholders' expectations with respect to sustainability issues builds stakeholders' trust. The protection of stakeholders' interests allows firms to achieve goals. Our findings reveal that each component of ESG is important with respect to firm value. It represents that stakeholders give importance to environmental issues, social issues, and governance issues. Therefore, it is quite relevant for firms to address ESG issues to meet stakeholder's expectations and protect their interests. The more addressing of ESG issues by firms will enhance the firm value. Firm value is important for firms as higher firm value usually attracts investors and creditors. Thus, it will result in higher resources for firms and with that firms can perform better both financially and non-financially and contribute to the sustainable world.

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1	TQ	1												
2	ESGDS	-0.049	1											
3	EDS	-0.065	0.904	1										
4	SDS	-0.071	0.848	0.745	1									
5	GDS	0.022	0.721	0.427	0.413	1								
6	BS	-0.206	0.391	0.360	0.311	0.284	1							
7	WOB	0.074	0.330	0.205	0.245	0.404	0.079	1						
8	BI	0.094	0.046	-0.008	0.020	0.121	-0.288	0.102	1					
9	CEOD	-0.046	0.133	0.108	0.088	0.135	0.174	0.046	-0.213	1				
10	ROA	0.418	-0.022	-0.013	-0.033	-0.015	-0.109	0.042	-0.004	-0.017	1			
11	CR	-0.031	0.015	-0.012	0.025	0.033	0.073	0.008	0.005	0.027	-0.156	1		
12	LEV	-0.187	0.108	0.113	0.090	0.061	0.072	0.009	-0.021	0.030	-0.248	0.031	1	
13	SIZE	-0.258	0.397	0.336	0.323	0.315	0.488	0.182	-0.019	0.017	-0.066	0.110	0.069	1
	VIF (1)	-	1.44	-	-	-	1.62	1.14	1.19	1.08	1.11	1.04	1.08	1.45

VIF (2)	-	-	1.26	-	-	1.60	1.08	1.17	1.08	1.11	1.04	1.08	1.43
VIF (3)	-	-	-	1.22	-	1.56	1.10	1.17	1.08	1.10	1.04	1.07	1.43
VIF (4)	-	-	-	-	1.39	1.57	1.21	1.21	1.09	1.10	1.04	1.07	1.42
N	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360	6,360

Notes: VIF is the variance inflation factor. VIF (1) includes ESGDS variable and VIF (2)-(4) include each component of ESGDS individually. N is the number of observations. ***, **, and * represent statistical significance at 1%, 5% and 10 levels, respectively. Variables definitions are present in Table 3.

Table 5. *Correlation matrix and multicollinearity diagnostic test*

	(1)	(2)	(3)	(4)
Variable	TQ			
ESGDS	0.0036*** (7.4200)	-	-	-
EDS	-	0.0012*** (4.1300)	-	-
SDS	-	-	0.0020*** (4.9500)	-
GDS	-	-	-	0.0033*** (7.9800)
BS	0.0003 (0.1800)	0.0010 (0.6600)	0.0013 (0.8700)	0.0006 (0.3900)
WOB	0.0010*** (2.6600)	0.0013*** (3.2900)	0.0013*** (3.2300)	0.0010*** (2.6900)
BI	0.0007*** (2.9800)	0.0008*** (3.5600)	0.0007*** (3.3700)	0.0005** (2.4200)
CEOD	-0.0049 (-0.3700)	-0.0064 (-0.4900)	-0.0064 (-0.4900)	-0.0052 (-0.4000)
ROA	0.0206*** (23.1500)	0.0207*** (23.1700)	0.0208*** (23.2100)	0.0206*** (23.3400)
CR	0.0886*** (7.7700)	0.0882*** (7.7600)	0.0897*** (7.8900)	0.0854*** (7.5500)
LEV	-0.0442 (-1.4300)	-0.0511 (-1.6400)	-0.0503 (-1.6200)	-0.0557* (-1.8100)
SIZE	-0.0445*** (-12.1000)	-0.0375*** (-10.4700)	-0.0381*** (-10.8600)	-0.0397*** (-11.8800)
Constant	1.8781*** (25.2600)	1.8282*** (24.0100)	1.8165*** (24.5600)	1.7125*** (24.2000)
Country effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes
N	6,360	6,360	6,360	6,360
R-squared	0.4679	0.4645	0.4651	0.4689
F-statistic	151.44***	150.71***	150.86***	149.47***

Notes: Table 6 presents the OLS regression results. Column (1) shows the impact of ESG performance (ESGDS) on firm value (TQ). Column (2)-(4) present the influence of ESG performance (each component of ESGDS, such as EDS, SDS, and GDS) on firm value (TQ) individually. Country fixed effects, industry fixed effects and year fixed effects are included in all regressions. N is the number of observations. ***, **, and * represent statistical significance at 1%, 5% and 10 levels, respectively. Variables definitions are present in Table 3.

Table 6. *OLS regression results*

The results with respect to control variables present women on board and board independence has a positive impact on firm value. It shows that higher percentage of female and independent directors on the board result in higher firm value. Further, return on assets positively and significantly influence firm value. It indicates that higher profitability leads to higher firm value. Moreover, firm leverage and firm size negatively influence firm values. It represents that higher degree of leverage decreases firm value. Further, the results indicate that smaller firms have higher firm value than the larger firms.

Table 7 presents the GMM regression results to check the robustness of the main analysis. Interestingly, the results indicate that ESG performance positively affects firm value. These results are consistent for combined ESG disclosure score and for each component including environmental disclosure score, social disclosure score and governance disclosure score. Thus, we can conclude that our analysis is robust.

	(1)	(2)	(3)	(4)
Variable	TQ			
TQ(t-1)	0.6850***	0.6909***	0.6870***	0.6733***
	(14.3000)	(14.1300)	(14.1600)	(14.0800)
TQ(t-2)	-0.0608*	-0.0575	-0.0677*	-0.0622*
	(-1.7200)	(-1.6000)	(-1.9000)	(-1.7300)
ESGDS	0.0036***	-	-	-
	(3.5900)			
EDS	-	0.0019***	-	-
		(3.6800)		
SDS	-	-	0.0031***	-
			(3.8500)	
GDS	-	-	-	0.0021*
				(1.8600)
BS	0.0037	0.0034	0.0034	0.0037
	(0.6800)	(0.6400)	(0.6600)	(0.6700)
WOB	0.0020***	0.0026***	0.0021***	0.0025***
	(2.7700)	(3.8700)	(3.0500)	(3.3300)
BI	-0.0002	-0.0001	-0.0002	-0.0002
	(-0.2800)	(-0.1400)	(-0.2100)	(-0.2000)
CEOD	0.0083	0.0025	0.0086	0.0080
	(0.2400)	(0.0700)	(0.2500)	(0.2300)
ROA	0.0016	0.0015	0.0016	0.0013
	(0.8500)	(0.7900)	(0.8700)	(0.7100)
CR	0.0699**	0.0732**	0.0662**	0.0705**
	(2.4700)	(2.5200)	(2.3500)	(2.4500)
LEV	-0.0604	-0.0929	-0.0397	-0.1074
	(-0.4100)	(-0.6200)	(-0.2600)	(-0.7000)
SIZE	-0.0708**	-0.0574*	-0.0714***	-0.0524
	(-2.3000)	(-1.8800)	(-2.8400)	(-1.4300)
Constant	1.8915***	1.6654**	1.9804***	1.4870*
	(2.8400)	(2.5100)	(3.6000)	(1.9100)
Country effects	Yes	Yes	Yes	Yes
Industry effects	Yes	Yes	Yes	Yes

Year effects	Yes	Yes	Yes	Yes
N	3,261	3,261	3,261	3,261
Wald Chi-Squared	249.30***	239.04***	255.05***	238.74***
AR (2)	0.6260	0.6734	0.7990	0.6326
p-value	0.5313	0.5007	0.4243	0.5270
Notes: Table 7 presents the GMM regression results. Column (1) shows the impact of ESG performance (ESGDS) on firm value (TQ). Column (2)-(4) present the influence of ESG performance (each component of ESGDS, such as EDS, SDS, and GDS) on firm value (TQ) individually. Country fixed effects, industry fixed effects and year fixed effects are included in all regressions. N is the number of observations. ***, **, and * represent statistical significance at 1%, 5% and 10 levels, respectively. Variables definitions are present in Table 3.				

Table 7. *GMM regression results – robustness test*

CONCLUSION

The contemporary world is experience increasing challenges with respect to sustainability issues. Therefore, United Nations has implemented the Agenda 2030 to cope up with those challenges. In response, firms disclose non-financial information along with financial information to show their efforts in addressing ESG issues to meet stakeholders' expectations. Thus, we investigate how ESG performance affects firm value. For this purpose, we consider a sample of listed EU firms, and the results indicate that higher ESG performance enhances firm value. Interestingly, we find that all the environmental issues, social issues and governance issues are important in increasing firm value.

This study provides important implications for practitioners and stakeholders. The findings suggest that firm's consideration of ESG issues builds the stakeholders trust and thus, it enables firms to achieve their goals efficiently and have higher firm value. Therefore, firm management should pay attention to stakeholders' concerns regarding ESG issues. This requires firms to address ESG issues so that stakeholders' interests could be protected. Moreover, the findings suggest that environmental issues, social issues, and governance issues, all of them are important. Thus, it is suggested that firm management should pay attention to all of them to play their role in achieving a sustainable world. The study findings also provide implications for investors and creditors. The higher firm value can be a strong motivation for investors to invest and for creditors to lend to such firms. Therefore, firms can gain more resources by addressing ESG issues that increases firm value. Those resources could help firms to perform better both financially and non-financially.

Although this study focuses on a sample of EU firms. However, we consider only listed firms to examine the impact of ESG performance on firm value. Therefore, further research could be conducted

by using the non-listed firms. Moreover, future studies could conduct a comparative analysis between regions to further deepen the understanding between the investigated relationship.

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IMPACT OF ORGANIZATIONAL CULTURES ON EMPLOYEE WORK AND ORGANIZATIONAL ENGAGEMENT

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ABSTRACT

Multinational groups invest heavily in human capital, a source of competitive advantage fundamental to achieving excellent service. This excellence depends on the engagement of employees in optimising processes. There are several factors for management to consider that can lead to greater engagement, one of which is organizational culture.

This study focuses on one of the determining factors in defining the degree of employee engagement in the organization and their work, which has been largely overlooked in the literature compared to the others. This research used a sample of 125 employees from Shared Services Centres in mainland Portugal owned by a non-Portuguese multinational. The results of this study show that organizations with different types of organizational culture achieve different effects, both in terms of engagement in the organization and of employees' engagement in their work – adhocracy and clan culture have a positive impact on the engagement with the organization. However, hierarchy positively influences engagement in the work.

Keywords: Organizational culture, employee engagement, organizational engagement, work engagement

INTRODUCTION

This study aims to understand the impact that organizational culture has on the engagement of employees. To this end, an empirical study was carried out based on a statistical analysis using the Structural Equation Model. For the investigation presented here, we chose to work with primary data, adopting the typology of organizational culture according to the model of Cameron and Quinn (1999) and the application of the OCAI model for its determination, as well as the application of *Social Exchange Theory* by Saks (2006), which helps explain the level of employee engagement.

The importance of this study for management finds support in strategic planning to retain employees with a high level of engagement, as recent literature suggests that engagement is negatively related to human resources turnover. Literature shows that turnover harms organizations due to the high cost of replacing employees and the disruption it causes in providing services. Regarding this factor, Gallup

study (2023) shows that throughout the world, for one involved employee, there is one unmotivated employee, a ratio of 1:1.

Literature indicates that organizational culture is underestimated in all the aspects that help add value to organizations. This plays a vital role in how employees and organizations perform their tasks (Franklin and Pagan, 2006) and in organizational trust, which is a determining factor in increasing employee engagement. Organizational culture establishes a link between the organization's norms, beliefs, values and principles and its employees through shared norms reflected in their work behaviour. Therefore, the effectiveness of culture requires investment and knowledge of everyone involved, people and systems.

1. LITERATURE REVIEW

This study relates organizational culture and employee engagement, making understanding and contextualizing of both contents essential.

1.1. Organizational culture

Admittedly, organizational culture is essential for the commercial value of a company (Graham et al., 2022); it influences individuals and organizations and is, therefore, a strategic and competitive factor (Grover et al., 2022).

When considering the organizational context, the definition of culture can be determined as a set of attributes that describe and differentiate an organization from others; that is, the culture of one organization does not necessarily correspond to the organizational culture of another (Ferine et al., 2022), which can be translated into the set of knowledge, habits, behaviours and values created and implemented by all members of the organization in the pursuit and achievement of organizational goals.

Through a competing values model, Quinn and Rohrbaugh (1983) defined a structure that allows the organization of the possible values that classify organizational cultures, obtaining the so-called *Competing Values Framework* (CVF). This structure is divided into two pairs of opposing values, distributed in four quadrants, with each quadrant describing a system of values: flexibility *versus* control and internal guidance *versus* external guidance. The dimensions presented in the structure allow for the description of the values underlying each cultural trait. This allows for an albeit implicit assessment of the organization's strategic orientation.

By mapping the two dimensions of competing values, it is possible to obtain four types of organizational culture: Clan Culture, Adhocracy, Hierarchy and Market Culture. This model was formulated considering the search for conditions of organizational effectiveness and the degree of

representation of these types in organizational culture. Therefore, it allows for capturing strategic priorities, leadership style, and objectives and identifying engagement traits for each type of organizational culture. However, it is essential to recognize that organizational culture may not always be easily categorized into one of the types since organizations can simultaneously demonstrate characteristics of several types of culture.

1.2 Employee engagement

By default, managers and organizations always seek better results through more productive and agile processes, and human capital, as well as its engagement in the pursuit of the organization strategy, cannot be neglected in this process. Since its appearance, the concept and strategies regarding employee engagement have received attention, as they allow competitive advantages to be obtained, helping to achieve the success of organizations. The employees involved tend to be more proactive and have the initiative to collaborate with others in the same way they demonstrate achieving quality performance.

 Organizational engagement and commitment have been evaluated in different ways over the last three decades, but regardless of the definition or assessment given, research reveals that employee engagement and commitment are seen as a link between employees and organizations (Camilleri, 2006; Jahan et al., 2022). Whenever there is engagement, employees tend to express it not only through their behaviour but also cognitively and emotionally through the rules of their work environment, demonstrating a greater psychological commitment to the organization to which they belong (Alam et al., 2022; Cooper-Thomas, 2018).

The *Social Exchange Theory*, developed by Saks (2006), helps explain employee engagement and why they are more or less involved, considering the definition of engagement developed before by Kahn (1990). That employees demonstrate greater engagement; that is, they feel a greater obligation to do their best in a task as direct retribution given by the organization. If the organization chooses not to provide these resources, employees will be predisposed to giving less of themselves; that is, there will be less engagement. According to Saks (2006), this means that the amount of resources (cognitive, emotional and physical) that the employee is willing to give up during their performance depends on the resources, whether economic or socioeconomic, received from the organization, on the expected bidirectional relationship between employee and employer.

In short, *Social Exchange Theory* provides the theoretical basis for explaining why employees are more or less involved with work and the organization (Saks, 2006). Work engagement can be defined as a positive feeling towards work, accompanied by vigour, dedication and absorption in the activities carried out (Schaufeli, 2002), with a physical and psychological presence in the performance of tasks. Individuals who demonstrate engagement with the organization are aware of all their responsibilities,

exceed the objectives of their roles, and motivate their colleagues with a focus on the organization's success.

1.3 Association of concepts

The development of an organizational culture conducive to the employee's psychological engagement in their work proves to be essential for optimising organizational performance, with organizational culture being one of the many factors to increase employee engagement (Naidoo and Martins, 2014; Srimulyani and Hermanto, 2022).

According to Büschgens et al. (2013), the organizational focus can have an internal emphasis, and consequently on the well-being and development of the organization's members, or it can be external, and the focus will be on the growth and prosperity of the organization. Organizations with stronger organizational cultures are more successful than those with weaker organizational cultures due to the unity among employees, as they share beliefs and values (Thokozani and Maseko, 2017), allowing continuity. This means that organizational culture allows employees to reduce uncertainty, affecting their job satisfaction and emotional well-being (Lukášová, 2010).

Therefore, the characteristics that define the type of organizational culture (clan, adhocracy, market, hierarchy) have a direct effect on the engagement of employees in the organization and at work, and this results in the following hypothesis and sub-hypotheses:

H1: Organizational culture influences employee engagement.

H1.1.: Organizational culture influences employee engagement in the organization.

H1.2.: Organizational culture influences employee engagement at work.

Clan culture is internally oriented and employee-focused, contributing to the cohesion of relationships within the organization by ensuring a safe and positive work environment (Cameron and Quinn, 2011). Organizations with a clan culture believe that trusting their employees and committing to their members makes communication more open (Cameron and Quinn, 2011), which positively influences their engagement with the organization, as employees will be more involved in situations that offer greater meaning and psychological security and are consequently more psychologically available (Saks, 2006). Being guided by solidarity, cooperation, cordiality and trust among its members, clan culture allows for a stimulating environment in the workplace (Berson et al., 2008).

H1.1.1.: Clan culture positively influences employee engagement in the organization.

H1.2.1.: Clan culture positively influences employee engagement at work.

Adhocracy focuses on the outside, but with a creative orientation and an emphasis on innovation and agility (Cameron and Quinn, 2011). Therefore, an environment focused on innovation encourages employees to try new ideas and adopt a pioneering stance (Cameron and Quinn, 2011). Thus, in an

environment that encourages authenticity, employees will behave more in accordance with their beliefs and values (Reis et al., 2016), influencing their engagement.

H1.1.2.: Adhocracy positively influences employee engagement in the organization.

H1.2.2.: Adhocracy positively influences employee engagement at work.

The market culture is customer-oriented, always outward-looking and focused on economic growth, tending to focus on profits and expanding market share (Cameron and Quinn, 2011). Leaders tend to direct efforts towards the organization's objectives (Montano et al., 2017), neglecting the needs and well-being of their employees. By definition, this is a results-oriented culture, with employees who are competitive and focused on their goals through fierce competitiveness (Mikušová et al., 2023) and who are discouraged from sharing their knowledge while they are prepared to accept the opinions of others.

H1.1.3.: Market Culture positively influences employee engagement in the organization.

H1.2.3.: Market Culture positively influences employee engagement at work.

Relationships in a hierarchical culture tend to be more formal, with a strong bureaucratic aspect and have organizational norms that prevent emotional connections and consequently depersonalise the workplace (Ashforth and Humphrey, 1995). A structure of stability and control characterises this type of culture and tends to have a clear and stratified chain of control with well-defined roles and responsibilities (Alkhodary, 2023). In this sense, employees must strictly follow the rules and procedures through a normally centralised authority (Alkhodary, 2023). The hierarchical culture discourages employees from sharing knowledge, resulting in a reluctance to communicate or simply avoiding being targets of criticism (Ng, 2023).

H1.1.4.: Hierarchy culture negatively influences employee engagement in the organization.

H1.2.4: Hierarchy culture negatively influences employee engagement at work.

2. METHODOLOGY

This study aims to understand the impact of organizational culture on employee engagement in foreign subsidiaries, designated by *Shared Service Centers (SSC)*. To this end, surveys were distributed via online questionnaires to workers at SSC and subsidiaries of foreign companies in Portuguese territory.

The survey was conducted to verify the hypotheses described in the literature review, divided into 5 distinct groups: characterisation of the *Shared Services Centre*, responders' profile, importance of cultures, organisational culture, and employee engagement.

As previously mentioned, questions from the OCAI model were used to characterize the organizational culture. Although the original methodology consists of dividing 100 points between the statements for each type of organizational culture (Cameron and Quinn, 2011), was possible to do it applying the methodology through the *Likert* five-point scale (1 (totally disagree) to 5 (totally agree)). Since this scale

allows respondents to express their degree of agreement, and on the other hand, it conveniently measures unobservable constructs characteristic of behavioural sciences (Jebb et al., 2021).

Regarding the classification of employee engagement this was based on Saks' *Social Exchange Theory* (2006), categorised into two groups: *Work engagement* and *Organizational engagement*, with eleven options (Table 6), using a *Likert* scale from 1 (totally disagree) to 5 (totally agree).

Work Engagement	
1	I really get involved in my work.
2	Sometimes, I'm so dedicated to my work that I lose track of time.
3	This work consumes me, I'm totally dedicated to it.
4	My mind often wanders, and I think about other things when I'm doing my work.
Organizational Engagement	
1	Being a member of this organization is quite captivating.
2	One of the most captivating things about being a member of this organization is being involved in everything that happens.
3	I'm not very familiar with what goes on in this organization.
4	Being a member of this organization is what keeps me "alive".
5	Being a member of this organization is exciting.
6	I like my job.
7	Being a member of this organization is quite captivating.

Table 6 - Saks ' Social Exchange Scale (2006)

Data was analysed using a *Structural Equation Model* (SEM, SmartPLS 4.0.9.3), and was possible to analyse the data, build and test the model. The initial model was tested using the hypotheses previously mentioned, and the structural equation analysis tools were used to explain the relationships between multiple variables. In the first phase, it was possible to validate the latent variables, followed by the structural model analysis. Only the manifestations of organisational culture are visible in the organisation, and since organisational culture is a non-observable variable, it was measured thorough indices.

Thus, to determine the dominant organisational culture, six dimensions were considered: the dominant criteria, the organisational leadership type, employee management traits, as well as the definition of team spirit, strategic emphasis, and success criteria for each SSC. Even though these composite indices are defined by imperfect evidence of the cultural traits identified by each employee, which are assumed to be ambiguous and impossible to measure precisely, it became necessary to validate the constructs relating to each type of organisational culture. These indices, made up of a set of observable variables (indicators), are manifestations of the latent variable. It was therefore necessary to carry out a confirmatory factor analysis, considering the reliability, convergent and discriminant validity of the different scales.

It was possible to validate the measurement models, and once the latent variables had been validated, study the structural model. In this second phase of model validation, the null hypothesis (H0) was set at r=0, i.e. there is no relationship between two of the latent variables, and at a significance level of 5%

(p-value <0.5). From here we excluded the latent variables in which H0 was accepted. Once the relationships were statistically significant, the structural model was analysed by evaluating *Pearson's* coefficients of determination (R^2), which indicates the quality of the fitted model. Finally, using the *Bootstrapping* model, it was possible to analyse the significance of the model's path coefficient.

3. RESULTS

The surveys were distributed by employees of several multinational *Shared Service Centres* in Portugal. 130 surveys were collected, however 5 could not be used due to identified errors or omissions, thus making a total of 125 valid responses.

3.1 Validation of measurement models

Cronbach's Alpha greater than 0.70 is considered acceptable (Hair Jr et al., 2021) and was used to measure the reliability of the latent variables. The convergent validity of each construct was tested to determine whether the types of organizational cultures measured were different, comparing AVE with shared variance. The metric used to evaluate the convergent validity of a construct is the average variance extracted (AVE), and each construct's independence occurs when the AVE's square root is greater than the correlations between the other latent variables (Hair Jr et al., 2021).

	Cronbach's alpha	AVE
Adhocracy	0.846	0.619
Clan Culture	0.837	0.556
Employee engagement in the organization	0.858	0.703
Employee engagement at work	0.808	0.839
Hierarchy	0.750	0.571
Market Culture	0.783	0.576

Table 7 - Reliability and Convergent Viability of the constructs

3.2 Structural model analysis

The structural model was studied in two phases: *bootstrapping* the original model (Table 8), i.e., removing statistically non-significant relationships, and *bootstrapping* this model.

Path Coefficients		Original sample	T statistics	P values
Adhocracy	Employee engagement in the organization	0.462	3,224	0.001
Clan Culture	Employee engagement in the organization	0.308	2,089	0.037
Hierarchy	Employee engagement at work	0.243	1994	0.046

Table 8 - Path Coefficients (PLS-SEM Results)

3.3 Discussion

3.3.1 Type of organisational culture

Organisations can have certain characteristics that allow them to fit into a particular type of organisational culture: clan culture, Adhocracy, hierarchy, or market culture. Although it is true that its identification can vary and evolve throughout the cycle of each organisation (Lousã & Gomes, 2017), and that it cannot always be categorised into one of the types (Alkhodary, 2023), it's possible for employees to identify certain characteristics that resemble a particular type. Thus, considering the type of organisational culture by the OCAI model, the manifestations that have the highest value are clan cultures with 30% and hierarchical culture with 24%, followed by market culture with 17%, with Adhocracy culture representing only 6%.

In that sense, it would be interesting to see whether the size of the SSC, measured by the number of employees, since this study did not include any relevant moderators, this information could be relevant in determining the type of organisational culture.

3.3.2. The impact of the organizational culture on employee's engagement

The literature tells us that engagement is directly proportional to organizational culture (Huseynova and Matoskova, 2022; Nongo and Ikyanyon, 2012). Despite what was possible to determine with this study, there is no alignment of all types of organizational cultures and their impact on employee engagement in the organization and also at work.

It's possible to observe that clan and adhocratic cultural traits are related to greater organizational engagement, validating the hypothesis 1.1.1 and 1.1. 2.. As organisations with more open communication channels allow employees to negotiate changes in the environment, i.e. they are associated with active involvement (Moon et al., 2023). As for the strategic emphasis, there is better identification with the clan culture type, as 50.4% of respondents agree that the organisation reveal importance on the development of its employees, and to this end, high trust, openness, and employee

participation are important for the organisation. There is less room for competitiveness, as only 37.6% of respondents agree that the organisation attaches importance to competitiveness and the achievement of its employees, characteristic of market cultures, which favour concern for the market over their employees.

On the other hand, this study reveals that hierarchical organizational traits are positively related to employee engagement at work, contrary to the formulated hypothesis 1.2.4.. So, contrary to what is described in the existing literature, that hierarchical culture not only discourages employees from sharing knowledge (Ng, 2023), but also the solid bureaucratic trait, prevents emotional connections, and consequently results in depersonalisation of the workplace (Ashforth and Humphrey, 1995) negatively influencing work engagement. But the results from this survey, that employees feel greater engagement with work in an organization with hierarchical features can be explained by different factors. The first factor may be related to the fact that different levels of engagement are observed depending on the functions performed by the employee. As there is a higher level of engagement for employees with executive and supervisory positions, and with the hierarchy defining clear guidelines, the sample in the survey corresponding to executive positions can be represented here (7% of respondents stated that they had an executive/administrative role). The second factor could be linked to the stable, controlled and highly regulated environment characteristic of hierarchical culture. Which can explain employees' confidence in structuring and defining their tasks (Alkhodary, 2023), leading to greater employee engagement in their work. Since regarding organisational leadership, 47.2% of respondents agree that managers in the organisation are generally seen as an example of coordination, organisation, and efficiency, which is in line with the characteristics of the hierarchical type.

Despite the relevant conclusions above, this research studies only consider the effect of culture, not considering the individuality of the employees or the different functions inside the organization. In that sense, should be also interested to consider whether the position and number of years the employee has been working would be relevant to their engagement.

3.3.4. *The importance of organizational culture to employees*

The data collected in this study also shows that despite the importance that employees attach to organisational culture and the different influences on its construction, there is a lack of definition when it comes to identifying organisational culture. Since 30% of respondents identified clan culture as the organisational culture with the greatest expression in the SSC to which they belong., but 23% were unable to define the traits of the organisational culture to which they belong.

In addition, it is also noticeable that the greatest expression of the cultural traits associated with clan culture is restricted to only three of the six dimensions used to identify the type of organisational culture. Employees were only able to identify clan culture traits in team spirit, employee management

and strategic emphasis. But, about team spirit, according to the employees who took part in this survey, what holds the organisation together is loyalty and mutual trust, since people's engagement in the company is high. As for employee management, the management style in the organisation is characterised by teamwork, consensus, and participation. In the remaining dimensions, the employees identify the cultural traits of hierarchy and market culture as being more pronounced, while Adhocracy is less pronounced.

Nevertheless, it would also be interesting to understand the influence that the employee's national culture has on their engagement. Since the adoption of excessive management measures that are not in line with the national culture in private companies directly results in a change in the perception of it (Radovanović et al., 2022). On the other hand, consider the recent *quiet quitting* phenomenon, which could also enrich the study. This expression describes cases in which employees become demotivated and intentionally withdraw from their usual work performance (Moon et al., 2023). Even though employee engagement is increasing, allowing for greater prosperity in their work, by 2022 most employees (59%) currently choose to quietly quit their jobs (Gallup, 2023). In this study, only those employees who show a low level of engagement, and who therefore verbalise and announce their withdrawal from their involvement with the organisation, were considered, and according to the global data they represent only 18% of employees (Gallup, 2023), a significantly lower manifestation than those who show quiet quitting.

3.3.5. Implications

Some recent studies have identified discrepancies between the expectations of professionals and the practices developed by companies, helping to explain the low level of engagement with organisations (Cetelem, 2022). In the current context, in which retaining talent and employee commitment are so important for companies, this study is in line with the most recent studies that highlight the discrepancy between expectations and the practices developed by companies, since although 30% of those surveyed identified clan culture as dominant, this domain is not manifested in all the six dimensions presented to define the type of organisational culture. Nonetheless, the first objective was fulfilled, and using the OCAI model, it was possible to determine the predominant culture in the SSC of the employees surveyed.

As for the data on the importance attributed by employees to the organisational culture and how can affect the construction and definition of it, it was possible to conclude that the greater the importance attributed by employees to the organisational culture of the SSC, the adhocratic, clan and hierarchical cultural traits also increase. Although no evidence of the influence of market culture was found, it's possible to relate the importance attributed by the employee to the organisational culture and the construction of its traits. This exception can be explained by the fact that market culture is externally

focused, which means that in a culture that is clearly oriented towards results and the market (Koay et al., 2022) there is no room to include the importance that employees attach to organisational culture, and consequently to participate in defining and structuring it, as happens in organisations with adhocratic and clan cultural traits.

Regarding the studies uncertainty of whether it is the involved employees who generate positive organisational cultures or the opposite (Daniels, 2016; Rich et al., 2010), the data obtained in this study indicates that higher the importance attributed by employees to the organisational culture of the SSC, higher their engagement with the organisation. This means that higher the employee's desire to change the SSC's organisational culture, higher is their engagement in the organisation. This can be explained by the fact that employees who are more engaged have a higher predisposition to collaborate on organisational performance (Schaufeli et al., 2002). And since change is culturally sensitive, employees who are committed to the organisation's performance are the ones who may want to change the organisational culture. Those who are less involved do not want any change, as they are emotionally detached from organisational performance.

4. CONCLUSION

Organizational culture is a source of motivation that can constitute a competitive advantage. From the point of view of human capital, by providing continuity to employees, organizational culture reduces uncertainty and, consequently, affects emotional well-being, job satisfaction (Lukášová, 2010), and the degree of employee engagement. From the organization management perspective, organizational culture allows the organization to achieve common objectives, guide employees, organise their interactions at work, and shape their attitudes and behaviours. In a particular way, organizational culture has been identified as a possible factor responsible for the success or failure of the organization. Although the literature relates the importance of organizational culture to employee engagement, empirical studies on this relationship are still scarce. Since the concept of engagement was introduced into the corporate world, it has received much attention in the literature and from organizations looking for employee engagement strategies to ensure competitive advantage.

The main theoretical contribution of this study is the enrichment of literature on the distinction between employee engagement in the organization and at work. The results show that different types of organizational cultures can have different effects on engagement in the organization but not the same effect on engagement at work. Adhocratic and clan cultural traits positively influence organizational engagement, but on the other hand, hierarchical organizational traits are positively related to employee engagement at work. It is, therefore, interesting to note that although the existing literature would lead us to believe that hierarchical traits would translate into less engagement, the

stable, controlled and highly regulated environment characteristic of a hierarchical culture (Alkhodary, 2023) can explain the confidence of the collaborator in the structure and their tasks, increasing their engagement in work. However, the same does not apply to their engagement with the organization, as it was impossible to conclude the same positive influence highlighted between hierarchy and work engagement.

This study reinforces that successful leadership can help change this situation (Gallup, 2023) and increase employee engagement since it is organizations with traits of more open communication and greater engagement (clan culture) (Cameron and Quinn, 2011) and with environments that encourage authenticity (adhocracy), which demonstrate a greater engagement in the organization by its employees. In that sense, one of the practical conclusions of this study points to the fact that one of the concerns of multinational companies and their managers is that they cannot only engage their employees in the organization. Therefore, the engagement of your employees in their work should not be neglected. The balance between cultural traits can bring harmony to organizations and ensure greater engagement with the organization and work.

As previously described, this study shows that hierarchical traits guarantee greater engagement of employees at work and those from clan and adhocracy within the organization. This means that an organization that can guarantee clear structuring, organization, and coordination of tasks in the management of its employees, with the combination of means of communication with a focus on individual freedom and the development of its human resources and positive relationships, can guarantee greater engagement of employees, both at an organizational level and in their work.

Another contribution of this study is linked to the investigation of the importance attributed by employees to organisational culture. Since it was possible to establish that the importance attributed by employees positively influences the construction of the organisational culture of the SSC. Organisations with a higher level of individual freedom and open communication allow their employees to contribute to the transformation and adaptation of the organisational culture, thus ensuring greater involvement. In addition to the above, this study also makes a logical contribution to the context of the importance of organisational culture for SSC, by presenting data on the importance that organisations should demonstrate with their employees' reading of the relationship with the organisational culture.

The relevance of this study gains strength in the restructuring of the design of current organisational culture models within multinational groups with *Shared Services Centres*, so that they can meet the expectations of their employees. To increase the engagement of SSC employees, improving their performance and, consequently, the quality of the service provided and competitive vantage of multinational groups. SSC and its customers have specific objectives and requirements regarding the conditions of their services (Harritz, 2018), by increasing employee participation and engagement with

the organisational culture and work, there is a positive effect on the success of the organisation (Jahan et al., 2022).

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INVESTIGATING THE RELATIONSHIPS AMONG THE EFQM MODEL 2020 CRITERIA THROUGH REGRESSION ANALYSIS

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ABSTRACT

The purpose of this study is to explore the relationships between the criteria of the new European Foundation for Quality Management (EFQM) Model 2020 in the context of public administration services in Greece. The study reports the results of a pilot study using a structured questionnaire based on the EFQM 2020 self-assessment questionnaire and the model's logic, translated from English into Greek using the forward-backward method. Two focus groups were conducted to check the face validity of the questionnaire. Subsequently, the questionnaire was administered to 50 managers of administrative services in the Greek public sector. After data collection, the study conducts reliability tests, applies descriptive statistics for the demographics, and path analysis using regression analysis to investigate the relationships between the model's criteria. The study results indicate that the research tool is reliable, while the regression analyses reveal significant effects among most of the EFQM Model 2020 criteria. As this is a preliminary small-scale quantitative study, the results are not generalizable. Therefore, further large-scale research focusing on this topic could shed light and provide further evidence on the relationships among the criteria of the novel EFQM Model 2020.

Keywords: EFQM Model 2020, regression models, path analysis, public sector services, organisational transformation, Greece

INTRODUCTION

This paper aims to apply the European Foundation for Quality Management (EFQM) model 2020 in quantitative research to examine the relationships among its criteria within the context of public administrative services in Greece. The literature indicates extensive utilization of previous versions of the EFQM model within the European setting (van Schoten et *al.*, 2016), yet data regarding the experiences and outcomes associated with the implementation of the EFQM model 2020 remain inadequate (Bocoya-Maline *et al.*, 2023). In today's world, every organization encounters the challenge of operating in an ever-changing context (Kafetzopoulos, 2023). Hence, many organizations strive to overcome multiple and diverse obstacles in their efforts to adapt, transform and stay current, and they

seek to receive valuable feedback and gain insight into the quality of their operations and/or performance. To guide them in their continuous improvement and organisational transformation, organisations utilize different models (van Schoten *et al.*, 2016), such as the EFQM model. The EFQM model was first introduced in 1991 and has been revised several times over the years to keep up with the latest trends and developments. The most recent update of the model in 2020 has significantly reformed the structural model and the criteria of the model compared to its predecessor, the EFQM model 2013. Specifically, on the one hand, the EFQM 2013 had two types of criteria, the Enablers and the Results, and a total number of 9 criteria. The Enablers consisted of the criteria of Leadership, Strategy, People, Partnerships and Resources, Processes, Products and Services and the Results consisted of the criteria of Customer Results, People Results, Society Results and Business Results (EFQM, 2012). On the other hand, the EFQM model 2020 has three types of criteria, Direction, Execution and Results, and a total of 7 criteria (Figure 1.). Direction consists of the criteria of Purpose, Vision and Strategy and Organizational Culture and Leadership, Execution consists of the criteria of Engaging Stakeholders, Creating Sustainable Value and Driving Performance and Transformation, while Results include the criteria of Strategic and Operational Performance and Stakeholder Perceptions (EFQM, 2021).
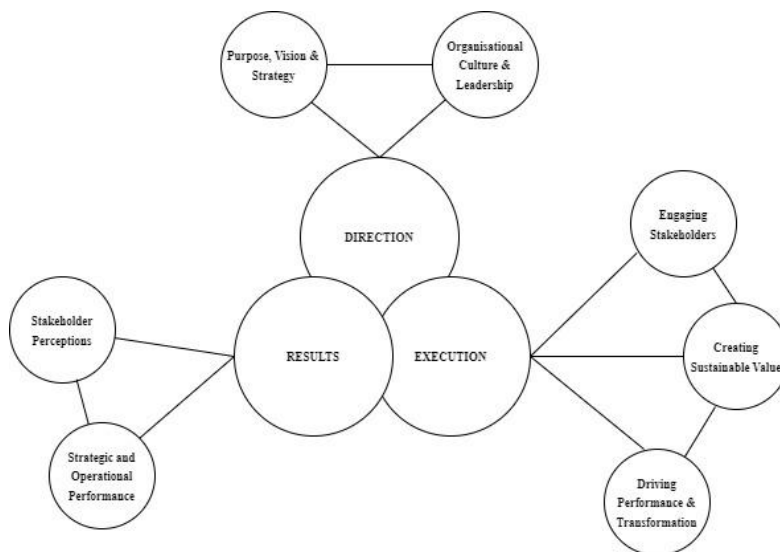
Figure 1.   *The EFQM Model 2020*

There are several studies conducted in Europe that have used the predecessors of the EFQM model 2020 as a research framework to explore the relationships between the model's criteria and also with other concepts. Most of these researches concern organizations operating in the private sector, while studies investigating public sector organizations are limited. In order to gain a better understanding of the above, some indicative studies that focused on private organizations are presented in Table 1. that shows the study's identity, the research area and object and the research objective along with the

methodology that each study followed, which in most cases was the structural equation modeling methodological approach.

Nr.	Paper identity	Research object	Research objective	Methodology
1	Heras-Saizarbitoria et al., 2012	Spanish companies	Analyze the relationships among EFQM enablers and results criteria	Structural equations modeling methodology
2	Calvo-Mora et al., 2014	Spanish firms from the services sector and manufacturing industry	Analyze the relationships between management and human resources, strategic management of partnerships and resources, processes management and key results based on the EFQM Model	Factor analysis and structural equation modeling methodology
3	Suárez et al., 2014	Spanish private firms	Examines the readership between policy and strategy, people, partnerships and resources, and processes and the latent factor results constructed of the four types of the EFQM model results, (key, people, customer, and society results)	Structural equations modeling methodology
4	Pop and Pelau, 2017	Case study of a Romanian company	Relationships between the criteria of the EFQM model	Correlation analysis
5	Kafetzopoulos et al., 2019	Greek manufacturing companies	Analyze the relationships among the EFQM enabler excellence, business performance with innovation. as a mediator	Structural equations modeling methodology
6	Para-González et al., 2021	Spanish firms industrial	Analyse the relationships strategy, leadership people and performance	Structural equations modeling methodology
7	Tarí et al., 2023	Five-star and five-star large luxury hotels in Spain	Analyses the relationship between transformational leadership and the enablers (Strategy, People, Partnership and Processes) and the result (Customer results, Employee results, Social results, and Organizational performance)	Structural equations modeling methodology
8	Bocoya-Maline et al., 2023	Spanish organisations with EFQM recognition	Analyse the relationships among EFQM criteria, knowledge management and the results	Structural equation modeling methodology
9	Giménez Espín et al., 2023	Spanish manufacturing companies	Large scale research that explores the relationship	Structural equations modeling

			between organisational culture and EFQM model application	methodology

Table 1. *Studies that used previous versions of the EFQM Model and focused on private organisations*

All the research conducted in Europe that applied the previous versions of the EFQM model and focused on public sector organizations to explore the relationships between the model's criteria is extremely limited and focused only on organizations belonging to the public education sector (Anastasiadou, 2018; Anastasiadou and Zirinoglou, 2015; Anastasiadou *et al.*, 2014; Calvo-Mora *et al.*, 2006; Đorđević *et al.*, 2021, Kaplani and Zafiropoulos, 2022) and the public health sector (van Schoten *et al.*, 2016). Furthermore, the literature review shows that there is a lack of quantitative studies that have applied the new version of the model, the EFQM model 2020, in Europe and beyond. Specifically, only three studies were identified that used the new model as a framework. Two of these studies were conducted in Europe, specifically in Slovakia; one of them focused on industrial organizations (Turisová *et al.*, 2021), and the other was a case study of a secondary vocational school unit (Sütőová *et al.*, 2022). The third identified study was conducted outside Europe, in Iran, and focused on 90 organizations associated with the Executive Headquarters of Imam Khomeini (Tavallaei *et al.*, 2021). More detailed information on the objective, design, and methodology of the studies is provided in Table 2.

Nr.	Paper identity	Research object	Research objective	Research Sample	Methodology
1	Turisová et al., 2021	70 industrial organizations in Slovakia	Assess the readiness of the organisations regarding the concept of maintenance management and machine integrated safety by using a questionnaire based on the EFQM model 2020 and with a scoring system	50 top managers from automotive, mechanical engineering and services area and 20 top managers from business, construction, electrical engineering, energy and metallurgy area.	Descriptive statistical analysis with no reference to reliability testing
2	Sütőová et al., 2022	Case study of a vocational school unit in Slovakia	Analyze the relationship between Direction, Execution and Stakeholder Perceptions	72 Teaching and Training Staff members and 9 Management Staff members	Descriptive statistical analysis & Correlation analysis with no reference to reliability testing
3	Tavallaei et al., 2021	90 organisations associated with the Executive Headquarters of Imam Khomeini's Command in Iran.	Explore the relationship between Knowledge Management and the EFQM model 2020 criteria of Organisational	67 top managers and excellence experts	Structural equation modeling methodology and reliability testing

				Culture and Leadership, Stakeholder Engagement and Strategic & Operational Performance		

Table 2. *Studies that applied the EFQM Model 2020 in quamtitative research*

In light of the above, it can be argued that there is no evidence in the literature regarding the application of the EFQM model 2020 in quantitative research that explores the relationships between the model's criteria, and no available data that supports the reliability of the novel EFQM model as a framework in quantitative research in Europe. Therefore, this study seeks to investigate the aforementioned in the context of a European country, specifically Greece, and with a focus on the area of public sector administrative services. Finally, the study presents the theoretical framework of the proposed research model based on the EFQM model 2020, describes the research methodology followed, and then presents the study findings and conclusions.

THEORETICAL FRAMEWORK AND PROPOSED RESEARCH MODEL

This study proposes a research model based on the conceptual framework and structure of the EFQM model 2020. Specifically, the study develops the model by using the key factor criteria of the EFQM model 2020, Purpose, Vision & Strategy (PVS), Organizational Culture & Leadership (OCL), Engaging Stakeholders (ES), Creating Sustainable Value (CSV), Driving Performance & Transformation (DPT), Strategic & Operational Performance (SOP), and Stakeholder Perceptions (SP), and establishes relationships among these criteria that are supported by the literature. The proposed research model is detailed in Figure 2.
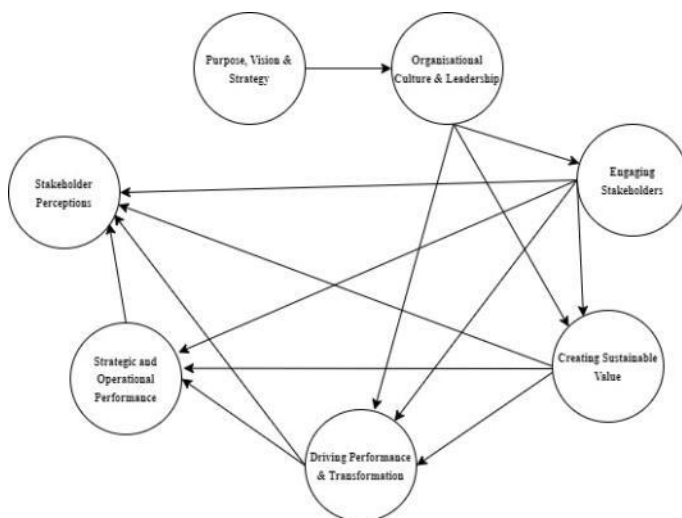
Figure 2. *The research model*

According to van Ingen *et al.* (2021, p.2), organizational purpose is defined as *"the organization's reason for being"* while vision describes the organization's ideal future condition (Kotter, 1990) and strategy is how an organisation plans to accomplish one or more goals in the face of uncertainty and usually entails establishing objectives, choosing a course of action, and allocating resources to carry out the plan of action (Barad, 2018). Organisational culture is the values-belief system in an organisation that is shared by every person of the organization in an organisation and is shared by every person in the organization (Scammon *et al.*, 2014), and leadership is the skill of inspiring others to strive for common goals (Kouzes and Posner, 1995). A stakeholder is any interesting party who has an interest in an organisation' projects or its results (Mayfield, 2014), and according to the position of the stakeholder, inside or outside the organisation, there are two types, the internal and external stakeholders (Franklin, 2001). Engaging stakeholders *"is a strategic process of interacting with stakeholders to gather information about shared interests, preferences, and the potential for joint action"* (Franklin, 2020, p.2), and it is crucial since it can provide valuable information that support the organisation in making decisions which lead to sustainable value creation and to mutual benefits for the organisation and its stakeholders (Franklin, 2020). Creating sustainable value *"occurs only when a company creates value that is positive for its shareholders and its stakeholders"* (Laszlo, 2008a, p. 26), and plays a vital role for the organisations' competitiveness (Li *et al.*, 2021). Driving Performance and Transformation refers to the organisations' efforts to continue its daily operations and achieve its goals while keeping up with the changes in the external and internal parameters of its environment (EFQM, 2021). Strategic and Operational Performance is how effectively an organisation attains the objectives that has set at a strategic and operational level while Stakeholders Perceptions are the views of those who have a stake in the organisation that have been shaped on the basis of what they have experienced during their interactions with the organisation (EFQM, 2021). Moreover, the purpose of an organisation is the foundation for the identification of the organisations' value system which is a key element for the formulation of the organisation's culture (Babnik *et al.*, 2014). In addition, the organisation's purpose and vision are the pillars of the organisational culture. Also, strategy affects organisational culture since the latter must be in alignment with the organisation's strategy (Carataş and Spătariu, 2018). Furthermore, strategy influences leadership (Marx, 2015), along with stakeholder engagement since it serves as a means for the strategy to attain its objectives and to improve organisational performance (Hristov and Appolloni, 2022). Also, strategy affects organisational performance and transformation since change must be an integrated part of the organisations' strategy to facilitate their adaptation to new trends (Phillips and Klein, 2023). Additionally, nowadays sustainability has become a necessity, hence every organisation is called to integrate this aspect in its strategy in order to achieve sustainable value creation for its stakeholders and the organisation (Hart *et al.*, 2003), Therefore, it can be argued

that strategy can affect the creation of sustainable value along with organisational performance. Also, Pinho *et al.* (2014), have revealed that organisational culture influences positively organisational performance and Kriemadis *et al.,* (2012) argue that organizational culture plays a crucial role in every organization striving for effective organizational performance. Moreover, organisational culture influences positively people's performance (Paschal and Nizam, 2016), and Akpa *et al.* (2021), argue organisational culture impacts every person that has an interest in the organization. Also, Yanney (2014), has revealed that strategy and leadership have an influence on organizational performance. Furthermore, Conțu (2020), argues that there is a correlation between the people's performance and organisational performance while the study of Acosta-Prado *et al.* (2023), shows a direct positive influence of sustainable value creation on organizational performance. Moreover, stakeholder engagement is crucial for achieving the organisations' goals towards sustainability (Leal *et al.,* 2016). Also, stakeholder engagement plays a key role in the organisations' transformation and its effort to create sustainable value (Laszlo, 2008b). Moreover, the creation of sustainable value influences positively strategic and operational and performance (Hart and Ahuja, 1996). Furthermore, literature reveals that the way the stakeholders relate with an organisation is positively associated with the organisation's contributions to sustainability since the latter is a determinant factor of the stakeholders' decision making (Peloza *et al.,* 2012). Moreover, a clear correlation exists between an organization's stakeholder engagement strategy and the stakeholders' points of view about the organization (EFQM, 2021). Also, strategic and operational performance has an effect on stakeholders' perception since the stakeholders' attitudes towards the organisation are formulated based on how they interacted with the organization (EFQM, 2021). Also, both profit and nonprofit organizations concern about their reputation and try to shape the perceptions of stakeholders about their performance. Considering the above the following hypotheses were formulated:

H1. PVS has a significant positive effect on OCL; H2. PVS has a significant positive effect on ES; H3. OCL has a significant positive effect on ES; H4. PVS has a significant positive effect on CSV; H5. OCL has a significant positive effect on CSV; H6. ES has a significant positive effect on CSV; H7. PVS has a significant positive effect on DPT; H8. OCL has a significant positive effect on DPT; H9. ES has a significant positive effect on DPT; H10. CSV has a significant positive effect on DPT; H11. ES has a significant positive effect on SOP; H12. CSV has a significant positive effect on SOP; H13. DPT has a significant positive effect on SOP; H14. ES has a significant positive effect on SP; H15. CSV has a significant positive effect on SP; H16. DPT has a significant positive effect on SP; H17. SOP has a significant positive effect on SP.

METHODOLOGY

Before conducting this study, the authors submitted the research protocol to the Research Ethics Committee of the University and to the Ministry of Education, Religious Affairs and Sport of Greece, and approval was granted by both parties (Decision No. 37/17-07-2023 and Decision No. 86346/N4/31-07-2023, respectively). The study used a structured questionnaire based on the EFQM 2020 self-assessment tool, which consisted of eight parts, one for each of the seven criteria of the EFQM 2020 model, and a final part for demographics. The questionnaire for the seven-factor criteria used the scale of the self-assessment tool, which is a Likert scale (1=nothing in place to 11=best in class). The forward-backward method as described by Beaton *et al.* (2007) was used to translate the questionnaire into Greek and two focus groups (7 managers and 7 employees of public administrative services in Greece) were conducted to check the face validity of the questionnaire and the appropriateness of its items for the context of the study. Subsequently, the online questionnaire was prepared, and its link was emailed to a convenience sample of 50 managers of public administrative services in Greece. After data collection, SPSS software was used to check the reliability of the questionnaires by generating Cronbach's alpha coefficients, to perform unidimensionality analysis for each scale, descriptive statistical analysis for the demographics of the participants, and finally correlation and regression analysis to explore the relationships between the criteria of the EFQM model 2020.

RESULTS

Participants' demographics

The study's sample consisted of 50 managers of public regional administrative services of the Ministry of Education, Religious Affairs and Sports of Greece. Most participants were male (56%), and more than half of the managers were 51-60 years old (58%). Also, almost two out of three participants (66%) have completed postgraduate studies while one out of three respondents (36%) had 0-5 years of management experience.

Questionnaire's reliability, and a first look in convergent and discriminant validity results

The reliability of the research tool was checked All the Cronbach's alpha coefficients for the questionnaire's scales that measured each criterion-construct of the EFQM model 2020 were above the 0.70 threshold: PVS 0.960, OCL 0.903, ES 0.900, CSV 0.904, DPT 0.857, SOP 0.888, SP 0.936.
Also, the results of the Unidimensionality analysis showed the items of each questionnaire scale produced only one factor and the maximum and minimum factor loadings for each criterion were for PSV max= 0.952 and min=0.804, for OCL max=0.921 min=0.798, for ES max=0.887 and min=0.800, for

CSV max=0.981 and min=0.728, for DPT max=0.922 and min=0.504, for SOP max=0.941 and min=0.343 and for SP max= 0.960 and min=0.616.

The results of correlation analyses that were conducted to investigate the relationships between the EFQM model 2020 criteria showed that no correlation coefficient had a value above .90 (Table 3.).

Criterion	PSV	OCL	ES	CSV	DPT	SOP	SP
PVS	1						
OCL	0.785**	1					
ES	0.632**	0.675**	1				
CSV	0.559**	0.607**	0.497**	1			
DPT	0.655**	0.719**	0.688**	0.853**	1		
SOP	0.632**	0.726**	0.755**	0.629**	0.747**	1	
SP	0.588**	0.753**	0.725**	0.683**	0.749**	0.895**	1

Table 3. *Construct reliability (**p<0.01)*

Regression analysis

Subsequently, path analysis was used to evaluate the relationships between the criteria of the EFQM model 2020. The results of the regressions and especially the direct effects β, presented in Table 4, show that hypothesis H1 is supported and PVS plays a significant role in shaping OCL (β=0.785, p < 0.001). Furthermore, R^2=0.615 indicates that the model explains 61.5% of the variance in OCL. Also, on the one hand, hypothesis H2 is not supported and PVS has no significant effect on ES, but on the other hand, OCL has a significant effect on ES (β=0.467, p < 0.01), so hypothesis H3 is supported and R^2=0.483 indicates that the model explains 48.3% of the variance in ES. Also, hypotheses H4, H5, and H6 are not supported as PVS, OCL, and ES have no significant effect on CSV. In addition, the results indicate that PVS and OCL do not have a significant effect on DPT, therefore hypotheses H7 and H8 are not supported, but ES (β=0.267, p < 0.01) and CSV (β=0.618, p < 0.001) have a positive significant effect on DPT, therefore H9 and H10 are supported and the R^2=0.832 indicates that the model explains 83.2% of the variance in DPT. Furthermore, the results show that hypothesis H11 is supported, and ES has a significant positive effect on SOP (β=0.479, p < 0.001), while CSV and DPT have no significant effect on SOP, therefore H12 and H13 are not supported and the model's R^2=0.673 indicates that the model explains 67.3% of the variance in SOP. Finally, the results of the last multiple regression model indicate that only SOP has a positive and significant effect on SP (β=0.699, p < 0.001), therefore H17 is supported and the R^2=0.829 indicates that the model explains 82.9% of the variance in SP, while ES, CSV, and DPT have no significant effect on SP, therefore H14, H15, H16 are not supported by the results.

Hypothesis	Independent variable(s)	Dependent variable	R2	Beta coefficient (β)	t-value	p-value	Hypothesis supported
H1	PVS	OCL	0.615	0.785	8.765	0.000	Yes
H2	PVS	ES	0.483	0.266	1.571	0.123	No
H3	OCL			0.467	2.761	0.008	Yes
H4	PVS	CSV	0.395	0.182	0.959	0.342	No
H5	OCL			0.379	1,899	0.064	No
H6	ES			0.127	0.793	0.432	No
H7	PVS	DPT	0.832	0.032	0.313	0.756	No
H8	OCL			0.139	1.260	0.214	No
H9	ES			0.267	3.115	0.003	Yes
H10	CSV			0.618	7.868	0.000	Yes
H11	ES	SOP	0.673	0.479	4.004	0.000	Yes
H12	CSV			0.127	0.761	0.451	No
H13	DPT			0.310	1.556	0.127	No
H14	ES	SP	0.829	0.117	1,152	0.256	No
H15	CSV			0.222	1.820	0.075	No
H16	DPT			-0.044	-0.293	0.771	No
H17	SOP			0.699	6.495	0.000	Yes

Table 4. *Simple and multiple regression analyses results among the EFQM Model 2020 criteria*

DISCUSSION

The literature reveals a limited number of quantitative studies that use the novel EFQM model 2020 as a framework for their research and a lack of studies that examine public sector services. In addition, there is a paucity of research that examines the relationships among the EFQM model 2020 criteria. Furthermore, there is no evidence in the literature about the reliability of this new model in the context of a European country. Therefore, the purpose of this study was to verify the reliability of the EFQM model 2020 in the European context and to explore the relationships among its criteria by applying path analysis and regression models in the context of a pilot study of a research program. Since data regarding the experiences and outcomes associated with the implementation of the EFQM model 2020 remain inadequate (Bocoya-Maline et al., 2023) and the EFQM model 2020 makes no assumptions and does not foresee any underlying relationships among the EFQM model criteria except for the relationship between Engaging Stakeholders and Stakeholders Perceptions, this study's innovation lies in its hypothesizing and testing of the relationships among the criteria of the EFQM model 2020 in the context of a European country, with a focus on public sector services.

The results of the study support the reliability of the proposed model in the context of the research. Moreover, based on the results, many of the hypotheses of the study are confirmed (H1, H3, H9, H10, H11, H17). The results show that PVS has a strong positive effect on OCL, which is consistent with

previous literature (Babnik *et al.*, 2014; Carataş and Spătariu, 2018; Marx, 2015). Therefore, public services must focus on providing clarity of purpose, vision, and strategy to guide the work of leadership and facilitate the cultivation of an organizational culture that promotes the achievement of public service goals. The results also showed that OCL has a significant positive impact on ES, which is supported by previous findings (Akpa *et al.*, 2021; Carataş and Spătariu, 2018). Therefore, it is essential for the services to cultivate their leadership and organizational culture in a way that prioritizes the growth of their employees, their commitment to the organization, and the promotion of mutually beneficial relationships between the services and their stakeholders. In addition, the findings showed that ES has positive significant effects on DPT (Conţu, 2020; Laszlo, 2008b, Leal *et al.*, 2016) and SOP respectively (Hristov and Appolloni, 2022). Therefore, stakeholder engagement must be a priority and an integrated part of the services' strategic plan in order to achieve their performance and strategic goals and keep up with the changes in their environment. Moreover, the results revealed that CSV has a positive and significant effect on DPT, which is consistent with the literature (Acosta-Prado *et al.*, 2023; Hart and Ahuja, 1996), therefore, public services must integrate the aspect of sustainability in their strategy and goal setting. Also, the results indicated that SOP has a positive and significant effect on SP, which is supported by literature (EFQM, 2021), therefore, public services must make efforts to achieve their strategic and operational performance goals and to meet the expectations of their stakeholders in order to shape and achieve the desired stakeholder perceptions towards public sector services. Lastly, as this was a small-scale preliminary study, the results cannot be generalized. Therefore, future research should be conducted in other contexts to enhance the robustness and validity of the findings and to provide a more comprehensive understanding of the relationships among the EFQM model 2020 criteria.

CONCLUSIONS

The present study focuses on the application of the EFQM model 2020 as a framework for quantitative research to explore the relationships between the model's criteria in the context of the Greek public administrative services. The results of the study support the reliability of the research model and reveal positive and significant relationships between Purpose, Vision & Strategy and Organisational Culture & Leadership; Organisational Culture & Leadership and Engaging Stakeholders; Engaging Stakeholders and, Driving Performance & Transformation and Strategic & Operational Performance respectively; Creating Sustainable Value and Driving Performance & Transformation; and finally Strategic & Operational Performance and Stakeholders Perceptions. Considering the above, this study offers enhanced insights into the EFQM model 2020 and the relationships among its criteria and contributes to the existing knowledge about this novel model. As this study represents a small-scale

preliminary investigation, future large-scale research should be conducted in similar or different settings to ensure the generalizability of the results and to identify potential variations or nuances in the relationships among the EFQM model 2020 criteria.

FUNDING

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SYSTEMATIC LITERATURE REVIEW ON THE APPLICATION OF THE EFQM MODEL AS A FRAMEWORK IN QUANTITATIVE RESEARCH IN THE CONTEXT OF THE GREEK PUBLIC SECTOR

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ABSTRACT

This paper presents the state of the art in the application of the EFQM model as a framework in quantitative research in the Greek public sector. The study follows the systematic literature review approach. Specifically, after identifying the research question, the SPIDER tool is used to generate the search terms and the inclusion-exclusion criteria are specified along with the search strategy. Three databases (Science Direct, Research Gate, and Google Scholar) were included in the search process along with a gray literature search. Initially, the search yielded 4638 records. After screening the titles and abstracts of the papers, 4547 irrelevant and 16 duplicate papers were excluded, leaving 75 papers for in-depth review. Finally, 12 papers met the eligibility criteria and underwent full-text review. The analysis shows that the EFQM model has been used as a framework for quantitative research in the Greek public sector, but the number of studies is limited. The vast majority of the researches focus on the education sector, and they are large-scale studies, while the research in different public sector areas is extremely limited and concerns case or small-scale studies. Moreover, the study shows that the new EFQM Model 2020 has not yet been used as a framework in quantitative research, as all previous studies used older versions of the model. Considering the above, there is a research gap in the literature on this topic of interest, which can be a starting point for future large-scale research in public sector services in Greece operating outside the education sector.

Keywords: Systematic literature review, EFQM Model, quantitative research, public sector, services, organisational transformation, Greece, spider tool, PRISMA flow diagram

INTRODUCTION

The purpose of this paper is to identify the state of the art in the application of the EFQM model as a framework in quantitative research in the Greek public sector context In the contemporary era, organizations are called to confront a constantly shifting landscape (Kafetzopoulos, 2023), hence, they

need to cultivate their ability to adapt to the demands of their time and manage change effectively. Public sector services are no exception, and because of their key role and contribution to achieving sustainable prosperity, they must focus on continuously improving their effectiveness and efficiency. In addition, public sector services need to monitor their performance in achieving the goals they have set at the strategic and operational levels. To navigate their path to organisational transformation successfully, organizations have to identify and make effective use of the key factors that contribute to their transformation. To achieve this goal, public sector services need to adopt new ways of thinking and acting, guided by the five basic principles of Total Quality Management, which are: producing work of quality and importance from the beginning; focusing attention on achieving a satisfied clientele; having a clear strategic plan for improvement; involving the entire workforce in continuous improvement efforts; cultivating and promoting mutual respect and teamwork within the organization (Mohammed *et al.*, 2013). Many models have emerged in the literature that are based on the aforementioned principles (Rosak-Szyrocka and Roszak, 2019) and aim to provide guidance to organizations in their efforts to improve their operations and performance (Øvretveit, 2005), and to transform in response to the demands of today's dynamic and constantly changing environment. One of these models is the European Foundation for Quality Management model (EFQM model), which since its first introduction to the public in 1991 (Fonseca *et al.*, 2021) has been regularly updated to integrate the new concepts and trends that emerge over the years (Santos-Vijande and Alvarez-Gonzalez, 2007; Fonseca *et al.*, 2021). The first important update of the model was realized in 1995, when the Results group was divided into two subgroups (Porter and Tanner, 2004). The model was modified again in 1999 when the Resources criterion was changed to Partnerships and Resources and the three sub-groups of the Results group were introduced by using the term "Results " instead of the previous term "Satisfaction" (Porter and Tanner, 2004). The European Foundation for Quality Management presented the revised version of the EFQM model in 2003 (Figure 1.), which had 9 criteria divided into 2 groups. The first group, Enablers, included 5 criteria, namely Leadership, Policy & Strategy, People, Partnerships & Resources, and Processes. The second group, Results, consisted of the remaining 4 criteria, Customer Results, People Results, Society Results, and last but not least, Key Performance Results, which represent what the organisation achieves through its operations.
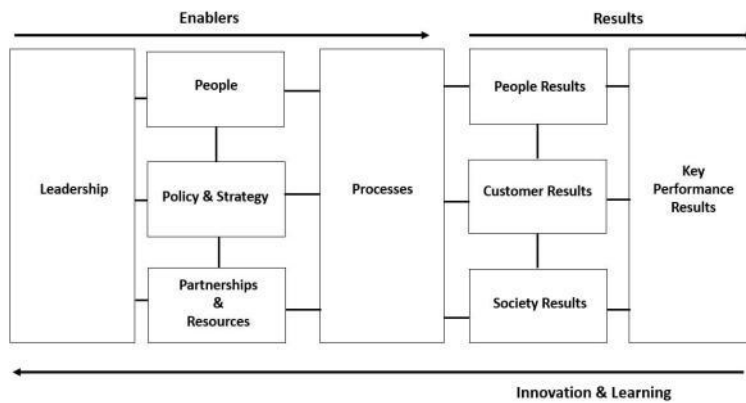
Figure 1. The EFQM model 2003

Subsequently, another revision of the model resulted in the EFQM model 2010 with the following changes. The criterion Policy & Strategy changed to Policy, Processes changed to Processes, Products & Services and Key Performance Results changed to Key Results. The new version of the model also recognized the value and contribution of creativity to the continuous improvement of an organisation, in addition to innovation and learning. Therefore, Innovation & Learning of the EFQM model 2003 changed to Learning, Creativity & Innovation in the EFQM model 2010 (Figure 2.).
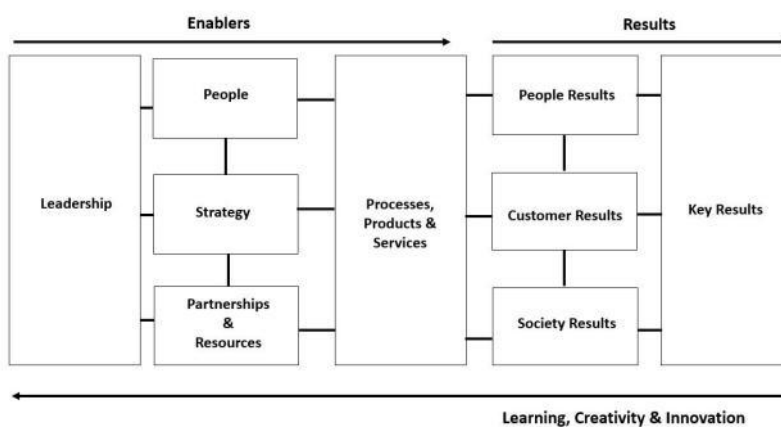
Figure 2. The EFQM model 2010

In 2012, another revised version of the model was introduced, the EFQM model 2013 (Figure 3.), which maintained the structure of the 9 criteria and the 2 groups of Enablers and Results (EFQM, 2012). The changes in this model concerned only the criterion Key Results, which changed to Business Results, because the term "Key" was considered confusing, since it was used to identify results of high importance in all the types of the Results criteria (EFQM, 2012).
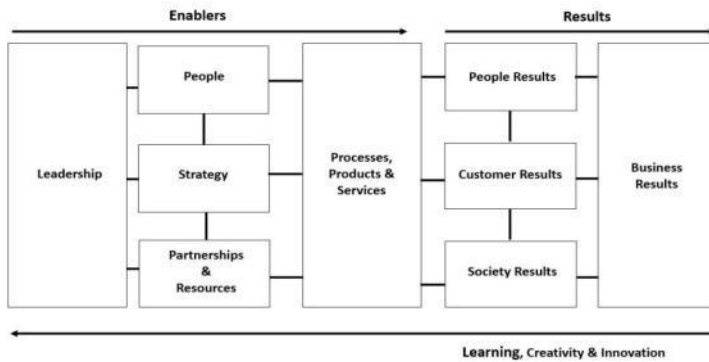
Figure 3. The EFQM model 2013

The latest update of the model, the EFQM model 2020, which presents major differences from the previous EFQM models in the way the model is structured, but also in its criteria and categories. To be more specific, the EFQM model 2020 (Figure 4.), presents 7 criteria and 3 categories of criteria. The three categories are Direction, Execution and Results. The criteria that belong to Direction are Purpose, Vision & Strategy and Organizational Culture & Leadership, those that belong to Execution are Engaging Stakeholders, Creating Sustainable Value and Driving Performance & Transformation and last but not least those that belong to Results are Strategic & Operational Performance and Stakeholder Perceptions (EFQM, 2021).
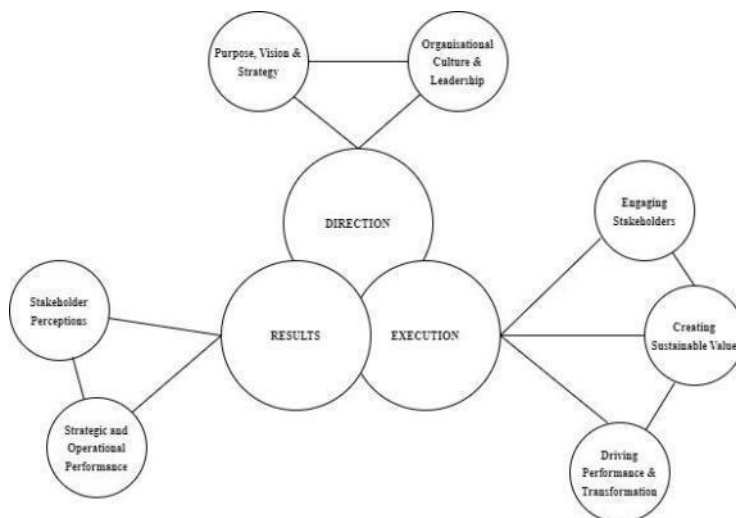
Figure 4. The EFQM model 2020

The literature shows a wide use of the EFQM model in the European context (van Schoten *et al.*, 2016), as the model was created in accordance with the social and economic characteristics of Europe (Oger and Platt, 2002). In addition, the EFQM has made adaptations so that the model can also be used by public sector organizations. (Gené-Badia *et al.*, 2001). There are also several studies in European

countries (such as Spain, Denmark and Romania) that have applied the EFQM model as an assessment framework and for determining the cause-and-effect relationships between the criteria of the model. However, most of these studies concern private companies operating in the industrial and construction sectors, as well as in the service sector (Bou-Llusar *et al.*, 2005; Eskildsen *et al.*, 2000; Gómez *et al.*, 2015; Hemsworth, 2016; Heras-Saizarbitoria *et al.*, 2012; Pop and Pelau, 2017). At the same time, there are some studies that have applied the EFQM model in public sector services, especially in higher education institutions (Calvo-mora, *et al.*, 2005; Calvo-mora *et al.*, 2006). For all the above, the EFQM model was selected to be studied in the context of this paper. Subsequently, this paper presents the research methodology and results of the study, followed by the discussion and conclusions of the study.

METHODOLOGY

The aim of this paper is to provide a comprehensive overview of the existing literature on whether the EFQM model has been used as a framework for quantitative research in the context of Greek public services. For this purpose, the paper follows the methodological approach of conducting a systematic literature review, which is *"a rigorous and transparent form of literature review"* (Mallett *et al.*, 2012, p. 445), whose importance has increased as it allows researchers to keep up with the novelties in their field (Swartz, 2011). Khan *et al.* (2003), propose a five-step guide to follow when conducting a systematic literature review, namely, formulating the research question, identifying the relevant literature, assessing the quality of the selected literature, summarizing the findings, and finally interpreting them. Following the above, the research question of this paper is as follows: "Has the EFQM model been applied as a framework in quantitative research in public sector services in Greece?". After defining the research question, the SPIDER tool (Cooke *et.al.*, 2012) was applied and it generated the following search terms (Table 1).

SPIDER Tool	Search Terms
S-Sample	"Greek public sector managers" OR "Greek public sector experts" OR "Greek public sector employees" OR "Greek public sector servants" OR "Greek public sector directors"
PI-Phenomenon of Interest	"EFQM model research framework" OR "EFQM assessment framework" OR "EFQM evaluation framework" OR "Total Quality Management model" Or " Excellence model"
D-Design	"questionnaire" OR "survey" OR "case study"
E-Evaluation	"opinions" OR "views" OR "attitudes" OR "perceptions"
R-Research type	"quantitative" OR "mixed methods"

Table 1. The search terms generated by the SPIDER tool

Subsequently, the inclusion and exclusion criteria to be applied during the study selection process were specified. Specifically, the inclusion criteria were 1. studies that used the EFQM model as a research framework 2. Studies that focused on the public sector services in Greece 3. No restrictions were applied to the publication date 4. Studies that followed the methodology of quantitative and mixed methods research approach and 5. studies that were written in English and/or Greek. The exclusion criteria were: 1. studies that used other models as a research framework. 2. studies that applied the EFQM model in private sector organizations 3. studies that were not written in Greek or English, and 4. studies that followed a qualitative research methodology. Regarding the number of databases to be included in the search process, the authors considered the guidelines that suggest searching at least two databases (Shea *et al.*, 2017) or more than two (Charrois, 2015). Therefore, in the context of this paper and with the aim of conducting a search that is as comprehensive as possible, three (3) databases were searched, specifically Science Direct, Research Gate and Google Scholar. The authors also followed the recommendations to include a search in the gray literature during this process (Godin *et al.*, 2015; Paez, 2017). Therefore, the National Archive of Ph.D. Theses of the National Documentation Center of Greece and the Digital Library and Institutional Repository of the authors' university were included in the database search. In addition, the study followed the recommendation that the minimum number of reviewers involved in a systematic review should be two (Stoll *et al.*, 2019), as the two authors both conducted the review. The aforementioned search strategy initially identified 4638 papers, of which 4547 were excluded as ineligible because their content did not fit the research question. The references of the remaining 91 papers were imported into an Excel spreadsheet to create a bibliographic list to track and exclude duplicate papers. This process identified 16 papers as duplicates, which were excluded. Therefore, 75 papers proceeded to the next step and underwent title and abstract screening. This process resulted in the exclusion of 63 papers due to the fact that they were qualitative studies, they used another model as their research framework, or they presented only a literature review on the EFQM model. In the end, 12 papers were selected for full text screening and all of them were found to meet the eligibility criteria to be included in this review. In Figure 5., an adaptation of the PRISMA flow diagram created by Page *et al.* (2021), is used to describe the selection process.
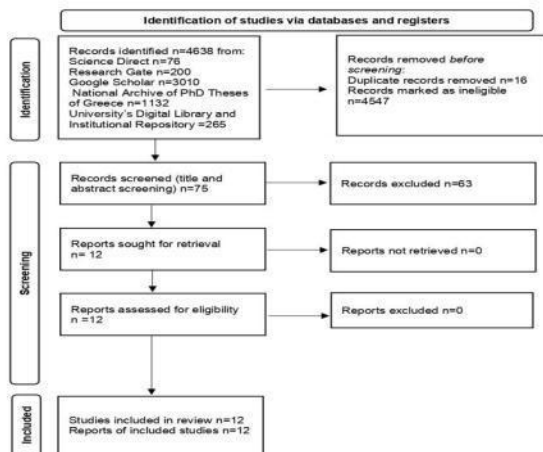
Figure 5. The PRISMA Flow diagram

After the selection stage, the papers were evaluated for quality based on the methodology they followed, and no exclusions were made based on quality. The data extraction process was then carried out to obtain the relevant data from each paper. For this purpose, the authors used a standardized data extraction form that included information about the study details, such as the names of the authors, the year of publication and the language of the study, the type of public service that the study focused on, the design of the study as well as its methodology, its participants, the version of the EFQM model that was used as the research framework, and finally, information about the statistical analysis approach that each study followed. Finally, the authors summarized their findings which are presented in the following section.

RESULTS

This systematic literature review was conducted to determine whether the EFQM model has been used as a framework for quantitative research in the context of Greek public services. The search identified 4638 papers, of which only 75 were selected for screening and 16 papers were excluded as duplicates. Subsequently, only 12 papers met the inclusion criteria and underwent full-text screening. A detailed review and assessment of the methodological approach of the 12 papers and further analysis followed. Due to the small number of studies, no exclusions based on quality were made. The limited number of identified studies revealed that research in the field of public services in Greece using the EFQM model as a framework for quantitative research is scarce. Furthermore, the analysis revealed that only 3 papers (Eleftheriadou, 2012; Simeonidou, 2015; Triviza, 2016) were found that focused on public services outside of education, specifically on administrative and health services, and these studies are presented in detail in Table 2.

Nr	Paper Identity	Language	Research object	Research Design	Version of EFQM Model	Sample	Methodology
1	Eleftheriadou, 2012	Greek	Greek public hospitals	Small scale research	EFQM 2003	19 hospital directors	Descriptive statistical analysis
2	Simeonidou, 2015	Greek	Services of the Special Account for Research Funds of the Aristotle University of Thessaloniki	Case study	EFQM 2003	51 employees	Descriptive statistical analysis
3	Triviza, 2016	Greek	Social Security Institute branches Thessaloniki	Case study	EFQM 2003	120 employees	Descriptive statistical analysis

Table 2. Analysis results of the reviewed papers that focused on public administrative and health care services

The three aforementioned studies were published in 2012, 2015 and 2016 respectively, two of them were case studies (Simeonidou, 2015; Triviza, 2016) and one was a small-scale study (Eleftheriadou, 2012). All of these studies applied the EFQM model 2003, they were written in Greek, and they conducted only descriptive statistical analysis. In addition, the study participants in two of them were employees, while in the third study they were hospital directors.

Regarding the other 9 identified papers, they focused on the Greek primary, secondary and tertiary public education (Anastasiadou, 2018a; Anastasiadou, 2018b; Anastasiadou and Zirinoglou, 2014; Anastasiadou and Zirinoglou, 2015; Anastasiadou and Zirinoglou, 2020; Anastasiadou et al., 2014; Kaplani and Zafiropoulos, 2022; Taraza and Anastasiadou, 2019; Zirinoglou, 2015). The results of the analysis show that these studies were published from 2014 to 2022, and one of them was written in Greek while the others were written in English. In addition, the analysis shows that the above 9 papers presented large-scale studies. Moreover, regarding the methodology used by the studies to select their study sample, only one paper (Kaplani and Zafiropoulos, 2022), provides sufficient information on the methodological approach that was used to ensure the selection of a representative sample. Regarding the participants of the studies, 5 studies have teachers as participants (Anastasiadou and Zirinoglou, 2014; Anastasiadou and Zirinoglou, 2015; Anastasiadou et al., 2014; Taraza and Anastasiadou, 2019; Zirinoglou, 2015), 1 study has school principals (Kaplani and Zafiropoulos, 2022), and 3 studies have university students as participants (Anastasiadou, 2018a; Anastasiadou, 2018b; Anastasiadou and Zirinoglou, 2020). Furthermore, the results show that 2 studies used the EFQM model 2013 version as their research framework (Kaplani and Zafiropoulos,

2022; Taraza and Anastasiadou, 2019), one study used the EFQM model 2010 (Zirinoglou, 2015), while the other 6 used an older version, the EFQM model 2003. In terms of methods, the studies present a variety of statistical analysis methods. Specifically, the studies implemented methods to test the reliability and validity of the scale or scales of the EFQM model, one study conducted only descriptive statistical analysis, while two others combined it with a more advanced statistical analysis method, such as the structural equation modeling (SEM) approach. In addition, some of the studies conducted various methods of factor analysis such as principal components analysis and correspondence factor analysis, one in combination with inferential statistical analyses such as one-way analysis of variance and independent samples t-test. In addition, one of the studies performed implicative statistical analysis. The 9 papers are presented in detail in Table 3, which follows.

Nr	Paper Identity	Language	Research object	Research Design	Version of EFQM Model	Sample	Methodology
1	Anastasiadou et al., 2014	English	Greek Primary and Secondary Education	Large scale	EFQM 2003	1000 Primary and Secondary Education teachers, no information about the methodology for the selection of the research sample	Correspondence Factor Analysis
2	Anastasiadou and Zirinoglou, 2014	English	Greek Primary Education	Large scale research	EFQM 2003	153 secondary teachers, no information about the methodology for the selection of the research sample	Reliability testing of the EFQM scale
3	Zirinoglou, 2015	Greek	Greek Primary and Secondary Education	Large scale	EFQM 2010	1000 Primary and Secondary Education teachers. The applied methodology for the selection of the research sample may not lead to a representative sample of the target population.	Principal Components Analysis, One Way Analysis of Variance, Independent Samples T-test
4	Anastasiadou and Zirinoglou, 2015	English	Greek Primary Education	Large scale research	EFQM 2003	366 teachers of Primary Education, no information about the methodology for the selection of the research sample,	Descriptive statistics, Structural Equation Modelling
5	Anastasiadou, 2018a	English	Greek Tertiary Education	Large scale research	EFQM 2003	230 Greek students/ pre-service teachers from 4 Faculties of Primary Education, no information about the methodology for the selection of the	Implicative Statistical Analysis

					research sample.	
6	Anastasiad ou, 2018b	English	Greek Tertiary Education	Large scale researc h	EFQM 2003	230 Greek students/ pre-service teachers from 4 Faculties of Primary Education, no information about the methodology for the selection of the research sample	Factorial Analysis of Corresponden ces for the criterion Leadership of EFQM Model
7	Taraza and Anastasiad ou, 2019	English	Greek secondary education	Large scale	EFQM 2013	135 Greek secondary education teachers teaching in vocational and senior high schools	Reliability and Validity testing of the EFQM enablers scales
8	Anastasiad ou and Zirinoglou, 2020	English	Secondary education	Large scale	EFQM 2003	202 Greek students of department of Business administration in the University of Western Macedonia	Descriptive statistical analysis of the enablers of the EFQM Model
9	Kaplani and Zafiropoulo s, 2022	English	Greek Primary Education	Large scale researc h	EFQM 2013	Representative sample of 231 school principals of primary education.	Structural Equation Modeling. Relationships between the EFQM criteria and Descriptives

Table 3. Analysis results of the reviewed papers that focused on Greek public education area

Finally, it is important to note that only two studies were identified to analyse the relationships among the EFQM criteria. Specifically, Anastasiadou and Zirinoglou (2015), implemented the Structural Equation Modeling (SEM) technique and analysed the direct effects among the enablers of the EFQM model, specifically among Leadership, Policy and Strategy, People, Partnerships and Resources, and Processes, while the most recent published study by Kaplani and Zafiropoulos (2022), followed the structural equation modeling approach, specifically the PLS modeling technique using SmartPLS, and analysed the direct and indirect effects among the Enablers and Results criteria of the EFQM model to confirm the relationships among them.

DISCUSSION

This paper presents an attempt to map the state of research in the use of the EFQM model as a framework in quantitative research in public sector services in Greece and to provide a comprehensive overview of the existing literature on this research topic. The results of the study show that the EFQM model has indeed been used as a framework in quantitative research in public sector services in

Greece, but the number of studies is limited. Furthermore, the vast majority of the researches focus on public services in the field of education, with the aim of studying primary, secondary and tertiary education services in Greece. Thus, the number of studies using the EFQM model and focusing on public services outside the education sector is extremely limited. Furthermore, all of the large-scale studies that have been conducted concern public education services, while the limited number of studies that examine services in another area of the Greek public sector are only case or small-scale studies. In addition, the results show that although the existing literature was published from 2012 to 2022, the vast majority of studies applied the older version of the EFQM model, the EFQM model 2003, one study applied the EFQM model 2010 and two studies applied the EFQM model 2013 and no study was identified to apply the new version of the model, the EFQM model 2020. In addition, the results indicate that only one study provided adequate information about the sampling technique used by the researchers, which ensured the representativeness of the sample and the generalizability of the study results. Regarding the statistical methods used by the researchers to analyse their data, the results show that some studies used only descriptive statistics, other studies used implicative statistical analysis, principal components analysis or factorial analysis of correspondence, one study in combination with inferential statistical analysis (such as independent samples T-tests, one-way analysis of variance), while studies that used a more advanced research methodology such as the Structural Equation Modeling (SEM) approach are scarce.

Considering the above, this study revealed a research gap in the literature since no large-scale research concerning public sector services that operate outside the education field has been identified. Therefore, conducting a large-scale research focused on public sector services outside the educational area can provide policymakers and decision-makers with valuable insights and can help inform decisions regarding resource allocation, policy formulation, and strategic planning. Also, the insights gained from this study can stimulate discussions, provide frameworks and methodologies for evaluating and monitoring the effectiveness of the Greek public sector, enable public sector services to track their performance over time, assess the impact of their interventions, and make data-driven decisions that will promote continuous improvement efforts in the Greek public sector services. Furthermore, this study showed that the novel EFQM model 2020 has not yet been applied as a framework in quantitative research in public sector services in Greece. This lack of available information concerning both the practical application and academic research focused on the EFQM model 2020 is also underlined by Bocoya-Maline *et al.* (2023). Therefore, the study unveiled another gap in the literature and the need for further research focused on the application of EFQM model 2020 and the exploration of the underlying relationships among the model's criteria.

In addition, it is important to note that this paper has limitations, as only two reviewers were involved in all stages of the review process, data extraction and analysis, which on the one hand resulted in no conflicts arising during the process, but on the other hand may have increased the possibility of errors and bias, as according to the guidelines for conducting a systematic literature review (Charrois, 2015; Stoll *et al.*, 2019), two reviewers is the minimum number of people that must be involved in the process of conducting a systematic literature review. Therefore, the involvement of more reviewers may have improved the findings of this study. Finally, the authors' decision to follow the recommendation to include the gray literature along with the databases in the search strategy of the systematic literature review (Godin *et al.*, 2015; Paez, 2017), resulted in the identification of a wider range of studies on the research topic included in this systematic review.

CONCLUSIONS

The present study has shown that the EFQM model has indeed been used as a framework in quantitative research in the context of public sector services in Greece, but the number of studies is extremely limited, despite the wide application of the EFQM model in Europe and beyond. In addition, there is no evidence of large-scale research applying the EFQM model in Greek public services operating outside the education sector and using a methodology that ensures the representativeness of the sample and the generalizability of the research results. Considering the above, this study has revealed a research gap in the existing literature that can be a starting point for a future large-scale research in the Greek public sector services that operate outside the education field with the aim of providing more insight into how Greek public sector services perform, identifying their strengths and weaknesses and formulating policy proposals to improve their performance that will be addressed to policy makers in the field of public administration and governance. Finally, the study has shown that the EFQM model 2020, due to its novelty, has not yet been used as a framework for quantitative research in the context of Greek public services. Therefore, the study indicates that there is another gap in the literature that can form the basis for new research in the future that could aim at the application and validation of the EFQM model 2020 as a framework in the context of the Greek public sector and at the investigation of the cause-effect relationships that may exist among the criteria of the novel EFQM model 2020.

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GLOBAL CITIES FROM THE GLOBAL SOUTH

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ABSTRACT

This manuscript advocates that countries from the Global South should increase their connectivity level by leveraging their Global Cities to reduce the development divide between the Global North and Global South. This manuscript uses quantitative methods to analyze the relationship between Global, Sustainable, Livable, Smart, Rich, and Cities from the Global North and Global South. We identified that the Global North vs Global South divide can be reduced if Global South countries increase the connectivity level of their most connected cities to improve their overall sustainability, livability, smartness, and wealth. This manuscript offers a significant theoretical contribution to scholarly discussion because it suggests that Global Cities are drivers of overall improvement at the national level. Moreover, the practical implications are that national policymakers should focus on developing their most connected cities to reduce the Global North-South divide. We offer three paths based on the size of the Global South countries.

Keywords: Development, Global North, Global South, Cities, Sustainability, Smart Cities, Rich Cities, Livable Cities

1. INTRODUCTION

Through the lenses of Global Cities (GCs), New York shares more similarities with London than most cities in the USA (Asmussen *et al.*, 2018). This example supports the simultaneous decrease of inequalities between countries and increasing inequalities within countries, the converging divergence advocated by Horner & Hulme (2019). Also, the New York example confirms the rise of the importance of GCs as drivers of global development. Such subnational locations have taken a central role as production spaces and conduits for key inputs required by multinational enterprises to operate their international organizations (Chakravarty *et al.*, 2021) and present economic, political, and

ideological influences beyond their physical boundaries and own countries (Hutzschenreuter *et al.*, 2020). This manuscript advocates that countries from the Global South should increase their GCs' connectivity to reduce the development divide between the Global North and the Global South. With more connections, GCs from the Global South can improve sustainability (to become sustainable cities), use technologies (to become smart cities), become more livable, and become rich. Global South GCs will positively impact their home countries, thus decreasing the Global North-Global South divide. Consequentially, this research focuses on answering the following question: How can the Global South reduce the divide with the Global North?

2. LITERATURE REVIEW

2.1 Global Development, Global North, and Global South

From the ashes of the Second World War, the winning power built a new international order that promoted a new paradigmatic vision of the idea of progress embedded in the ideals of liberalism (Duncombe & Dunne, 2018). From then on, progress was called development, and international organizations and scholars assumed that the progress of nations would result from the historical evolution of societies in stages, as Walter Rostow assumed (Gilman, 2018). Therefore, any country could achieve development if it carried out some necessary tasks (Rostow, 2000). In this way, the development would be the logical result of historical evolution. Consequently, the idea of a world divided into distinct stages of development arose. Some developed countries were located in the First World, while those underdeveloped and poorest countries were in the Third World (Chant & McIlwaine, 2009).

Years later, in parallel with the growing phenomenon of globalization, the Global South concept replaced the Third World as the prevalent term for describing structural global inequalities (Kleinschmidt, 2018). However, although this concept is more than a metaphor for underdevelopment (Dados & Connell, 2012), even today, the Global South is an elusive concept with multiple meanings (Haug *et al.*, 2021). Like the term development and the theories that explain it, its definition is not neutral. As Cox points out, "theory is always for someone and some purpose" (Cox, 1981, p. 128). Therefore, how we define ideas such as development, the Global South, and the Global North has implications for the political and economic positions we take regarding our interpretation and the place one should occupy in the World. From this perspective, the Global North and South are intrinsically united in a symbiotic relationship, whose axis denominator is the idea of development. Furthermore, the borders between these spheres are traversed by networks of various kinds, "relocating some parts of the South in the North, and vice versa" (Dirlik, 2007, p. 14).

The Global South is not a monolithic entity and contains a variety of environmental conditions, cultural values and practices, and economic and social systems; the concept includes emerging economic powers such as impoverished countries and failed states (Williams *et al.*, 2014). Beyond drawing a geographical division, the Global South and North appeal to dividing the international order between poor and rich nation-states (During, 2012). By recognizing this differentiation, the concept of the Global South refers to a project, an energy, whose other – whose enemy even – is the "Global North." As a project, it appeals to a different idea about development, what distinguishes it, and how to achieve it. Consequentially, the terms Global North and Global South do not refer to the geographic differences between North and South, as many Global South countries are geographically located in the Northern Hemisphere. For this research, we will follow the UNCTAD definition: the Global North countries include the USA, Canada, Europe, Israel, Japan, South Korea, Australia, and New Zealand, while the Global South broadly includes China, India, Brazil, Mexico, Indonesia, and many other countries (Handbook of Statistics, 2022). However, due to the growing geopolitical antagonism between Russia and Western democracies, we will consider Russia a Global South country for this research. Moreover, due to the geopolitical proximity between Taiwan and other Western democracies, this country is considered part of the Global North. Finally, Singapore is also considered a Global North country due to its open economy.

In this context, cities are the privileged places where development ideas converge. By going beyond a geographical space and attempting to overcome the dichotomy between a prosperous North and a poor and backward South, the Global South becomes an imagined space from which different ways of understanding development, thinking actions to build a sustainable world, livable spaces, and the construction of smart, prosperous, and resilient cities. From this perspective, the ways of thinking about spaces potentiate other possibilities for imagining the cities of the Global South in contrast to those of the Global North. They lead to questioning ideas such as sustainability, livability, richness, and smart cities.

2.2 Global Cities

There is growing interest in cities' role in shaping multinational firms' activities (Iammarino *et al.*, 2018). In a virtuous cycle of mutual reinforcement, GCs such as Singapore, Paris, and Mexico City have taken on a central role as production spaces and conduits for key inputs required by firms to operate their international organizations (Lorenzen *et al.*, 2020; Chakravarty *et al.*, 2021).

One of the most significant trends of the last decade has been the increasing prominence of GCs on the world stage. GCs have developed a size, scope, and reach that commands increasing weight in global issues. They generate new capacities for increasingly transnationally connected global cities, which present economic, political, and ideological influences beyond their physical

boundaries and own country (Curtis & Acuto, 2018). Therefore, GCs present an interesting research topic because the traditional approach of using countries as location units of analysis obscures micro-level drivers that can better explain investment choices (Chakravarty & Beamish, 2019).

Three key attributes that define GCs are the availability of advanced producer services (APS), the cosmopolitan mentality, and the high degree of interconnectedness to local and international markets (Asmussen *et al.*, 2018; Goerzen *et al.*, 2013; Estrin *et al.*, 2017). First, these locations are home to many high-value and specialized APS, such as consultancy, information technology, advertising, accounting, law, and finance, which are essential functions that facilitate the operations of multinational firms. Second, the cosmopolitan environment emanates from its high-status location and culturally diverse population. Third, the high physical and digital connectivity (high-quality road, rail, airport, and telecommunication infrastructure) with other areas and global cities facilitates and speeds up the international transfer of goods, people, and information.

The abundance of skilled workers, innovative companies, and high-quality public and private institutions have attracted investment from multinational firms (Somers *et al.*, 2016; Castellani & Lavoratori, 2019; Chakravarty *et al.*, 2021). In addition, global cities have more robust, stable, and business-friendly institutional environments that reduce the Liability of Foreignness (LoF) and Liability of Outsidership (LoO) for foreign firms relative to other host country locations, as suggested by Blevins *et al.* (2016) and Belderbos *et al.* (2020). Thus, multinational firms hyper-concentrate foreign investments in GCs because of their connectivity to local and international regions. Consequentially, GCs represent industry assistance to firms interested in internationalization (Sambharya *et al.*, 2021). The nature of GCs improves global companies' success odds, decreasing internationalization risks.

From a scholarly perspective, Iammarino *et al.* (2018) suggest that the current academic debate on international business and globalization has given rise to a new interest in cities, which rediscovered the location advantages offered in GCs (Kaltenecker & Montoya, 2023).

From a business perspective, Chakravarty *et al.* (2021) shed some light on the understanding of what companies sought after in GCs. Their work suggests that knowledge-seeking multinational companies (MNCs) are motivated to locate in global cities relative to other locations. Belderbos *et al.* (2020), in their analysis of wholly-owned foreign subsidiaries, found that MNCs activities such as knowledge-intensive services, R&D, and headquarters functions are significantly more likely to be located within GCs. This finding confirms a later work from Parnreiter (2019), who discussed that global cities are critical governance nodes in global production networks due to the clustering of producer service firms. Parnreiter (2019) goes even further when advocating that GCs transfer value geographically. In our analysis, this debate supports the role of GCs as nodes for centripetal wealth transfers, a positive spillover effect. For this scholar, global cities are critical for the organization of

uneven development, which also holds for cities beyond the Global North. From that, even Global South GCs are strategic subnational locations from which the Global North's wealth can be transferred into less-privileged countries.

The literature in economic geography and global cities shows that GCs are connection hubs with other GCs, other countries, and within their home country. This manuscript advocates that Global South's GCs should increase connections with GCs from the Global North to allow the former to impact their home countries positively, thus decreasing the Global North-Global South divide and providing a more balanced global development. Our research will focus on four critical areas for a global city: sustainability, smartness, livability, and wealth.

Urbanization and globalization have led to a reconfiguration of cities worldwide. These urban transformations have been the subject of numerous studies and debates in urban geography and urban studies. One of the central discussions has been the distinction and relationship between cities in the Global North and the Global South and how these categories intersect with other aspects of urbanization, such as the categorization of cities in terms of Alpha, Beta, Gamma, and Sufficient. As a concept, Latin America has been fundamental in understanding urban dynamics. Randolph and Storper (2022) suggest that parts of the Global South may be urbanizing along specific historical and geographical trajectories. However, they argue that these differences are best understood through a unified set of global urban theories. Taylor& Walker (2001) highlight that most cities cluster into regional or interregional clusters1. London and New York, for instance, form their own distinctive 'global city' dimension. However, Koch (2020) argues that the Global North/Global South categories are one possibility for analyzing cities as transnational climate change actors. According to Koch, these categories should be accompanied by analytical attention to additional factors such as geographical location, city size, or political regimes.

We will test the following hypotheses to determine if the connectivity level of the GCs (Alpha, Beta, Gamma, and Sufficient) is associated with the region (South or North). Consequentially, our null and alternative hypotheses are:

H1o (Null Hypothesis): No association exists between the GCs' connectivity levels and the region.

H1a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the region.

2.3 Development, Global North, Global South, and Sustainability

In recent years, the UN Sustainable Development Goals (SDGs) have emerged as the cornerstone of global development governance (Bhowmick & Ghosh, 2022). However, most existing sustainability concepts and goals have been defined in developed countries. Consequently, these concepts do not include the significant problems of global cities in the Global South (Yazdani &

Kamariah, 2013). On the other hand, the priorities of industrialized countries about sustainable development refer to environmental subjects. At the same time, from a Global South perspective, the main issues include poverty, social injustice, and gender discrimination. In addition, the global cities, with different connectivity levels, most vulnerable to climate change are in the Global South, with non-existent interventions to adapt and mitigate its adverse effects (Ngcamu, 2023), while Global North GCs (with their different connectivity levels), contribute to the central part of climate change, generating 92% of excess global carbon emissions (Hickel, 2020). In a nutshell, the citizens of the Global South who are not responsible for climate change are climate change-vulnerable populations. Therefore, we present our hypothesis as follows:

H2o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Sustainability ranking.

H2a (Alternative Hypothesis): There is an association between the city category and the Sustainability ranking.

2.4 Development, Global North, and Global South, and Livability

As Chu (2019) pointed out, urban livability can be defined as the quality of life in cities. Still, its concept is complex because of the heterogeneous nature of global cities and the encompassing meaning of quality of life. The idea behind this concept is that accessibility to essential amenities, scope of opportunity, physical and social well-being, environmental justice, and sense of safety constitute urban livability; however, the limitation of this approach is the assumption that the creation of livability presumes that livability can be defined by fundamental or immutable characteristics, many of which remain constant through time and across populations (Ruth & Franklin, 2014). Also, the discipline of urban studies has expanded the concept of urban livability through indexing systems that consider general parameters for the universal population and create a growing policy aspiration across multiple levels of government globally (Higgs *et al.*, 2018). Nonetheless, how Global North and South GCs define the quality of life can be varied and contradictory. In this way, this approach commonly ignores the intrinsic characteristics that impact livability in Global South GCs.

H3o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Livability ranking.

H3a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the Livability ranking.

2.5 Development, Global North, Global South, and Smart Cities

Smart cities have risen as a solution to future urban and economic crises, increasing their popularity in the Global North and South (Datta & Odendaal, 2019). The proposal is that smart cities use information and communication technologies (ICT) to be more intelligent and efficient in resource

use, contributing to quality of life and reducing the environmental footprint (Hayat, 2016). Because rapid advances in ICTs and big data analytics are disrupting virtually every aspect of society, the logic is that these technological advances can help cities deal with global change challenges and advance toward reaching the Sustainable Development Goals (Sharifi & Yamagata, 2022), evoking an image of the city such an automated future (Batty, 2018). Paradoxically, adopting new technologies increases the gaps in access to digital technology, raising inequality between Global South vs. Global South citizens and cities (Datta, 2018).

H4o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Smart City ranking.

H4a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the Smart City ranking.

2.6 Development, Global North, Global South, and Rich Cities

Multiple causes have contributed to the North–South divide in development and spatial inequalities that have persisted in the Global South (Shaban, 2022). Traditional approaches to understanding income inequality and the wealth gap between cities in the Global North and South have highlighted the systemic origin of this differentiation. Notably, the perspective of the Global South argues that the source of these differences is a relationship of dependency that has historically generated the Global North's wealth based on the Global South's impoverishment (Wallerstein, 1979). Under this theoretical approach, people and cities in the Global South are more inequitable due to historical circumstances of exploitation and colonization determined by the Global North (Angeles, 2007). From this perspective, the gap grows due to the imposition of neoliberal economic policies that international institutions such as the World Bank, the International Monetary Fund (IMF), and the World Trade Organization (WTO) have promoted for decades. These policies favor the forcible liberalization of markets, allowing multinational corporations unprecedented access to cheap land, resources, and labor to the detriment of cities in the Global South (Hickel, 2016). Furthermore, these inequalities impact the interior of the cities of the Global South in three aspects. Social inequality arises as social classes in the global city become polarized between a wealthy professional class and an impoverished low-wage service sector class. Also, the unequal development reflected in the city's spatial form produces socioeconomic segregation and unequal access to living space. Finally, political inequality causes urban politics to become dominated by interest groups that favor policies aimed at economic growth over the interests of neighborhoods (Shatkin, 2007).

Finally, we present our last set of hypotheses:

H5o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Rich Cities ranking.

H5a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the Rich Cities ranking.

Our research tests the conceptual framework and the hypotheses presented in Figure 1. The model's starting point is the Global North vs. Global South divide. We then Analyze if the Global North vs. Global South divide is statistically reflected in the GCs, Sustainability, Livability, Smat, and Rich cities rankings.

Figure 1 – Conceptual Framework
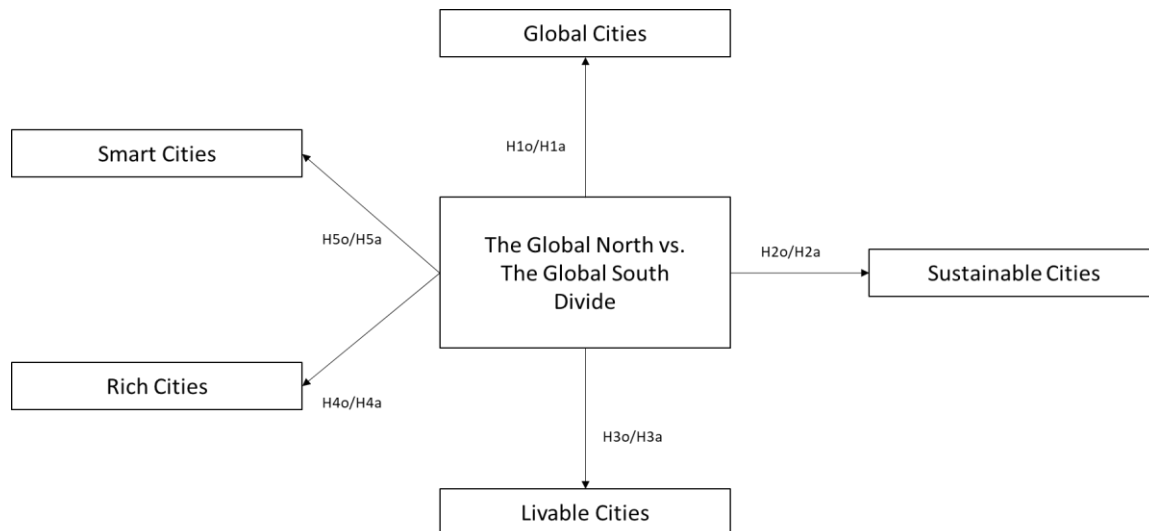
3. METHODOLOGY AND DATA

3.1 The database

To understand the relationship between the global cities phenomenon and the Global North? South divide regarding Sustainable, Smart, Wealthy, and Livable cities, we developed our dataset with information from the Globalization and World Cities 2020 Report (Globalization and World Cities Research Network, 2020) as the data source for global cities. Data about the most livable cities was extracted from the 2019 Mercer Most Livable City Report (Mercer, 2019). The UBS/City Majors (The Rich Cities, 2018) report provided the ranking for the Rich Cities. The ranking for Smart City was developed by IMD, an internationally renowned business school (IMD Smart City Index Report, 2023). Finally, the ranking for sustainability we used is Arcadis (Arcadis. 2022), an international consultancy.

3.1 Descriptive Statistics

First, for each ranking in our research (Global Cities, Sustainability, Livability, Smart Cities, and Rich Cities), we calculated the percentage of Alpha Cities. We opted to use only the Alpha GCs type because this segment has the highest level of connectivity. Second, we separated from the list of global cities the ones from the Global North and Global South. Our criterion for the separation was not geographic. As pointed out by Horner & Hulme (2019), the developed (rich)–developing (poor)

country divide persisted to such an extent that even the major development framing exercise of the late 20th century, the Millennium Development Goals (MDGs), was almost entirely set within this type of macro-geographical categorization—with targets projected by rich countries for poor countries1 (Hulme, 2009; Saith, 2006). Consequentially, some countries considered to be Global South are above the Ecuador line, such as China. Third, we calculated the percentages of Alpha cities in the Global North and the Global South and those of Alpha cities in the four rankings (Sustainability, Livability, Smart and Rich Cities). Tables 1a, 1b, and 1c present the descriptive statistical analysis results.

Table 1a – GCs from the Global North and Global South

All GCs	Ranking GC		Ranking Sustainability		Ranking Livability		Ranking Smart		Ranking Rich	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Alpha	50	13	46	46	50	22	54	33	41	39
Beta	91	23	38	38	77	33	51	36	37	38
Gamma	83	21	6	9	51	16	20	11	10	13
Sufficient	169	43	9	7	23	16	8	13	12	8
Non-GCs	N/A		1	0	30	13	8	6	0	1
Total	393		100		231		141		100	

Table 1b – Only GCs from the Global North

All GCs	Ranking GC		Ranking Sustainability		Ranking Livability		Ranking Smart		Ranking Rich	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Alpha	28	16	28	42	29	31	35	42	25	38
Beta	37	21	24	33	39	41	29	35	23	35
Gamma	35	19	5	8	16	17	14	17	7	11
Sufficient	80	44	8	12	6	6	3	4	10	12
Non-GCs	N/A		1	2	5	5	2	2	0	0
Total	180		66		95		83		65	

Table 1c - Only GCs from the Global South

All GCs	Rankings GC		Ranking Sustainability		Ranking Livability		Ranking Smart		Ranking Rich	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Alpha	22	10	18	53	21	15	19	33	16	46
Beta	54	25	14	4741	38	28	22	28	14	40
Gamma	48	23	1	3	35	26	6	10	3	9
Sufficient	89	42	1	3	17	13	5	9	2	6
Non-GCs	N/A		0	0	25	18	6	10	1	2
Total	213		34		136		58		35	

3.2 Analytical Statistics

We used RStudio to conduct an association analysis using the Chi-squared test to determine if there is a significant association between the two categorical variables: the regional divide between the Global North and the Global South), and the expected frequencies of GCs in the Global Cities, Sustainability. Livability, Smart and Rich Cities rankings.

To analyze the Global North vs. South divide further, we use the Chi-squared test to confirm the existence of significant differences in how cities are distributed among these categories based on whether they belong to the Global North or the Global South. The Chi-squared test tells us if there is an association, but it does not tell us the nature or magnitude of that association. For that, we could examine the specific differences between the observed and expected frequencies or consider additional measures of association. We opted for the Chi-squared test because it is a statistical method used to determine if there is a significant association between two categorical variables from a random sample to evaluate the fit between expected and observed results. In the context of the data on global cities, the test was applied to examine whether there is a statistically significant relationship between the geographic categorization of cities (as belonging to either the Global North or Global South) and their classification into global cities categories (Alpha, Beta, Gamma, and Sufficiency). The key points from the test and their implications are:

Expected Frequencies: We would expect these frequencies in each category if there were no association between the variables. They are calculated based on the marginal totals of the table and the overall total count.

Chi-squared Statistic: This value measures how much the observed frequencies in each category deviate from the frequencies we expect if there are no associations between the two variables. A higher value typically indicates a more significant deviation from independence.

P-value: This value tells us the probability of observing a Chi-squared statistic at least as extreme as the one calculated, assuming no association between the variables (the null hypothesis). A low p-value (less than 0.05 in our case) suggests that the observed association is unlikely to have occurred by chance, leading to the rejection of the null hypothesis.

Degrees of Freedom: This is calculated based on the number of categories in each variable. It is used to interpret the Chi-squared statistic in the context of the Chi-squared distribution to find the p-value.

It is important to note that while the Chi-squared test provides insights into the existence of associations, it does not measure the strength or direction of the association. Also, the test assumes that the samples are independent, the data are randomly sampled, and the values are sufficiently large (usually above 5). If these assumptions are not met, the test results might not be reliable.

4. RESULTS AND DISCUSSION

4.1: Hypotheses H1o and H1a

Out of 393 GCs found in our database (Table 1a), only 180 are from the Global North (Table 1b), while 213 are located in the Global South (Table 1c). This initial analysis shows the unexpected result that the Global South hosts more GCs than the Global North. Another surprising result is that the Global South hosts more Beta, Gamma, and Sufficiency GCs (54, 48, and 89, respectively) than the Global North (37, 35, and 80, respectively). However, regarding the cities with the highest levels of connectivity, the Alphs cities, the Global North presents more Alphas (28) than the Global South (22). This result suggests the existence of the Global North vs. Global South divide regarding the highest level of connectivity and shows a potential solution to decrease the abovementioned debate. For a deeper analysis of the GCs connectivity levels *versus* the Global North vs. South divide (the region of origin), we conducted a Chi-squared test, whose contingency table, expected value, and Chi-squared results are presented in Tables 2a, 2b, and 2c, respectively.

Table 2a – The Contingency Table for the Chi-squared test

Category	All Global Cities	Only Cities from the Global North	Only Cities from the Global South
Alpha	50	25	25
Beta	91	34	57
Gamma	83	31	52
Sufficient	169	71	98
Total	393	161	232

Table 2b – Expected values

Category	Only Cities from the Global North	Only Cities from the Global South
Alpha	20.48346	29.51654
Beta	37.27990	53.72010
Gamma	34.00254	48.99746
Sufficient	69.23410	99.76590
Total	161	232

Table 2c – Chi-squared results

Characteristic	Chi-squared value	Degrees of freedom	P-value
Global Cities Ranking	2.701	3	0.44

The Chi-squared test statistic is approximately 2.701 with a p-value of 0.44. With 3 degrees of freedom, the result indicates a statistically non-significant association between the categories of cities and their classification as being from the Global North or the Global South since the p-value is much higher than the standard significance level of 0.05. Therefore, we accept the null hypothesis H1o and reject the alternative hypothesis H1a.

The unexpected result opens an interesting scholarly debate because the regions of origin, Global North and Global South, have no impact on the Global Cities phenomenon.

4.2 Hypotheses H2o and H2a, H3o and H3a, H4o and H4a, H5o and H5a

The descriptive analysis shows that in the four remaining rankings for cities (Sustainability. Livability, Smart, and Rich), the Global North presents more Alpha Cities (28, 29, 35, and 25, respectively) than the Global South (18, 21, 19, and 16, respectively). These results suggest that the connectivity levels of GCs impact (or are associated) the number of Global Cities from the Global North vs Global South, another example of the Global North vs. Global South divide.

The analytical statistics confirm the association between the connectivity levels and the four rankings associated with this study. Table 3 presents the contingency table for the rankings and the Chi-squared comparison of the distribution of GCs by their connectivity level and the Sustainability, Livability, Smart, and Rich rankings we analyze in this research.

Table 3 – Contingency table for the Chi-squared tests

Connectivity Level	All Global Cities	Sustainability	Livability	Smart	Rich
Alpha	50	46	50	54	41
Beta	91	38	77	51	37
Gamma	83	6	51	20	10
Sufficient	169	9	23	8	12
Non-GC	0	1	30	8	0
Total	393	100	231	141	100

Characteristic	Chi-squared value	Degrees of freedom	P-value
Sustainability	91.5982	4	6.02×10^{-19}
Livability	115.56	4	4.74×10^{-24}
Smart	109.97	4	7.38×10^{-23}
Rich	66.51	3	2.38×10^{-14}

In all cases, the p-values are extremely low, far below any standard significance level such as .05 or .01). Consequentially, we can reject all null hypotheses of independence.

The acceptance of alternative hypotheses H2a, H3a, H4a, and H5a show strong associations between GCs connectivity rankings and the Sustainability, Livability, Smart, and Rich rankings, respectively. It shows a potential solution to decrease the abovementioned divide.

Table 4 summarizes the research gap, the hypotheses derived from the literature review, and the descriptive and analytical statistics output.

Table 4 – Hypotheses

Research Gaps	Hypotheses	Output
- Blevins et al. (2016) and Belderbos et al. (2020): Global cities have more robust, stable, and business-friendly institutional environments that reduce the Liability of Foreignness (LoF) and Liability of Outsidership (LoO) for foreign firms relative to other host country locations - Parnreiter (2019) discussed that global cities are critical governance nodes in global production networks due to their clustering of producer service firms. Parnreiter (2019) goes even further because such scholar advocates that GCs transfer value geographically. In our analysis, this debate supports the role of GCs as nodes for centripetal wealth transfers	H1o (Null Hypothesis): No association exists between the GCs' connectivity levels and the region. H1a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the region.	Accept H1o, Reject H1a
- UN Sustainable Development Goals (SDGs) have emerged as the cornerstone of global development governance (Bhowmick & Ghosh, 2022). However, most existing sustainability concepts and goals have been defined in developed countries. Consequently, these concepts do not include the significant problems of global cities in the Global South (Yazdani & Kamariah, 2013)	H2o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Sustainability ranking. H2a (Alternative Hypothesis): There is an association between the city category and the Sustainability ranking.	Reject H2o, Accept H2a
- How Global North and South GCs define the quality of life can be varied and contradictory. In this way, this approach commonly ignores the intrinsic characteristics of that impact livability in Global South GCs.	H3o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Livability ranking. H3a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the Livability ranking.	Reject H3o, Accept H3a
- Because rapid advances in ICTs and big data analytics are disrupting virtually every aspect of society, the logic is that these technological advances can help cities deal with global change challenges and advance toward reaching the Sustainable Development Goals (Sharifi & Yamagata, 2022), evoking an image of the city such an automated future (Batty,	H4o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Smart City	Reject H4o, Accept H4a

2018). Paradoxically, adopting new technologies increases the gaps in access to digital technology, raising inequality between Global South vs. Global South citizens and cities (Datta, 2018).	ranking. H4a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the Smart City ranking.	
- Multiple causes have contributed to the North–South divide in development and spatial inequalities that have persisted in the Global South (Shaban, 2022). The perspective of the Global South argues that the source of these differences is a relationship of dependency that has historically generated the Global North's wealth based on the Global South's impoverishment (Wallerstein, 1979). These inequalities impact the interior of the cities of the Global South in three aspects. Social inequality arises as social classes in the global city become polarized between a wealthy professional class and an impoverished low-wage service sector class. Also, the unequal development reflected in the city's spatial form produces socioeconomic segregation and unequal access to living space. Finally, political inequality causes urban politics to become dominated by interest groups that favor policies aimed at economic growth over the interests of neighborhoods (Shatkin, 2007).	H5o (Null Hypothesis): No association exists between the GCs' connectivity levels and the Rich Cities ranking. H5a (Alternative Hypothesis): There is an association between the GCs' connectivity levels and the Rich Cities ranking	Reject H5o, Accept H5a

Because there is no predominance of Global North GCs over the Global South GCs, the cities from the South face limited barriers to becoming mode-connected GCs. The results show more Beta, Gamma, and Sufficient GCs in the Global South (although there are more Alpha GCs in the Global North). Policymakers from the South should understand and replicate the policies that increased Sustainability, Livability, Smartness, and Wealth developed by successful GCs. Naturally, the transplant of policies that allowed GCs to become more connected presents limitations. First, specific policies may not be easily transplanted, such as hosting global institutions (for instance, New York City hosting the United Nations. Second, although the spillover effects are the desired outcome of the flight for connectivity, the stability of the rankings over time makes it unlikely that any city will move upward in a short period. Third, countries from the South certainly do not have all the resources necessary to increase the connectivity of their GCs overnight. Infrastructure projects such as airports, digital backbones, and reliable telecommunication networks are expensive and time-consuming.

Figure 2 shows that the gap between the Global North and the Global South for connectivity (in the case of the cities with the highest level of connectivity, the Alphas) is not so wide as the gap for Sustainability, Livability, Smart and Rich Cities. For instance, while the Global North hosts 56% of Alpha cities, the Global South hosts 44%. However, regarding Sustainability, Livability, and Smart and Rich Cities, the gap between the Global North and the Global South is more comprehensive (61% vs. 39%, 58% vs 42%, 65% vs. 35%, and 61% vs 39%, respectively. Therefore, Alpha GCs, with their

superior connectivity, provide a benchmark for other cities and spillover effects because Alphas become hubs of excellence in the areas mentioned. Global Cities are influenced by their highly-connected peers but also influence less connected cities in their home country. Consequently, Global South GCs are drivers for changes that reduce the Global North vs. Global South divide. We advocate three alternatives for the upward movement of Global Cities: first, from Beta to Alpha; second, from Gama and Sufficient to Beta; and finally, from non-GCs to Sufficient and Gamma.

Figure 2 - Comparison between Global North Alpha Cities vs Global South Alpha Cities
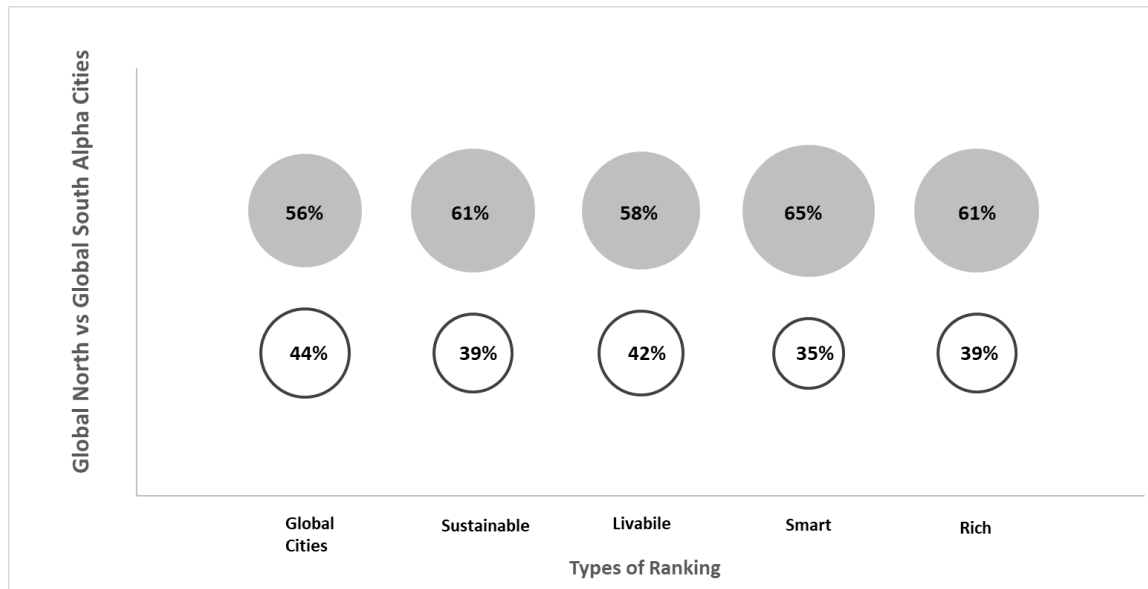
The policies we suggest for less connected cities from the Global South to become Alpha cities are focused on increasing connectivity to allow improvements in sustainability, livability, use of technology, and wealth. The massive leap in connectivity can be attained only with coordination between the three levels of government and public/private partnerships to promote significant upgrades in physical and digital infrastructures. Changes in immigration policies are also a requirement to attract young and highly educated digital nomads. Reducing bureaucracy from overseas investors is a prerequisite to attracting FDI (Foreign Direct Investment). Figure 3 presents the alternative paths for connectivity upgrade of cities.

Figure 3 – Paths for Policy-Makers
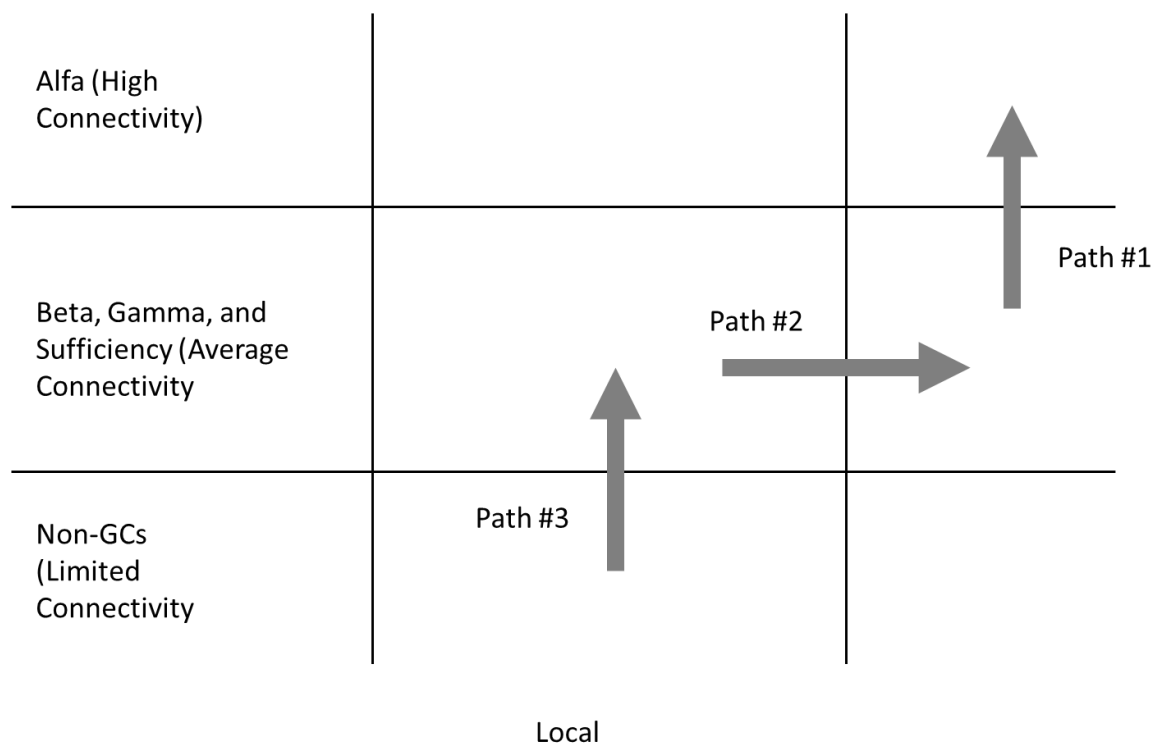
Thus, referring to the manuscript's research question, the Global South can reduce the divide with the Global North by using their Global South Global Cities as springboards for improvements in Sustainability, Livability, use of Smart technologies, and Wealth. While Global North GCs set the standards for other GCs, Global South GCs have the connectivity power to influence less connected cities in the South, improving sustainability, livability, use of technology, and wealth. Consequently, it reduces the global north vs. global south divide.

Table 5 – Comparison of policies

	Policy #1	Policy #2	Policy #3
Spillover effects	Yes	Yes	Yes
Difficult level	High	Average	Low
Time to fruition	Long (years)	Average (semesters)	Average (semesters)
Benefits	High	High	Average
Suitable for which type of economies	Large Global South economies	Mid-Size and Small Global South Economies	Small Global South Economies
Suitable for which type of cities	Beta	Gamma and Sufficient	Nonglobal cities

5. CONCLUSIONS

The relationship between the GCs connectivity city category and the Global North vs. Global South divide region is complex and multifaceted. Our analysis revealed a significant association between the connectivity level and the distribution of cities in the rankings of sustainability, livability,

and smart and rich cities. This association reflects the inherent complexities of urbanization and globalization and how these forces interact in different regional contexts. In summary, the manuscript particularly highlights the role of Global Cities as catalysts for reducing the development divide between the Global North and South.

Using Chi-squared tests, the study examines the association between the regional divide between the Global North and the Global South and the rankings of GCs regarding sustainability, livability, smartness, and wealth. The results suggest significant associations, indicating that enhancing connectivity could positively impact. The research concludes that increasing the connectivity of GCs in the Global South with those in the Global North can potentially reduce the development divide. This is based on the hypothesis that there is an association between the connectivity levels of GCs and various aspects like sustainability, livability, smartness, and wealth.

Through this article, we contribute to theory, practice, and policymaking. We make a significant theoretical contribution by discussing the role of subnational regions, the GCs, as change agents to reduce the Global North vs Global South Divide. We noted no statistical association between the Global North and the Global South regarding the GCs phenomena, which shows entry barriers for the Global South to compete au pair with Global North GCs. However, we found a significant statistical association between the connectivity levels of GCs and the sustainability, livability, smart, and rich cities rankings. From a business viewpoint, it sheds light on why multinational corporations increasingly focus on GCs for their operations, especially for knowledge-intensive services and R&D.

Moreover, our findings have practical implications for national policymakers, suggesting that focusing on developing the Global South's most connected cities could be a strategic approach to reducing the Global North-South divide. We present three paths for the Global South to reduce the divide with the Global North. Finally, we suggest that the Global South must recognize that their GCs can be change agents if they develop policies to increase the connectivity of their cities,

The manuscript also presents some future research avenues. We focused on the cities with global connections but ignored the effect of non-GCs in reducing the Global North-Global-South divide. Moreover, we assumed a certain level of stability in all rankings. Finally, while the study provides valuable insights, it also acknowledges the limitations of using Chi-squared tests, which do not measure the strength or direction of the association. Further research could explore these aspects in more detail.

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UNRAVELLING THE INTERSECTION BETWEEN DIGITAL TRANSFORMATION AND SUSTAINABILITY IN BIO SOCIO-TECHNICAL TRANSITIONS

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ABSTRACT

This study explores how value is generated and harnessed at the convergence of digital transformation technologies and sustainable business strategies, particularly when integrated into decision-making support tools for optimising unified data availability across organisational boundaries. **Objective:** examines whether success in uncertain times increasingly hinges on company's capacity to execute a "twin transformation," discovering new values at the crossroads of digital technology and sustainability to bolster competitiveness. **Theoretical underpinning:** encompasses the resource-based view, depicts firms as unique bundles of assets and resources capable of creating competitive advantages through distinctive utilisation. Socio-Technical theory which emphasises the interconnectedness of an organisation's social and technological subsystems within its environment. Additionally, the dynamic capability perspective, emphasising firm's ability to integrate, build, reconfigure internal and external competencies to address rapidly changing environments. **Qualitative methodology** is employed, gathering empirical data from a diverse range of industrial partners, including Multinational Enterprises. Small and Medium-Sized Enterprises, and four cluster organisations comprising over 300 member companies. **Findings** indicate that companies recognising and leveraging value at the intersection of digital technologies and sustainability, termed Twin Transformers, are significantly more likely to emerge as top performers in the future. Despite Sweden's early lead in sustainability, few companies are actively pursuing this transformative path. **Concluding remarks and implications:** It underscores the imperative for companies to shift from a myopic perspective and embrace the full potential of twin transformation**. Originality**: highlights conceptual novelty of integrating sustainability and digital technologies as critical drivers of future competitiveness for firms, a perspective currently absent in existing literature.

Keywords: Digital transformation; Twin Transformers; Sustainability; Twin transformation; Digitalisation; Socio-Technical Theory; Business transformation; Twin transition.

INTRODUCTION

With reference to the critical role of "twin transformation" (Gupta et al., 2022; Szabo e al., 2023) - the synergistic integration of digital transformation technologies and sustainable business strategies - in boosting organisational competitiveness, it is of paramout importance for this study to explore "twin transformation" from a socio-technical viewpoint (Trist, 1981, 1978; Baxter & Sommerville, 2011; Fox et al. 2020). From the overarching and sweeping effects of adverse weather to the grassroots influence of infectious diseases, biology significantly influencing technology within society (Smith, 2020; Jones et al., 2021; Lee & Kim, 2022; Brown, 2023). Consequently, "the notion that humans can control biology through technology remains an open question" (cited from Fox et al., 2020, p. 1), necessitating thorough examination. This examination should prompt new questions and themes in the discourse. Essential questions to consider include: What future do we envision for the interaction between human systems and broader biological and technical systems? In other words, how can we deepen our understanding of the interplay among biology, society, and technology, to gain insights from experiences with biosocial-technical systems?

As you wake up in 2050, you might begin your day by looking out of the window, with your augmented reality device showing you real-time pollution data. You then have breakfast that you bought because you were convinced by its environmental score, which was clearly visible at the time of the purchase, thanks to digital data. The food itself is produced by farmers in a resource-efficient manner, because they know exactly which crop to plant when - they have access to Big Data, thanks to open-source platforms gathering public environmental information, weather forecasts, or data through on-farm sensors. Before you turn on your washing machine, you check the electricity price now. To incentivise consumption at periods when renewable-produced energy is abundant, the prices vary, and gamification is making the hunt for good timeslots a fun experience. You not only consume but also produce electricity, thanks to the solar panels installed on your roof, which is connected to a meshed micro-grid.

In the wake of the envisaged future snapshots enumerated above, the world is seeing significant geopolitical shifts, bolstering prevailing megatrends in the EU (Muench et al., 2022; Strategic Foresight Report, 2022). These shifts impact energy, food, economy, security, and geopolitics, shaping Europe's journey towards green and digital transitions (*ibid*). Implementing effective policies can accelerate progress towards objectives outlined in initiatives like the Digital Compass, and the European Green Deal, targeting climate neutrality and reduced environmental degradation by 2050.

Modern firms face significant disruptions from technology, environmental, and societal changes, altering current and future business practices across sectors (Dubey et al., 2021; McGrath et al., 2021; Rusthollkarhu et al., 2022). These disruptions impact suppliers, customers, and other stakeholders

crucial to interactions and transactions. McKinsey's report highlights a preference shift towards digital self-service and remote human interaction, with over three quarters of buyers and sellers favouring this, even post-Covid 19 lockdowns (Fernando et al., 2023).

Gaps in literature

Inter-organisational collaboration is essential to address sustainability challenges. Additionally, they facilitate traceability tools for sustainability goals, linking them to raw material sources. Success in uncertain times relies on executing a "Twin Transformation" - finding value at the nexus of digital technologies and sustainability (Gupta et al., 2022). The concept of twin transitions emphasises the essential synergy between green and digital transformations. It is not only imperative for the digital sector to adopt environmentally friendly practices, but existing evidence indicates that digital transformation processes can also contribute to environmental protection and climate change adaptation (Liu et al., 2023). However, to effectively translate policy expectations into explicit strategies for twin transitions, there is a need for a paradigmatic shift in academia (Ferraris et al., 2020a; 2020b; Mora & Deakin, 2019).

In a recent call for papers in Technology in Society, Gerli, Ferraris & Dabic (2022) emphasised the need to explore the interplay between green and digital transformations, which existing studies often treat separately (Coenen et al., 2010; Hess, 2014; Kemp & Never, 2017; Selvakkumaran & Ahlgren, 2019; Wieczorek, 2018). However, our understanding of how digital transformations affect environmental sustainability in sociotechnical transitions remains limited (Niebel, 2018), leaving it unclear whether digital initiatives can truly be environmentally friendly.

Recent investigations explore how smart technologies shape sustainable cities and their role in collaboration among stakeholders (Ibrahim et al., 2018; Mora et al., 2019, 2021; Ardito et al., 2019). Smart tech is also studied for its potential in promoting circular economy, mitigating environmental impacts, and enhancing urban resilience (Antikainen et al., 2018; Nižetić et al., 2019; Arakpogun et al., 2020; Gerli et al., 2021). Researchers also analyse the environmental consequences of digital transformations (Matthess & Kunkel, 2020; Wang et al., 2021; Zeng et al., 2017). A synopsis of the preceding discussion is presented in Table 1. The table highlights the main gaps in the literature regarding inter-organisational collaboration for sustainability, the implementation of twin transformations, the need for a paradigmatic shift in academia, and the interplay between digital and green transformations, among other areas.

Table 1: A synopsis of research gaps that justify further studies

Research gap	Description	Linked literature
Inter-organisational collaboration for sustainability	Specific ways in which inter-organisational collaboration can effectively address sustainability challenges and facilitate traceability tools linking sustainability goals to raw material sources remain underexplored.	Gupta et al. (2022)
Twin Transformation strategy	There is a lack of detailed strategies and frameworks on how to effectively implement "Twin Transformation" (the synergy between digital and green transformations) in uncertain times.	Gupta et al. (2022); Liu et al. (2019)
Paradigmatic shift in academia	A call of paradigmatic shift to translate policy expectations into actionable strategies for twin transitions, as current academic approaches are insufficient.	Ferraris et al. (2020a; 2020b); Mora & Deakin (2019)
Interplay between green and digital transformations	Existing studies often treat green and digital transformations separately, neglecting the need to explore their interplay.	Coenen et al. (2010); Hess (2014); Kemp & Never (2017); Selvakkumaran & Ahlgren (2019); Wieczorek (2018); Gerli et al., 2022)
Impact of digital transformations on sustainability	Limited knowledge on how digital transformations affect environmental sustainability in sociotechnical transitions, questioning whether digital initiatives are genuinely environmentally friendly.	Niebel (2018)
Smart technologies and sustainable cities	While there is growing research on how smart technologies shape sustainable cities and stakeholder collaboration, the full potential and limitations of smart tech in promoting circular economy, mitigating environmental impacts, and enhancing urban resilience need further research.	Ibrahim et al. (2018); Mora et al. (2019, 2021); Ardito et al. (2019); Antikainen et al. (2018); Nižetić et al. (2019); Arakpogun et al. (2020); Gerli et al. (2021)
Environmental consequences of digital transformations	Research on the environmental consequences of digital transformations is still in its early stages, necessitating more in-depth studies and formulation of key questions to advance the field.	Matthess & Kunkel (2020); Wang et al. (2021); Zeng et al. (2017)

Table 1 summarises the main research gaps in the literature, linking each gap to the relevant references, thereby highlighting the need for further exploration and investigation in these areas, prompting the formulation of key question:

RQ: *How is value created and captured at the intersection of digital transformation technologies and sustainable business strategy when embedded in decision-making support tools to optimise the availability of unified data across value networks?*

Specifically, how can digital technologies and sustainability, as a business opportunity as well as a societal mandate, be used to optimise decision-making support tools to facilitate the integration of unified sustainability data in industrial organisations?

This study explores how value is generated at the convergence of digital transformation technologies and sustainable business strategies, especially when integrated into decision-making support tools to optimise unified data availability across organisational boundaries. Hence, it examines whether success in uncertain times increasingly hinges on company's capacity to execute a "twin

transformation," discovering new values at the crossroads of digital technology and sustainability to bolster competitiveness.

It contributes to literature by revealing the vital importance of integrating sustainability and digital technologies for future competitiveness among both Multinational Enterprises and Small and Medium-Sized Enterprises (SMEs), a perspective overlooked in current literature.

THEORETICAL BACKGROUND

The oxymoron of digitalisation

Technological advancements are vital for tackling economic, environmental, and regional development challenges in the industry 4.0/digitalisation era (Adak, 2015; Albaladejo and Martínez-García, 2013). The widespread adoption of digital technologies has profoundly altered organisational operations, affecting processes, structures, roles, and networks. This digital shift influences all aspects of organisations, reshaping their strategies, entrepreneurial processes, and governance mechanisms (Fremont et al., 2018; Eklinder-Frick et al., 2020). Consequently, there is a trend towards organising value chains and relationships in digital ecosystems rather than through isolated operations (Kutsikos et al., 2014; Barile et al., 2017).

The impact of digitalisation on society remains uncertain, with debates on its positivity or negativity ongoing (Osarenkhoe & Fjellström, 2021; 2022). While it's seen as potentially equalising, it may also isolate those lacking resources (Dy, Marlow, & Martin, 2017; Berger & Kuckertz, 2016a). This debate involves policymakers, economists, health professionals, and industry leaders due to concerns about its effects on various sectors, job roles, wages, inequality, health, efficiency, and security. Unlike past revolutions, digital transformation is happening rapidly, requiring swift adaptation from different organisations.

From commodity chains to value network

To illuminate how firms should adapt in a post-pandemic world, scholars have analysed different terms such as commodity chains, supply chains, and value networks to understand how firms organise activities and interact with other agents (Selwyn, 2015; Connelly et al., 2013; Priem and Swink, 2012; Gereffi et al., 2001). While supply chains focus on cost-efficient delivery to suppliers and customers (Christopher, 2005), value chains consider customer needs and value creation (Cox, 1999; Di Domenico et al., 2007; Gereffi and Lee, 2016). With interconnected firms on a global scale, the concept of global value chains emerges (De Marchi et al., 2014; Mudambi and Puck, 2016), defined as the full range of activities undertaken by firms and workers worldwide (Gereffi and Fernandez-Stark, 2011).

Value networks and sustainability

Environmental sustainability aims to preserve resources and minimise waste, crucial for business growth (Liu, et al., 2023). There's a rising demand for companies to adopt sustainable practices to reduce their environmental impact (Szabo, et al., 2023). Effective sustainability management benefits both companies and the environment, improving processes and promoting sustainable products (Baumgartner and Rauter, 2017). However, SMEs often struggle to integrate sustainability into stakeholder relationships due to limited investment capacity (. and Gadenne, 2005; Barbosa et al., 2024). Global business networks (GBNs) play a vital role in economic development, offering affordable products and creating job opportunities (Gereffi & Lee, 2012; De Marchi et al., 2020; Das & Dey, 2021). Despite their economic benefits, GBNs also exacerbate social and environmental problems like deforestation and exploitative labor practices (Panwar & Tarzijan, 2020). Simply localising value chains may not effectively address these issues (Crouch et al., 2001).

Due to the multi-disciplinary nature of digital innovation and sustainability, digital innovation and sustainability from various perspectives and range of literature, are explored. It adopts a triadic approach, emphasising interactive learning and open innovation (Chesbrough, 2003; Fagerberg, 1995; Waluszewski et al., 2009), which highlights the importance of reshuffling resources both within and outside the firm to create mutual value. This approach aligns with the notion that business strategy involves aligning internal capabilities with external environments (Hunt and Lambe, 2000; Hamel and Prahalad, 1989).

Resource-based perspective

Consequently, this paper draws on *resource-based perspective* which views the firm as a unique bundle of assets and resources that, if utilised in distinctive ways, can create competitive advantage (Barney, 1991 & 1995; Peteraf, 1993). Thus, key resources determine competitive advantage of firm that the firm is endowed with. According to Barney (1999), a resource with the potential to gain competitive advantage must exhibit VRIN attributes: Valuable, Rare, imperfectly imitable and non-substitutable. These attributes are at parity with *Dynamic capability* perspective that depicts the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments (Teece, Pisano and Shuen, 1997). Dynamic capabilities can be distinguished from operational capabilities, which pertain to the current operations of an organisation. Dynamic capabilities, by contrast, refer to "the capacity of an organisation to purposefully create, extend, or modify its resource base" (Helfat et al., 2007).

This paper adopts a resource-based perspective, viewing firms as unique collections of assets. Utilising these resources innovatively can create competitive advantages (Barney, 1991 & 1995; Peteraf, 1993), thus determining a firm's edge. According to Barney (1999), a resource must possess VRIN attributes—Valuable, Rare, imperfectly imitable, and non-substitutable - to confer a competitive

advantage. These attributes align with the Dynamic capability perspective, highlighting a firm's adaptability through integrating, building, and reconfiguring competences (Teece, et al., 1997; Teece, 2007).

It is pertinent to mention that resource-based perspective, expanded by Milgrom and Roberts (1995), introduces complementarity, illustrating how combining resources enhances overall business value, creating synergies that competitors struggle to replicate (Bhatt & Grover, 2005; Bharadwaj et al., 2007; Liang et al., 2010). Particularly in digitalisation discussions, Information Technology (IT) is acknowledged as a complementary resource that boosts the value of other organisational assets and capabilities (Bharadwaj et al., 2007).

Socio-technical approach

Addressing human factors in business technology management (BTM) is vital for organisational sustainability and growth (Rehman et al., 2023). Rehman et al. (2023) describes human factors in BTM as a set of processes and services that synchronize, align, and integrate an enterprise's BTM (Technopedia, 2013). Fundamentally, BTM deals with issues that were initially examined by scholars in socio-technical system design (Cherns, 1976). Within this framework, business management components either constitute or complement the socio-technical perspective in socio-technical systems (STS). This study also relies on STS as its theoretical foundation. In alignment with BTM (Rehman et al., 2023), considering the critical role of "twin transformation" - the synergistic integration of digital transformation technologies and sustainable business strategies - in boosting organisational competitiveness, it is essential to discuss "twin transformation" from a socio-technical viewpoint. This highlights the crucial role of human factors in BTM. However, understanding the complex drivers and mechanisms at the business–technology nexus remains a challenge (ibid).

Rooted in an open systems framework (von Bertalanffy, 1950), socio-technical theory entails a new paradigm, challenging the prevailing view of people as mere extensions of machines (Trist, 1978). This paradigm viewed individuals as valuable resources, promoting collaboration and innovation (Trist, 1981, 1978; Baxter & Sommerville, 2011; Fox et al. 2020). According to Pasmore et al. (1982), the socio-technical approach emphasises the interconnectedness of an organisation's social and technological subsystems within its environment. Griffith and Dougherty (2001) add that the products and services produced are valued by customers, contributing to the organisation's external environment.

It is pertinent to mention that socio-technical theory, while rooted in core principles (Davis et al., 2014), has evolved alongside organisational and technological changes. Despite waning interest in the late 1980s and early 1990s (Baxter & Sommerville, 2011), it has adapted to new technological landscapes. Research now encompasses diverse fields from heavy industry to modern technologies (Davis et al., 2014). Historical perspectives (Trist, 1981) and international dimensions (Mumford, 2000;

2006) enrich understanding. The socio-technical perspective underscores the symbiotic relationship between social and technical factors, viewing them as subsystems within a broader suprasystem. Interaction among these subsystems determines system efficacy.

Formulärets överkant

METHODOLOGY

Research design.

A systematic literature review following PRISMA guidelines (Moher et al., 2009) found a gap in research on how sustainability and digital technologies jointly affect the competitiveness of companies. Prior studies often treat green and digital transformations independently, missing their interplay. A recent call for papers in "Technology in Society" by Gerli, Ferraris & Dabic (2022) underscores this gap, supported by earlier research. Consequently, our understanding of how digital transformations impact environmental sustainability in sociotechnical transitions remains limited, raising uncertainty about the environmental benefits of digital initiatives.

To tackle the research question that this study aims to answer – how value is generated at the convergence of digital transformation technologies and sustainable business strategies, especially when integrated into decision-making support tools to optimise unified data availability across organisational boundaries - a qualitative phenomenological study (Hesse-Biber & Leavy, 2011; Pietkiewicz & Smith, 2014) was deemed most appropriate. A qualitative approach facilitates a deeper understanding of the actors' interactions, sentiments and behaviours that occur during the research process (Borghini et al., 2010).

Data collection

To achieve this, we conducted in-depth interviews with key informants versed in the intersection of digital transformation technologies and sustainability. Additionally, we organised seminars and workshops involving participants from various sectors. We surveyed 200 top-level executives across 15 sectors in Sweden between December 2021 and April 2023. Each interview lasted about 30 minutes and provided insights from CXOs. These insights included an analysis of companies' financial performance using year-on-year revenue growth and operating margin across four crisis phases: Pre-COVID-19, Fragility, Resilience, and Rebound. By examining companies' operating profit during these phases, we identified resilient performers and anticipated stronger rebounds. The transcribed interviews were analysed by extracting key concepts from the data.

Data analysis

The study utilised Interpretative Phenomenological Analysis (IPA) (Smith, 2007; Pietkiewicz & Smith, 2014) to examine patterns across data sets and describe the phenomenon arising from the research question (Guest, 2012). IPA, characterised by a hermeneutic stance and a "bottom-up" approach, generated analysis from interviewee data rather than pre-existing theories (Larkin et al., 2006). IPA's focus on probing deeper into respondent meanings and perceptions was deemed appropriate (Reid et al., 2005). The collected data underwent three steps of analysis: data reduction, data display, and conclusion-drawing (Miles & Huberman, 1994). The findings were structures into five categories in accordance with the defining themes that underscore strategic intent with a sharp eye on technology and sustainability score. Each of the five categories is accompanied by an epilogue/imperative. Data reduction involved selecting, filtering, and organising data for focused conclusions (Miles & Huberman, 1994). Analysis of audio and video recordings began during transcription. Data display aimed to organise information for drawing appropriate conclusions and implications.

FINDINGS

Below, we evaluate companies' maturity in sustainable practices and technology adoption through two scores derived from a CXO survey. The sustainability score assesses the extent and maturity of sustainable initiatives and how a company supports them, while the technology score measures technology adoption maturity. Pioneers are companies in the top quantile for either sustainability or technology adoption, while Twin Transformers are those excelling in both areas. Pioneers in Sustainability and Technology are recognised based on their scores, with ratings from 1 to 10 indicating their maturity level in each domain.

Category 1 companies: Foster ecosystem-based business models driven by sustainability and enabled by technology.

The findings indicate that sustainability-driven models are key for substantial growth. Currently, 61% of Twin Transformers generate over 10% of their revenues sustainably, with nearly 80% expecting this to rise within three years. These companies employ unique strategies to identify emerging business models, utilising scenario planning to predict demand for solutions improving resource efficiency and safety, and harnessing AI and Cloud computing. Moreover, they actively pursue opportunities to address gaps in future circular value chains and collaborate with ecosystems to innovate and scale their approaches. Notably, 42% of global Twin Transformers recognise the vital role of ecosystem business models for their future success, significantly higher than the average of 18% among others.

Epilogue based on Category 1

1) Integrate scenario thinking into business strategy to anticipate demand for sustainability solutions;
2) Learn through incubator program but rapidly embed technology solutions for sustainability impact; and 3) Convene an ecosystem of partners to create, test and scale the business for societal impact.

Category 2

To start the journey: Combine resources to scale technology applications to sustainable practices.

Increasing innovation investment is crucial for driving growth, especially given Europe's historical underinvestment. EU Recovery funding further encourages innovation, particularly focusing on sustainability and technology. Twin Transformers prioritise innovation, allocating over 10% of revenue both pre- and post-COVID-19. They integrate sustainability and technology in their initiatives, with some dedicating R&D funds to this purpose and others establishing specialised innovation units. They also address environmental impacts, employing Green Cloud technology to reduce energy consumption. Compared to peers, Twin Transformers redirect investment towards positive impact business models and reduce IT-related carbon footprints. They are twice as likely to invest over 10% of revenue in innovation and technology, pre- and post-COVID-19.

Epilogue based on Category 2

1)Sustain investment in innovation and earmark resources for technology solutions with positive sustainability impact; 2) Convene diverse innovation teams that bring together technology and sustainability expertise; and 3) Assess and mitigate environmental impacts of technology investments.

Category 3

To deepen impact: Create organisation-wide ownership by combining financial and non-financial KPIs.

Findings show that the mindset is that transformation initiatives within organisations rely on change and can only succeed when technology-driven sustainability efforts are implemented across departments, fostering ownership and involvement at all levels. Twin Transformers foster ownership by establishing performance metrics beyond financial outcomes, often tied to compensation, ensuring that opportunities for positive impact or harm reduction are consistently factored into decision-making. These metrics may include progress in emissions reduction, the adoption of socially beneficial products, and the sourcing of sustainable resources. Additionally, Twin Transformers systematically monitor progress across various dimensions, including non-financial impacts on well-being, the environment, and consumer experience, alongside business value, enabling balanced decision-making. Many have developed specialised methodologies and tools to complement traditional ESG metrics, enhancing measurement of sustainable practices' business impact. Notably, a significant percentage of Twin Transformers tie executive compensation to environmental and social impact

metrics, and they frequently report on non-financial performance alongside financial performance, indicating a strong commitment to integrating sustainability into decision-making processes.

Epilogue based on Category 3

Assign ownership and accountability through KPIs related to non-financial performance

Adapt frameworks for decision making (e.g. business cases) to include non-financial criteria

Systematically measure progress in multiple financial & non-financial dimensions.

Category 4

To achieve scale: Align partners for sustainable product lifecycles and improved traceability.

Results show that sustainability impacts often transcend organisational boundaries, requiring collaborative efforts for positive change. For example, initiatives like establishing circular supply chains necessitate investments in both material recovery and creating demand for recycled resources. Success hinges on coordinated actions from multiple stakeholders across the value chain. To overcome challenges in engaging supply chain partners, proactive steps are taken by entities known as Twin Transformers. These organisations integrate sustainability criteria into supplier assessments and provide training to enhance overall supply chain sustainability.

Furthermore, Twin Transformers leverage technology such as blockchain and digital platforms to enhance resource and product visibility. This not only facilitates the adoption of circular business models but also fosters trust by enabling customers to understand the origins of their purchases. Despite these efforts, many Twin Transformers encounter obstacles in extending sustainability strategies throughout their supply chains. Nonetheless, a significant proportion actively involve value chain partners in their sustainability journey.

Formulärets överkant

Epilogue based on Category 4

Engage suppliers to raise sustainable practices through screening as well as capacity building;

Create technology solutions to trace resources and products along the value chain, working with ecosystem partners; Build tools and channels that offer transparency to consumers about the provenance of what they buy.

Category 5

To sustain the transformation: Lead, empower and nurture talent.

In the early stages of a journey, transformations are heavily influenced by individuals. This effect becomes even more pronounced as companies expand, shifting from reliance on a few passionate leaders to involvement from all departments and levels. Twin Transformers, particularly, prioritise the human element of change more than others, with over half identifying it as a potential obstacle

compared to less than a quarter in other companies. They also encounter challenges in accessing the necessary expertise and talent for their transformation efforts.

To address these concerns, Twin Transformers place greater emphasis on talent development, with 61% globally acknowledging their responsibility for ensuring their employees' continued employability, compared to 44% in other companies. They take proactive steps, such as using analytics to understand their employees' needs and implementing tailored training programs, like digital skills development.

Additionally, Twin Transformers are more likely to entrust the CEO with overseeing sustainability initiatives, ensuring sustained attention to this area within the core business and providing a clear directive for employees to support. For instance, 51% of European Twin Transformers see the human aspect of change as a potential barrier to digital transformation, compared to 22% of others, while 43% of global Twin Transformers' CEOs lead the sustainability agenda, in contrast to 30% of CEOs in other companies. Overall, more than half of Twin Transformers recognise their organisation's responsibility towards their workforce's employability.

Epilogue based on Category 5

1)Establish programs for continuous learning to help your people build digital fluency; 2) Listen to the changing needs of your people through combinations of human and technology-enabled channels; 3) Secure top leadership commitment to inspire the workforce for the transformation agenda

The research findings underscore the significance of sustainability and the transition towards a circular economy as major driving forces in society. Successful digitalisation facilitates this transformation by enabling and accelerating the adoption of circular business models. Neglecting sustainability poses substantial long-term risks for companies, potentially rendering them irrelevant to both customers and employees. The demand for environmentally responsible practices is increasing from various stakeholders, influencing everything from recruitment to product sales. While digitalisation is not mandatory for circular business models, it provides essential tools for exploring new business models and optimising production and recycling processes. Despite varying impacts across industries and companies, digitalisation lays the groundwork for transitioning to circular practices. Assistance from business promotion organisations like RISE can support companies of all sizes in integrating digital and circular aspects into their operations, unlocking new customer segments and environmental benefits. Overall, embracing the circular economy presents opportunities for companies to create value while contributing positively to environmental sustainability.

DISCUSSION

With reference to the purpose of this study, its findings are in parity with the basic assumptions of Socio-technical theory (Trist, 1981; Davis, 2014), which fundamentally asserts that comprehending and enhancing the design and performance of any organisational system (Pasmore, 1985) necessitates the integration of both 'social' and 'technical' elements (Coenen et al., 2010; Hess, 2014; Kemp & Never, 2017; Selvakkumaran & Ahlgren, 2019; Wieczorek, 2018), recognising their interdependence within a complex system. Findings highlight our understanding of how digital transformations affect environmental sustainability in sociotechnical transitions (Bogers et al., 2020; Naldi et al., 2015; Niebel, 2018).

Considering the evolving geopolitical landscape, the 2022 Strategic Foresight Report offers a forward-looking strategic analysis of the intersections between the green and digital transitions (Gerli, Ferraris & Dabic (2022). Both transitions hold significant positions on the EU's political agenda, and their interplay (Gerli et al., 2021) is poised to have substantial implications for the future, crucially impacting the achievement of the United Nations Sustainable Development Goals. Although these transitions differ in nature and are subject to distinct dynamics, their synergy – the ability to mutually reinforce each other – warranted the attention given to it in this study. The success of the green transition hinges on meeting the targets and implementing policies outlined in the European Green Deal, a comprehensive strategy aimed at attaining climate neutrality and reducing environmental degradation by 2050. While the digital transition has historically advanced with limited consideration for sustainability, recent efforts, such as those outlined in the Digital Compass and Fit for 55, emphasise the need for appropriate policy frameworks and governance, in line with the strategies by firms in our findings, to mitigate adverse effects and fully harness its potential for environmental, social, and economic sustainability. Moreover, emphasis should be on the interconnectedness of an organisation's social and technological subsystems within its environment (Pasmore, 1985; Bauer & Herder, 2009; Baxter & Sommerville, 2011; Antikainen et al., 2018).

The relationship between the two transitions

Ideally, the green and digital transitions reinforce each other (Davis, 2014). For example, distributed ledger technology, which underlies blockchain and thus cryptocurrencies, can be used in material tracing, aiding the circular economy by better maintenance and recycling (Osarenkhoe & Fjellström, 2021; Liu, et al., 2023). And Digital Twins, virtual counterparts of the real world, can model, among others, traffic, to optimise traffic flows, reduce jams and slash emissions in the process.

However, sometimes the two transitions can also clash (*ibid*). Digitalisation uses electricity, and many digital technologies are resource-intensive and create waste. Unintended consequences can crop up, such as owners of hybrid cars driving more because it is cheaper. Teleworking would cut office space

but could lead to employees building separate working rooms at home, and heating or cooling more space than if they were in the office (Osarenkhoe & Fjellström, 2021) To make the most out of the twin transition, proactive and integrative management will be needed. The digital transition will be spearheaded mainly by the private sector due to its huge economic potential. To harness its benefits for greening and to limit its harmful effects, state and civil society engagement will be necessary.

Many business leaders have a great opportunity before them, but they need to move boldly and at speed to seize it. Currently, they stand at risk of missing the value play - and with it, the potential to shape the outlines of the post-pandemic world. This opportunity calls for diverging from well-trodden strategic and operational paths (Davis, 2014; Baxter & Sommerville, 2011). It requires commitment to advanced technologies (ibid.) and to innovations applied with purpose to enable sustainability solutions - traditional European strengths. It also requires confidence in the power of ecosystems (Kutsikos et al., 2014; Barile et al., 2017) to effect positive competitive and social/environmental change.

Early Twin Transformers have proven that the intersection of digital and sustainability holds great value, not only in terms of accelerating recovery from the economic effects of the pandemic, but also in terms of positioning for future growth. Majority of the companies are aware that new value is increasingly being found at the intersection of digital technologies and sustainability (The companies leveraging it - we call them Twin Transformers - are 2.5x more likely to be among tomorrow's strongest-performing businesses than others. Swedish companies' early lead in sustainability should make them a natural to be Twin Transformers, yet few are pursuing this path. This, as many express concerns about the pace of their recovery from pandemic effects.

The need to explore the interplay between green and digital transformations, which existing studies often treat separately (Coenen et al., 2010; Hess, 2014; Kemp & Never, 2017; Selvakkumaran & Ahlgren, 2019; Wieczorek, 2018). However, findings from this study bridged this gap by providing evidence on how digital transformations affect environmental sustainability in sociotechnical transitions (Bogers et al., 2020; Naldi et al., 2015; Niebel, 2018). Attempts have been made by Ibrahim et al., 2018; Mora et al., 2019, 2021; Fox et al., 2020; Bresciani et al., 2018; Ardito et al., 2019) to show how smart technologies shape sustainable cities and their role in collaboration among stakeholders. Researchers also analyse the environmental consequences of digital transformations (Kunkel & Matthess, 2020; Wang et al., 2021; Zeng et al., 2017). However, this field remains in its early stages, prompting the formulation of key research questions answered herewith.

Furthermore, it is apparent from our findings that environmental sustainability aims to maintain resources for human needs and minimise waste. It's crucial for business growth, urging companies to adopt sustainable practices to reduce environmental impact. Hence, effective sustainability

management benefits both businesses and the environment by improving processes and fostering sustainable products. However, small and medium-sized enterprises (SMEs) often lag in integrating sustainability into stakeholder relationships, citing limited investment capacity (Chowdhury, et al. 2023; Osarenkhoe & Fjellström, 2022; Osarenkhoe & Fjellström, 2021, Liu, et al., 2023)

Our findings show that companies increasingly discussing their approaches to technology and sustainability with shareholders, while investors are increasingly scrutinising those companies' non-financial impacts. However, only a fifth of sustainability or technology pioneers in Sweden manage to be Twin Transformers. We found that if digital transformation defined the business landscape in the 2010s, our findings indicate that the next decade of business change will be defined by the sustainability transition – in line with perspectives in (Kemp & Never, 2017; Selvakkumaran & Ahlgren, 2019; Wieczorek, 2018). A few companies are already ahead in terms of linking digital and sustainable transformation - we call them Twin Transfomers. These organisations are far more likely to have proven resilient during the COVID-19 crisis. According to a key informant, "We learned from Covid-19 and the current geopolitical landscape. Digital, resilience and trust are key to building a truly sustainable world."

CONCLUDING REMARKS

This study underscores the critical role of "twin transformation" - the synergistic integration of digital transformation technologies and sustainable business strategies - in enhancing organizational competitiveness. It provides compelling evidence that success in uncertain times depends significantly on a company's ability to navigate this dual convergence. This research not only enriches the existing literature by addressing the previously underexplored intersection of sustainability and digital innovation but also offers insights for both Multinational Enterprises and Small and Medium-Sized Enterprises aiming to secure a competitive edge in the evolving business landscape.

Concisely, addressed in this study is how value is created and captured at the intersection of digital transformation technologies and sustainable business strategy to optimise availability of unified data across organisational boundary. In other words, how can digital technologies and sustainability as a business opportunity as well as a societal mandate be used to optimise decision-making support tools to facilitate integration of unified sustainability data within industrial organisations.

From our findings, it seems that prerequisites for successful green and digital transitions are social, technological, environmental, economic, and political in nature. One requirement is to increase the societal commitment to the need to change to achieve the transitions. This cannot be enforced top-down. Making the twin transition fair and inclusive can make its acceptance easier. Not everyone is able to buy costly rooftop solar panels, but subsidies for it are provided by all taxpayers. Making such

technology affordable to everyone is key to a just and effective transition. More data also means more privacy concerns. These must be addressed by anonymising data collection and data minimisation, gathering only as much data as strictly necessary. Another set of requirements is technological. The needed infrastructure environment must be put in place, beginning with high-speed broadband internet access for all. Interoperability between devices must be ensured, and benefits must be shared equally, with small and medium-sized enterprises included as much as large companies.

When it comes to the environmental requirements, awareness-raising and higher environmental standards could keep unintended consequences and rebound effects in check. In economic terms, enabling markets are required to avoid getting stuck in an "innovation valley of death", when research gains fail to materialise in applied form. A regulatory eco-system should be created that sets high green standards and internalises external costs of pollution and emissions. Upskilling of the labour force is needed to fully exploit the potential of digital technologies. Finally, politically, the EU should continue in its role as first-mover by establishing lasting green-digital standards. Policy coherence, as well as unlocking private investments are also crucial.

The days of sustainability being a "nice to have" are over. Sustainability is now demanded by customers (and increasingly, governments), not just for the environment, but for overall societal good. With COVID-19 putting digital transformations on hyperdrive, it is important to understand that digital transformation and sustainability have a symbiotic relationship. Too many are looking at the immediate need for technology, while ignoring the rising need for sustainability. The main issue here is ask the question: What needs to happen for more Swedish companies to act on this opportunity and abandon this myopic perspective? They need a better understanding of its potential. They also need to apply Twin Transformers' fundamental activities.

Twin Transformers: Foster ecosystem-based business models driven by sustainability and enabled by technology. Considering sustainability as a business opportunity as well as a response to societal challenge; Combine resources to scale technology applications to sustainable practices by embracing the idea that sustainability and technology do not need to be separate priorities; Create organisation-wide ownership combining financial and non-financial KPIs; Align partners for sustainable product lifecycles and improved traceability; Lead, empower and nurture talent to sustain the Twin Transformation, drive and support new sources of value.

It can be concluded that if digital transformation defined the business landscape in the 2010s, then the next decade of business change will be defined by the sustainability transition. A few companies are already ahead in terms of linking digital and sustainable transformation - we call them Twin Transfomers. These organisations are far more likely to have proven resilient during the COVID-19

crisis. According to a key informant, *"We should learn from this crisis. Digital, resilience and trust are key to building a truly sustainable world."*

Epilogue:

The study unveils a new paradigm where digital transformation and sustainability intersect, offering crucial insights into how businesses can leverage this convergence for enhanced competitiveness. It emphasises the importance of data unification and seamless information flow across organisational boundaries, a key factor in today's volatile business environment.

A major contribution is the concept of "twin transformation," highlighting the simultaneous advancement of digital and sustainable initiatives. This shift from traditional single-focus strategies to holistic approaches is relevant for both Multinational Enterprises (MNEs) and Small and Medium-Sized Enterprises (SMEs), which face interconnected challenges in achieving sustainability and digitalisation.

The study reveals that integrating digital technologies with sustainable practices positions organisations to better navigate uncertainty and maintain a competitive edge through new values and efficiencies. Digital tools can enhance sustainability by improving resource management, reducing waste, and fostering innovation.

Additionally, the study addresses a literature gap by focusing on the practical implications of twin transformation, providing insights on implementing and scaling these strategies across various organisational contexts. This is particularly beneficial for SMEs, which can adopt agile approaches to digitalisation and sustainability despite limited resources.

This study significantly contributes to the discourse on digital transformation and sustainability, offering theoretical and practical insights for businesses and researchers. The concept of twin transformation emerges as a pivotal strategy for future competitiveness, emphasising a cohesive approach that leverages the strengths of both digital and sustainable initiatives.

IMPLICATIONS OF THIS STUDY FOR MANAGERS AND RESEARCHERS

The implications of a deepened understanding of the interplay among biology, society, and technology (biosocio-technical systems) are transformative and profound for both management and researchers (summarised in Table 2), providing management with insights for strategic advantage and operational excellence, and offering researchers opportunities for interdisciplinary collaboration and impactful innovation. This comprehensive approach can lead to more sustainable, ethical, and effective practices across multiple domains.

Table 2: A synopsis of implications of the study for management and researchers

Category	Implications
Managerial implications	
Strategic Decision-Making:	Holistic Approaches: A comprehensive understanding of biosocio-technical systems can enable managers to adopt more holistic approaches to problem-solving and decision-making. This can lead to more sustainable and resilient business practices. Sustainability and Ethics: Managers can better align their strategies with sustainability goals and ethical considerations, understanding how their decisions impact both human society and the natural world. Innovation and Competitiveness: Recognizing the interconnectedness of biology, society, and technology can drive innovation, providing a competitive edge by leveraging advancements in biotechnology, social sciences, and technology integration.
Operational Improvements:	Efficiency and Optimization: Insights from these studies can help optimize processes, making them more efficient by understanding the biological and social dimensions of human behavior and technological interaction. Risk Management: Better grasp of biosocio-technical systems can enhance risk management by anticipating the cascading effects of disruptions in biological, social, or technological domains. Health and Well-being: For organizations, especially in healthcare, a nuanced understanding can lead to improved workplace health programs and better employee well-being, boosting productivity and reducing healthcare costs.
Human Resource Management:	Talent Management: Understanding the interplay can help in designing better talent management and development programs that consider the biological and social aspects of employees' lives. Diversity and Inclusion: Insights into social dynamics can inform more effective diversity and inclusion strategies, leading to a more harmonious and innovative workforce.
Researchers	
Interdisciplinary research	Collaborative Opportunities: Researchers can pursue more interdisciplinary studies, combining insights from biology, sociology, and technology to address complex problems that cannot be solved through a single-disciplinary lens. Funding and Resources: There may be increased opportunities for funding from organizations that prioritize comprehensive and integrative approaches to research.
Innovative strategies	Complex Systems Analysis: The study of biosocio-technical systems necessitates the development and application of complex systems methodologies, such as systems thinking, network analysis, and agent-based modeling. Data Integration: Researchers can leverage big data and advanced analytics to integrate biological, social, and technological data, leading to richer and more nuanced insights.
Impactful Applications	Real-World Applications: The findings from biosocio-technical research can be directly applied to solve real-world problems, ranging from public health to environmental sustainability, thereby increasing the societal impact of scientific research. Policy Development: Researchers can contribute to policy development by providing evidence-based recommendations that consider the intricate interdependencies among biological, social, and technological factors.
Ethical Considerations	Responsible Research: Understanding the interplay among these domains encourages researchers to consider the ethical implications of their work, promoting responsible research practices that prioritize the well-being of society and the environment. Equity and Access: Researchers can work towards ensuring that the benefits of technological advancements and biological insights are equitably distributed multiple societal groups.

THEORETICAL IMPLICATIONS AND DIRECTION FOR FUTURE STUDIES

As mentioned earlier, due to the complex and interrelated nature of digital innovation and sustainability, conventional research methods might be of limited use to capture the dynamics, interrelatedness, and non-linearity (Berger & Kuckertz, 2016b) of the phenomenon addressed herewith – the intersection between digital transformation and sustainability. There is a call-in literature (Hernández & Pedersen, 2016) that an examination of the global value chain may be conducted from a multilevel perspective. Specifically, the different decisions involved in the global value chain

configuration could be examined by considering the possible interdependencies between the different transactions and/or activities and that affect the whole of the value chain. Thus, the following question deserves to be studied further: What broader changes in governance types and process upgradation (Hernandez & Pedersen, 2017), among participating firms in a value chain configuration, are necessary to be made to better reconfigure their value chains to make them resilient to disruptions during uncertainties?

Regarding decisions related to global value chain configuration, future research may explore firm factors that could affect the way firms in the global value chain make their decisions. Aspects such as the impact of size or type of ownership remain underexplored, especially in respect of governance and coordination decisions. The performance effects of different types of value chains in terms of governance, their geographical scope or their level of coordination remain underexplored. Scholars could also focus on contingencies that could help firms to identify which decisions may benefit them more.

Influenced by the evolution of digital technologies we currently witness a dramatic transformation of established industries and the global business landscape at large. Not only entrepreneurs and innovators are therefore excited about the opportunities and implications deriving from this transformation, but also researchers from many different disciplines have taken interest in this phenomenon (Nambisan, 2017). The intersection of digital technologies and entrepreneurship/or innovation provides ample research opportunities as digitalisation dissolves boundaries and shifts agency of traditional entrepreneurship (ibid) and innovation processes and outcomes (Nambisan, et al., 2017).

While digital technologies can be understood as external enablers stimulating and fostering the new venture creation process, they can take different roles and manifest in various forms such as products (Nambisan, et al. 2017), product or service platforms, infrastructure tools or systems or digital applications, components, or media content. In other words, many research opportunities exist to shed light on the role and influence of digital technologies on entrepreneurship and innovation.

This table (Table 3) summarises the key directions for future studies, providing a clear and organised view of the research areas and specific directions to be explored.

Table 3: A structured direction for future research in a table format

Governance & process upgradation	Investigate broader changes in governance types and process improvements among participating firms in value chain configurations. Explore how these changes can enhance robustness and resilience of value chains during uncertainties.
Firm Factors Affecting Global Value Chain Decisions	Examine impact of firm size, type of ownership, and other firm-specific factors on governance and coordination decisions within the global value chain. Analyze performance effects of different types of value chains regarding governance, geographical scope, and level of coordination
Contingencies and Decision Benefits	Identify contingencies that could help firms determine which decisions may be most beneficial for them.
Digital Technologies	Explore the role of digital technologies as external enablers influencing new venture creation processes

and Innovation	and outcomes.
	Investigate various manifestations of digital technologies (products, service platforms, infrastructure tools, systems, digital applications, components, media content) in entrepreneurship and innovation

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CROSS-BORDER M&AS AND R&D INVESTMENT: THE ROLE OF FAMILY OWNERSHIP

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ABSTRACT

Growth is vital for the sustainability and wealth creation of family businesses. Family firms use growth strategies to avoid decline and strengthen the family unit (Poza, 1989). Mergers and acquisitions (known as M&As) are seen as a key external growth strategy that allows firms to grow faster than through internal means. The speed of growth is important in seizing market opportunities before they disappear due to rapid changes and fierce competition (Bresciani et al., 2016). M&As present both opportunities and threats for all firms, but family businesses face unique challenges (Worek, 2017).

Despite the extensive exploration of M&As in management literature, there has been limited focus on family firms participating in these transactions. However, growth is essential for long-term success and intergenerational wealth preservation (Stenholm et al., 2016), with M&As being a key strategy for external growth. Recently, there has been a growing body of literature that has started to examine various aspects of family business M&As.

More specifically, researchers have examined how family ownership influences various aspects of family firms engaging in M&A activities, such as the likelihood of pursuing an acquisition (Miller et al., 2010), the choice of payment method (Caprio et al., 2011), and the market's reaction to the announcement of a family business' M&A (Feito -Ruiz and Menéndez-Requejo, 2010). Studies have also looked into how family ownership impacts the diversification of acquisitions within industries (Defrancq et al., 2016), highlighting the potential moderating roles of leverage and historical performance (Aktas et al, 2016; Gomez-Mejia et al., 2015). Additionally, family ownership has been shown to have a significant impact on the returns of acquiring shareholders (Ben-Amar and André, 2006).

However, the topic of cross-border M&As conducted by family firms, where a family-owned business acquires a company located in another country, has yet to be thoroughly explored. This subject is particularly fascinating as cross-border M&As are a significant growth strategy for companies, especially when their domestic market is struggling.

To the best of our knowledge, this is the first time that a study has investigated the effect of cross-border M&A on the propensity to undertake R&D investments within a family firm context.

The goal of this study is to examine how the involvement of a family shareholder impacts the acquiring company's decision to engage in post-transaction R&D investment. Additionally, the research explores whether the likelihood of R&D investment by a family-owned acquirer is influenced by the generational control. It is important to consider that different shareholder generations may have varying interests, management styles, and goals.

Keywords: mergers, acquisitions, family ownership, R&D investments

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

The theoretical framework utilized in this study to explore the impact of family ownership and generational stage on propensity to undertake R&D investment post cross border transaction is known as socioemotional wealth (Gomez-Mejia et al., 2007). This concept refers to the emotional attachment of family owners to the firm and serves as a guiding principle for determining the appropriateness of managerial decisions. The five key dimensions of socioemotional wealth include family members' control over strategic choices, their connection to the firm, their relationships within and outside the organization, their emotional bond with the business, and their sense of family legacy. According to Gómez-Mejía (2007), the preservation of socioemotional wealth is a primary concern for family firms, as it represents a core aspect of their identity and is deeply ingrained in their psyche.

Analyzing family businesses' M&As through the SEW perspective highlights the importance of assessing the risks involved in these transactions. In particular, the post-M&A integration process poses a significant challenge for acquiring and target top managers, especially in cross-border M&As where cultural differences can impact the transaction's success (Shimizu *et al.*, 2004, Brouthers and Brouthers, 2000). The risk of unsuccessful integration is greater in cross-border acquisitions compared to domestic ones due to the additional complexities of navigating differences in national and organizational cultures simultaneously.

This is particularly significant within the family business sector, as family firms often combine their own family values and cultural background, as well as the regional influences and historical factors that shape their business culture. National and regional traditions also play a crucial role in shaping key processes within family businesses (Sharma and Rao, 2000; Howorth and Ali, 2001; Zahra *et al.*, 2004).

The contrast in organizational cultures between two firms involved in an M&A could lead to administrative conflicts post-transaction (Sales and Mirvis, 1984) and a sense of aversion in the post-acquisition phases (Buono *et al.*, 1985).

From a socio-emotional wealth perspective, conflicts arising from the merging of a family firm into an M&A could potentially harm the family's image and reputation (Sharma and Manikuti, 2005). Due to the close association between family identity and the firm, conflicts between employees from the acquiring and target companies may have a significant emotional impact on family members. Family members are particularly attuned to the image they project to both external and internal stakeholders (Micelotta and Raynard, 2011).

A high level of conflict in the post-M&A integration phase may undermine the sense of pride and "*the preservation of the family's good name for future generations*" (Ket de Vries, 1993), generating a loss of non-economic endowment.

The strong sense of identity among both family and non-family employees in a family business can complicate post-M&A integration. The closed network, relational trust, and feelings of closeness generated by kinship ties within the family firm contribute to this challenge (Cruz and Nordqvist, 2012). Non-family employees often perceive the family firm's sense of belonging and stability, further complicating integration efforts (Miller and Le Breton-Miller, 2005; Berrone *et al.*, 2012). Additionally, family firms typically select applicants who align with their values and culture, which may differ from those of the acquiring firm, exacerbating the difficulties of post-M&A integration.

The firm is a vital part of their lives, whereas non-family shareholders may have more temporary, surface-level ties to the business (Lubatkin et al., 2005).

All these factors push family managers to focus on the post-integration problems rather than to manage innovation project. In addition, the risk connected to cross-border transaction could be greater in case family firms undertake innovation inputs,, inceasing the likelihood of a socioemotional wealth loss.

According to the above discussion, the following hypothesis is proposed:

HP1: Acquiring family firms are less likely to make a cross-border acquisition than their acquiring non-family counterparts

GENERATIONAL STAGE EFFECT

From a socioemotional wealth perspective, the emotional connection to the business may vary depending on the generation involved. In particular, as the business transitions beyond the founding generation, the importance of emotional attachment diminishes in comparison to financial goals. With later generations becoming more active in the family business, the level of familial identification, control, and personal investment in the company fluctuates. In essence, the emergence of new family branches brings forth unique goals and priorities that may weaken familial ties (Gersick *et al.*, 1997; Ensley and Pearson, 2005). This results in family leaders seeing themselves as caretakers of their own

branch, reducing the significance of family identity as a key element of socioemotional wealth (Sciascia *et al.,* 2014; Drago *et al.,* 2018).

The decreasing importance of socioemotional wealth (SEW) priorities over successive generations has several implications for family businesses' tendency to invest in research and development (R&D). Initially, family members are emotionally attached to the business and have a significant influence on strategic decision-making (Berrone *et al.,* 2012; Bacci *et al.,* 2018). This attachment may lead first-generation family members to resist hiring external managers or experts in order to retain control over the company. However, this can hinder R&D investment as professional management is often necessary for successful implementation of complex investments (Gomez-Mejia et al., 2015). As later generations take over, financial considerations become more important than preserving SEW.

Therefore, later generations are expected to attribute less importance to the loss of control following the recruitment of non-family external managers and to prefer expanding the business they have inherited (Cruz and Nordqvist, 2012). More specifically, Second and subsequent generations are considered to be more qualified, to possess more information (Fernandez and Nieto, 2005; Sonfield and Lussier, 2004) and they are more likely to adopt a professional style of management, that entails the inclusion, and sometimes the predominance, of non-family managers in the firm (McConaughy and Phillips, 1999). Under these conditions, external human resources may confer new skills, capabilities and know-how needed to face complex transactions and allow the family to adopt innovation strategies, achieve the business growth and to move beyond the legacy of the past generation, increasing therefore R&D investment.

HP2A: Later generation family firms positively affects the relationship between cross border M&A and R&D investment post transaction

In the early stages of family-owned businesses, the founder holds a significant ownership stake which provides them with the ability and motivation to closely oversee the firm's investments and encourage managers to focus on R&D at the most effective level (Block, 2012). As the business progresses through generations, ownership becomes more widespread, leading to potential conflicts among different family branches. In reality, R&D spending reduces profit and in later-generation family firms it leads to two potential outcomes. Firstly, disappointed non-family shareholders may choose to sell their shares upon hearing about the low earnings, which could in turn cause the stock price to drop due to the negative correlation with R&D investment levels (Lee & o'Neill, 2005). Given the lower family's ownership stake in a public family companies, they are at risk of losing control to a hostile takeover due to a drop in stock prices. Additionally, if relationships among family members in future generations become diluted, outside family shareholders who prioritize dividends over reinvestments may be more inclined to sell their stock. In fact, the risk of multi-generational family businesses losing

control is worsened by the possibility of discontented outside family shareholders to divest their shares, rather than selling the private firm directly at a lower price due to lack of liquidity. This scenario could in turn heighten the vulnerability of the company to a hostile takeover as some family shareholders exit the business.

Under these circumastances, later generation family managers could be avoid to undertake R&D investment post cross-border tranasction in order to avoild a loss of control and consequently of affective endowment (Gomez-Mejia et al., 2015).

As a result, while R&D investments can improve the long-term competitiveness of family firms, later generation family managers may choose to underinvest in R&D to safeguard their control over the firm.

HP2B: Later generation family firms negatively affect the relationship between cross border M&A and R&D investment post transaction.

SAMPLE STRATEGIES AND EMPIRICAL FINDINGS

The sample is constituted by 111 non financial cross-border M&As conducted in the period 2016-2022. 70 acquiring firms were controlled by family sharehoders. 41 transactions have a nonfamily investor as acquiring firm.

Two requirements must be jointly fulfilled in order to define a firm as a "family firm": equity in the hand of family higher than 20%; at least one of family members seats on the board of directors (Prencipe et al., 2014).

Following previous studies on the European listed firms (Sraer and Thesmar, 2007; Andres, 2008; Caprio *et al.*, 2011), the first criterion is satisfied when one or more members of the family hold at least 20% of the voting rights. The second is satisfied when one or more members of the family are involved in the board of directors.

To create the data set, information was collected and merged from different sources. The information on M&As and accounting data are extracted from Datastream Thomson Reuters. Data on ownership and board of directors were gathered from AIDA database by *Bureau Van Dijk*, annual and governance reports, as well as company websites.

Empirical findings confirm Hypothesis 1 and meaning that when the acquiring is controlled by a family shareholder, it positively impacts R&D investment after cross-border transaction. Results confirm H2B, given that generational stage significantly and negatively moderates the relationship between family acquiring firm and R&D investments after cross-border M&A.

CONTRIBUTION

This study enriches the literature in family firms for several reasons. First, it considers an underinvestigated setting, cross border M&A and sheds light on the family firms' innovation behaviors when strategies of external growth are undertaken. In this sense, this paper enriches the literature on family firms acquisition beaviors. Second, it points out the innovation behavior of family firms, by offering new results due to the novel perspective of the acquiring firm. By this view, these results offer new evidence that could be useful to disentangle divergent results pointed out by past studies on innovation behavior. Lastly, this study

LIMITATIONS

This study presents two main limitations. First, it focuses on an Italian acquirers, that are featured by a very high concentrated ownership. Therefore, it cannot extend to anglo-saxon context where firms ownership is more fragmented. Second, this study does not consider the share of stocks in the hands of family, while literature points out a great heterogeneity of family firms deriving also form different levels of family ownership.

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LEADERSHIP PRACTICE OF CROSS CULTURAL AND NATIONALLY DISPERSED TEAMS - EMPIRICAL CASE STUDY

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ABSTRACT

Virtual collaboration is becoming more common, with teams spanning nations and time zones to achieve goals. Diverse teams, whether national or culturally dispersed, have shown high creativity and innovation when they choose to share knowledge and collaborate. Leaders must develop new skills and strategies to effectively manage such teams, promoting awareness of diversity and inclusive leadership.

Purpose – The purpose of this paper is to explore leadership practice in global organizations with diverse and culturally dispersed teams.

Design/methodology/approach – The study used an explorative qualitative methodology, collection of data was made in a case study, using non-participant field observations from 12 days of leadership training programs with 77 leaders in a global organization. Data was categorized using thematic analysis.

Findings – The findings underscore the importance of promoting diversity awareness and effective communication for collaboration. Operations strategically leverage diversity, providing structural guidance for inclusive leadership to foster innovation and collaboration.

Practical implications – This study offers practical findings of the complexity of global management and diversity, this study offers empirical findings supporting the need of cultural intelligence, offering theoretical frameworks and practical leadership tools to consider.

Originality/value – This paper contributes to the contemporary understanding of leadership practices, particularly in the realm of diversity management in global organizations. Future researchers are encouraged to explore collaboration and trust, connected to "Multiple belongings" and "Multiple goals" to further refine practical leadership approaches in complex global projects.

Keywords: Cross-cultural interactions, Cross-cultural teams, Inclusive leadership, Diverse management, Knowledge management, Virtual teams

INTRODUCTION

The fast-paced digitalization transforms our hybrid workplace (Kane et al., 2022) and knowledge workers use multiple places to perform their work (Bosch-Sijtsema et al., 2011). The mobility of workers and the new technological possibilities rewrite traditional team composition and have increased global virtual teams (Miminoshvili and Černe (2022). People have worked across distances to achieve common goals using technology before COVID-19 (Brake, 2006). However, this new work landscape has increased the complexity of leadership and management in virtual knowledge work teams across nations and time zones (Fang et al., 2021).

The terminology to describe team members spread remote -locally, nationally, or globally is called "distributed" knowledge workers (Bosch-Sijtsema et al., 2011, s.276). Also called geographically "dispersed" virtual teams (Fang et al., 2021). Cultural diversity is in this context defined as diverse racioethnicity and/-or nationality according to Cox, 1993 quoted by Ponomareva et al., (2022) and this definition is used to understand the practical leadership of "dispersed" workers spread across nations. Diverse teams have according to earlier research shown high creativity and innovation factors, yet only if they decide to share their knowledge (Bogilović et al., 2017). And the hybrid work setting and its virtual context impact knowledge and learning (Doyle-Kent & Kopacek, 2019). Previous research showed that globally distributed teams might feel isolated and, by extension, affect communication and knowledge sharing negatively (Gajendran & Joshi, 2012). Previous research has also shown that cross-cultural interactions come with a risk of people from different nationalities having low cultural intelligence and impacting knowledge sharing and hiding negatively (Bogilović et al., 2017). Cultural intelligence (CQ) is an important wanted state where leaders raise awareness of team differences and create knowledge of the advantages of culturally diverse and increase behavioral and mental flexibility (Ang et al., 2007). One of the most important attributes of top management is diversity yet the least understood according to (Ponomareva et al., 2022). A recently published systematic literature review of cultural diversity shows that research is moving from "if" towards "how" and "why" diversity impact organizations and highlight that research on management is still limited and research of cultural diversity would benefit from more definitions (Ponomareva et al., 2022). According to Zhen (2022), there has been a significant amount of research conducted on how to cultivate an organizational culture that encourages innovation and high performance based on diversity. However, the existing research mainly focuses on how to create innovation and performance, and there is still less research on the practical operations and management knowledge structures required to succeed. Organizational diversity initiatives and especially managerial attention to creating an inclusive climate are highlighted as topics for future research, specifically conditions for inclusive leadership (Ashikali et al., 2021). Brink (2020) states that leadership research should prioritize

diversity practices, echoed by Simon (2024), while Corritore et al. (2020) emphasize the need for further exploration of practical cultural knowledge, intertwined with CQ.

In this paper, the present study is an explorative case study of practical leadership. The leaders manage national and culturally dispersed teams within a global organization that produces and delivers innovative technological solutions. Operating across different countries, the organization relies on cross-functional virtual project teams to collaborate across physical national borders. Despite geographical similarities, team members also come from diverse cultural backgrounds, reflecting the norm in large organizations today due to shifting workforces across nations (Miminoshvili & Černe, 2022). The organization is heavily reliant on high-tech knowledge, experts, and talents to achieve its global business goals of development, innovation, and customer success. The purpose of this paper is to explore leadership practice in global organizations with diverse and culturally dispersed teams with the following research questions:

R.Q 1. How are leaders trained and fostered to manage diverse complex teams with cultural or national differences? R.Q 1.2. What specific challenges and opportunities are addressed when managing diverse teams.

The research aims to provide up-to-date findings on leadership practice, possibilities and challenges when managing hybrid teams with diverse national and cultural backgrounds.

THEORY

Hybrid and remote leadership experienced rapid expansion due to digitalization (Kane et al., 2022), confronting leaders of hybrid or remote workers spanning different regions, termed as "distributed knowledge workers, (DKV), (Bosch-Sijtsema et al., 2011). Reserach also identified this phenomenon as "geographically dispersed virtual teams" (DVTs), (Fang et al., 2021). Similarly, the concept of "global virtual teams" (GVTs), described teams working towards shared objectives across temporal, spatial, and cultural boundaries (Zakaria and Rahman Muton, 2022). One of the challenges encountered in cross-time zone collaboration was when individuals attempted to address work tasks while physically present, yet situated in different time zones (Fang et al., 2021). Nationally/culturally dispersed teams in hybrid workplaces blend remote and office settings and tackle communication and engagement challenges (Eslahchi, 2023). The present virtual work setting includes the migration of expertise across nations and the imperative to seek talent beyond national borders, resulting in teams spread across diverse geographical locations (Microsoft Work Trend Index Annual Report, 2021); (Miminoshvili & Černe, 2022).

Organizational culture research is basically grounded in functionalist and dynamically interpretive approaches. Stable view described as fixed cultural characteristics and differences and the interpretive

view examine culture as various international context (Romani et al., 2018, quoted by Barmeyer et al., 2019. However, approaches can be integrated to provide complexity of international managerial and organizational practices", "providing multi-paradigmatic approach" (Barmeyer et al., 2019.p 254).

Diversity is commonly perceived as inequality; however, within organizational research, it is often applied as a concept encompassing awareness or initiatives aimed at mitigating or enhancing its social, intellectual, and financial impacts (Simon, 2024). Nonetheless, cross-cultural research face constraints of clearly defined diversity concept (Lichy and Stokes, 2018). Research findings on leadership concepts within "diversity management" and (Chua et al., 2023) utilize a framework comprising three dimensions: a) leadership's accountability for diversity management, b) leadership's approach to diversity management, and c) leadership's focus on diversity management. This framework is adopted to interpret and discuss the result in a structured way grounded in theory.

Urbancová et al. (2020) highlighted the increasing presence of diversity in organizations due to globalization. Diversity is seen as valuable for managing complex tasks in global projects (Corritore et al., 2020). Achieving diversity in the workforce is important for its potential benefits (Ashikali et al., 2021). Inclusive leadership, vital for diverse teams, appreciates differences among members (Ashikali et al., 2021; Shrivasta, 2018), and recent studies indicate the importance of fostering an inclusive work environment to maximize diversity's advantages (Ashikali et al., 2021). Urbancová et al. (2020) found that recognition of diversity and practical diversity management leads to positive outcomes. A practical example of diversity management is "diversity initiatives", used as a term to describe strategic efforts to promote diversity for various benefits (Simon, 2024, p.3).

Lichy and Stokes (2018) noted challenges in managing culturally diverse workforces with conflicting assumptions. Choudhary et al. (2022) found cultural differences in work values and behaviors in India, which indicate that conflicting cultural perceptions can appear even in domestic contexts. Fostering a common organizational culture and understanding global diversity promotes collaboration and success (Pau et al., 2018, p.58) and leadership plays a vital role in promoting understanding and trust among team members (Kappagomtula, 2017, p.581-582).

Global project leaders are encouraged to navigate cultural and linguistic diversity, promoting collaboration and success through shared organizational culture and global diversity awareness (Pau et al., 2016, p.58). Trust and understanding differences are essential leadership tools (Kappagomtula, 2017, p.581-582). Leading diverse teams requires understanding cultural inclusion and national differences, often overlooked in current literature (Brink, 2020). In global projects, inclusive leadership is crucial for navigating cultural and linguistic diversity (Pau et al., 2016). Scholars explored how inclusion leadership behavior can be expressed in practice in hospitality and noted traits of caring, respect, fair treatment, appreciation and supportive behaviors (Vassou et al., 2023).

Inclusive leadership is perceived as crucial for creating an inclusive climate in diverse teams (Ashikali et al., 2021). And leaders' awareness and knowledge of differences and its impact is linked to "Cultural Intelligence" (CQ), enables identifying differences and addressing biases (Earley and Ang, 2003; Henderson et al., 2018). Cultivating CQ fosters collaboration in diverse teams (Siakas and Siakas, 2015). CQ enhances leaders' ability to adapt to new cultural contexts (Ang et al., 2007). Training initiatives enhance overall awareness and cultural competence (Xu and Flambard, 2021). While Cultural Intelligence (CQ) positively impacts team performance, it may not moderate communication norms (Henderson et al., 2018). "Cross-cultural code-switching" (C3S) enhances communication in global virtual teams (Ab Rahman Muton et al., 2022). C3S characterized findings of adaptive behaviour and communication strategies in intercultural interactions, addressing directness, openness, and task orientation (Zakaria and Rahman Muton, 2022). Other related researchers noted that middle managers adjust formal language to different cultures, highlighting the need for adaptive communication styles (Barmeyer et al., 2019, p.263).

Scholars addressed a need for organizations to address diversity, the authors noted social conflicts related to diversity in mixed working teams and suggest policy and training to cope with discrimination and tensons (Desivilya & Raz, 2015). Diversity training and organizational learning is perceived to enhance diversity practices (Brink, 2020). Effective training requires structural components to foster competence and organizational mindset towards differences. Interactions depend on "individual composition, emphasizing awareness of biases" (Covey, 1989, as quoted by Shrivasta, 2018, p.13).

Diverse teams face "knowledge-hiding" described as a risk due to inequality, hindering collaboration (Miminoshvili & Černe, 2022; Paul et al., 2018; Valk & Planojevic, 2021). Successful digital knowledge relies on motivation and supportive environments (Valk & Planojevic, 2021). Effective cross-border knowledge transfer is crucial in a hybrid organizational culture (Bausch et al., 2022). Another perception of adaptivity is to promote dynamic capabilities; Nave and Ferreira (2023) encouraged workers entering an international business arena to cultivate new skills and knowledge, both to prepare for international business and to take advantage of developed capabilities to succeed in domestic markets.

Future researchers of leadership should prioritize diversity practices (Brink, 2020; Simon, 2024), and explore cultural knowledge (Corritore et al., 2020).

METHOD

This paper contributes to a longitudinal research project on hybrid leadership by presenting data from a case study involving 12 days of field observations. Field notes were gathered during a global

leadership program comprising three separate four-day training sessions, with a total of 77 participating leaders. Two of them were arranged in Sweden, the third in Hungary. Instructors represent in-house leaders or former leaders, viewed as organizational ambassadors, recruited to the program based on their expertise. Five participated in the field observations. The organization prioritizes trainers with operational experience to understand participants' roles and daily challenges. Data collection overview: Trainings sessions: 3 leadership course. Days of field notes: 12 days. Hours of collected observation notes: 120. Participants attending 77. Instructors: 5

The case study organization is a high-tech industrial company based in Sweden with approximately 100,000 globally dispersed employees spanning around 180 countries. Engineers and developers drive the future of technology with innovation and development capabilities. They tackle complex challenges and work cross-organization worldwide. The organization consider themselves to promote diverse teams to create technological progression and they claim that they invest to preserve and enhance technology leadership. The leaders observed in this study hold positions across various roles and levels on a global level and act in a high-tech environment.

Data collection started with fieldwork in September 2023. Research observations using Non-Participant Observations (Wolcott, 2008). Observations were documented through field notes and included material trainings topics and tools, interactions and shared personal practical experience from group sessions, coffee breaks, dinners etc. The data is carefully documented through manual notes, respecting declined audio recording proposals. It's organized chronologically, proofread for typos, and securely stored in the project data platform. The field study involved observing multiple training sessions, specifically focusing on social learning and knowledge-sharing dynamics. Observations were guided by Bandura's Social Learning Theory (Bandura, 1977), supplemented by insights from Valk and Planojevic (2021) to enhance understanding of the observed social learning phenomena.

Thematic analysis

Collected field notes contained a broad range of data. Relevant areas were marked and coded in the NVIVO program used as the basis for further analysis through systematic coding by themes and topics. The thematic method by Braun & Clark (2006) has been applied as it provides systematic step-by-step guidance suitable to code and structure the collected data.

Step 1 involves reading, evaluating, and identifying the true meaning of a text's core. Step 2 involves creating codes based on the identified meaning of the text. Step 3, themes are created by evaluating all the codes and then progressively organizing them into groups based on similarities or relationships. Step 4 involves reviewing the initial themes to ensure they accurately represent the core meaning and significance of the codes found in the analyzed text. In Step 5, there's a review to ensure that the final

codes and themes are both representative and relevant. This process serves as the foundation for the results and analysis presented in the paper. This paper interprets acronyms and business language of the case study organization. Interpreting linguistic and semantic nuances of "diversity" and "culture" necessitates a careful analysis (Lichy and Stokes, 2018; Johns and Jones, 2022; Barmeyer et al., 2019). The exploratory design was chosen to identify and interpret topics of diverse and cultural differences in a global organization, the paper's intent isn't to provide definitive solutions (Giri & Biswas, 2018). Additionally, this paper used a scoping literature review to apply recent scholars and present relevant theories to discuss in relation to findings.

FINDINGS

Participants of the leadership training program observed in this paper were carefully selected by the in-house program manager to ensure diversity, with a waiting list of up to two years. The manager aimed to mix individuals with different job titles, offices/regions, and functional areas like developers, line managers, product owners, and sales/customer relations representatives, prioritizing inclusivity. Findings showed that the 77 participants from the three different training sessions represented 38 different roles/-titles. However, majority of participants represented Line managers (29 %) and secondly Program Managers (10 %), the remaining 47 participants represented 36 different roles/-titles. Group discussions and group composition is pre-determined by the program manager with the intent to create diversity: *"We consider diversity with representatives from different backgrounds to ensure better discussions and empower good ideas."*. The distribution of participants across office sites: The majority (75) have their office base in Europe, 44 of them are located in Sweden. Other office sites include Poland (10), Estonia (5), and smaller groups in Spain, France, Ireland, and Germany. National origins were also noted if it was shared in participants' personal introductions in each training session. Data illustrate that Nine European-sited participants shared non-European origins. Five individuals are from India, and one each from Argentina, Egypt, Iran, and Singapore.

The final data collection showed a set of (55) unique codes related to four themes following the thematic analysis approach. The descriptive findings of codes are visualized below.

Table	Table 1. Overview of themes, tags and data collection origins		
	Main themes	Tag, descriptive	Data collection origins
	Cross culture and nationally dispersed (18 codes)	Awareness (15 codes)	Practice P: participants sharing knowledge and experiences (15 codes)
	Diversity, differences and varied world views (23 codes)	Challenges (23 codes)	Practice I: instructors sharing personal experiences (2 codes)

Collaboration and communication (8 codes)	Positives (10 codes)	Operational: organizational strategies, shared values, wanted mindset etc (31 codes)
Trust (6 codes)	Tools and models (7 codes)	Tools and models: relevant toolboxes of theories introduced in training sessions (7 codes)

Table 1: *The table illustrates descriptive findings categorized into themes and tags. Empirical findings are sourced from educational materials, examples shared by leaders, and individual experiences. The data origins has been assigned a tag.*

Table	Table 2. Findings themed to cross culture and nationally dispersed	
	Coded to: Awareness	
	Practice: Shared from individual	Operational: Integrated in training
	Cultural differences vary from place to place.	"We align with an organizational language to connect globally."
	Diverse team differences demand leadership capabilities.	"Be curiose, diversity brings new perceptions."
	Perception of trust shift between cultures, be aware.	"Individuals have diverse perspectives."
	Structured interactions - Arrange global team to meet yearly.	"Tolerance towards differences."
		"Varied work practices occour in different countries."
	Coded to: Challenges	
	Practice: Shared from individual	Operational: Integrated in training
	"Challenging to organize different time zone meetings."	"Adapt our organizational language to meet differences."
	"Meeting behaviors and language barriers."	"Challenge how to run several projects at the same time, in the whole world."
	"Balancing global meetings in different time zones."	"Cross-cultural innovation teams should meet physically to see new ideas."
	Coded to: Positives	
	Fully remote global teams perceived to have equal meeting terms	

Table 2: *The table illustrates words and perceptions connected to cross-cultural and nationally dispersed themes.*

Table	Table 3. Findings themed to: Diversity, differences and varied world view	
	Coded to: Awareness	
	Practice: Shared from individual	Operational: Integrated in training
	N/A	"Exposed to diversity helps you to be aware of personal biases."
	Coded to: Challenges	
	Practice: Shared from individual	Operational: Integrated in training
	"Inclusion issues - Diversity keeps me from not knowing my team."	"Need common mindset in our global organization, we do not have."

	"Learn how to understand individual differences and how to handle them."	"Fit for purpose - Better to place people where they belong."
		"Foster trust of good intentions."
		"Need certain communication strategies."
		"Need to foster a common language to communicate."
		"Need to foster a common language to communicate to understand."
	Coded to: Positivs	
	Practice: Shared from individual	Operational: Integrated in training
	"The more diverse, the better conversations, it grows expertise."	"Diverse teams bring new ideas."
	"Diverse teams bring different views and new angels of solutions."	"Diverse teams create value."
	"Diversity is needed to have enough capabilities."	"Diverse teams are needed in times of uncertainty."
		"Diversity enables 'Out of the box' thinking."
		"Diversity has a growing perspective."

Table 3: *Findings indicate awareness of diversity, and the result illustrates words and perceptions identified that address differences and varied world views connected to diversity.*

Table	Table 4. Findings themed to: Collaboration and communication	
	Coded to: Awareness	
	Practice: Shared from individual	Operational: Integrated in training
	"Leader responsible to foster collaboration culture." -participant	"A common language to connect us - creates a corporate memory."
	"People naturally create sub-cultures - work with it not against it." -instructor	"Human network metrics - should we track global network interactions."
	Coded to: Challenges	
	Practice: Shared from individual	Operational: Integrated in training
	"Our global mindset to collaborate is too big - too complex - not agile."	"Need to interact to align globally, challenge yourselves - dare to approach."
		"Need to simplify - aim towards boundaryless collaborative organization."
		"Transparency needed when running projects all over the world."

Table 4: *Result illustrate themes connected to collaboration and communication in global and diverse contexts.*

Table	Table 5. Findings themed to: Trust	
	Coded to: Awareness	
	Practice: Shared from individual	Operational: Integrated in training
	N/A	"Create psychological safety."
		"Do we need local trust and global trust on different levels?"
	Coded to: Challenges	
	Practice: Shared from individual	Operational: Integrated in training
	N/A	"Need to build trustworthy teams - we struggle with this."
		"Need to develop your trust abilities."
		"Need to foster trust - do not lock in opportunity."

Table 5: F*indings of trust topics related to diveristy and global and national working contexts.*

Findings of theories and concepts introduced during training sessions

Seven training tools were identified and used in trainings to provide leaders with cross-cultural expertise. These tools encompass philosophical models that address biases and offer practical strategies such as team composition and leadership approaches, with a particular emphasis on Uncertainty Management techniques.

table	Table 6. Theory concepts identified in training sessions			
	Cynefin model: categorizes problem domains for navigation.	Fit for Purpose model: tailors team composition to specific goals.	Intent Based Leadership Model: fosters employee initiative for goals.	T-shape model: blends talents for workforce effectiveness.
	Team topologies: combines team patterns for organizational needs.	"Duck or rabbit" perception: addresses differing perspectives.	Uncertainty Management Model: strategizes for complexity.	

Table 6. *Illustrate identified theory concepts used in training sessions with leaders.*

DISCUSSION

This paper explores practical leadership, experiences and tools needed to manage cross-cultural and nationally dispersed teams. The organizational context is a global, high-tech industry in nature organized cross-border with hybrid or remote teams with diverse cultural or national backgrounds. Recently published researchers have highlighted a need for empirical studies (Ponomareva et al., 2022); Zhen (2022). Findings in my study provide data from individual practice and organizational perspectives, aligning with previous research to share the nature of the organizational complexity (Barmeyer et al., 2019). Leadership concepts of diversity management by Chua et al. (2023) provide an

overall concept to follow to discuss results and theoretical findings of diversity management, a) leadership's accountability management, b) leadership's approach, c) leadership's focus. Empirical findings through the lens of leadership's accountability show that participants underscore the significance of fostering diversity awareness and establishing effective communication channels to facilitate collaboration among team members from diverse backgrounds. This emphasis resonates with Urbancová et al.'s (2020) assertion that leadership plays a central role in recognizing and managing employee differences within global teams. However, findings indicate challenges faced by leaders in managing cross-cultural interactions mainly connected to language barriers and meeting culture. Participants emphasize the importance of inclusive leadership for managing diverse workforces and discuss approaches towards understanding and managing diversity in global teams and projects, findings support approaches of strategies towards Ashikali et al., (2021) inclusive leadership. The study reveals positive outcomes associated with diversity from operational and individual viewpoints, including complex problem-solving, growth, and innovation. Participants express the value of diverse perspectives in problem-solving and decision-making processes, aligning with insights by Corritore et al. (2020) on diversity knowledge as a managerial asset. Furthermore, the participants' receptiveness to theoretical models underscores the importance of continuous learning, in practical, participants collaborated and shared experiences, challenges and opinions, and practical application of new knowledge connected to learning environments (Bandura, 1977; Bausch et al., 2022). Overall, the study highlights the importance of a holistic approach to promoting inclusive leadership and diversity management. It emphasizes the need for structured training programs and organizational initiatives to enhance awareness of cultural diversity and inclusion and practical skills to navigate and capitalize on cultural differences in the workplace.

CONCLUSIONS

In conclusion, the findings provide practical examples of leadership's accountability for diversity management in promoting a culture of inclusivity, fostering effective communication, and leveraging diversity as a strategic advantage. By providing structural guidance and fostering an inclusive work environment, leaders can create conditions where diversity thrives, leading to enhanced innovation, collaboration, and organizational success.

Limitations - The study's limited generalizability due to its focus on a specific industry and a single case study raises questions about its applicability to other contexts. Additionally, the environment of training sessions and group dynamics might have constrained participants' openness in sharing practical experiences, particularly negative ones. The significance of grasping organizational linguistics for a thorough comprehension could be affected by potential interpretation biases, despite

attempts to mitigate them through observations & analysis. *Originality/value* - This paper is up to date of today's leadership practice. Findings contribute to the knowledge base of diversity management, supporting the need for cultural intelligence. The practical contribution in this paper is empirical findings of operational and practical experience of diversity management. Empirical findings also add to research of KS and SL models. *Practical implications* - This paper supports practitioners to better understand the complex global context that diversity managers must navigate through. The paper provides relevant theory and identifies practical toolboxes, all relevant to leadership practice in how to evolve diversity management skills. *Agenda for future research* – Findings related to trust-topics indicate possibilities to explore practical strategies on how to create psychological safety and a trust-based culture in complex global project teams. The result addressed communication and collaboration strategies and indicated internal challenges of global interaction across teams and projects; findings indicate areas of future research of strategical interactions and communication practice to enhance cooperation in global project teams. The identified Cynefin model combined with research from Kappagomtula (2017) serves as an opportunity to design future research of practical leadership in complex global projects with workers exposed to multiple goals and multiple belongings.

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GRADES TO GAINS: THE ROLE OF GPA IN CULTIVATING ENTREPRENEURIAL INTENTIONS

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ABSTRACT

Although previous literature has explored the relationship between university factors and entrepreneurial intentions, the specific interaction between entrepreneurship and GPA has not been fully explained. This study aims to elucidate the interactions among university factors, entrepreneurial alertness, GPA, and entrepreneurial intentions of students in Oman. Using structural equation modeling, a hypothetical model was developed, and data were collected through a structured survey. The sample included 367 responses, balanced across various sociodemographic characteristics. After confirming validity and reliability of the measures, the hypothetical model was tested. The empirical findings indicate that university factors do not directly affect entrepreneurial alertness or intention. However, entrepreneurial alertness has a statistically significant and positive direct effect on entrepreneurial intention. While no mediating effects of entrepreneurial alertness were found, the GPA of students significantly moderated the relationship between entrepreneurial alertness and entrepreneurial intention. The study further discusses practical implications, limitations and future research.

Keywords: University Factors, Entrepreneurial Alertness, Entrepreneurial Intention, Sultanate of Oman, Structural Equation Modeling.

INTRODUCTION

The investigation of entrepreneurship at the university level has attracted considerable attention in recent years. Academic inquiries in this domain have sought to elucidate the foundational premises upon which university students establish their perspectives regarding their future career choices. Results and implications of these studies vary depending on the context in which they are conducted, necessitating adaptive approaches by higher education professionals.

Opting for an entrepreneurial career path presents increased challenges in a rapidly evolving business climate, characterized by rapid technological advancements that transform traditional business methodologies. Consequently, students exhibit a cautious stance toward embracing entrepreneurship as possible career path, recognizing that it demands persistent dedication, firm conviction, and

undoubtable commitment. Therefore, Gartner (1989) argued that "entrepreneurship is not a static state but a role individuals assume to establish organizations", which underscores the inherent challenges and the initial attraction of entrepreneurship that may ultimately seem daunting (p. 64).

According to Segal et al. (2005), the ability to tolerate risk is crucial for students aspiring to entrepreneurial success. This tolerance enables them to achieve their personal goals and contribute significantly to society (Palalić et al., 2017). However, demotivating factors external to educational influences, such as a non-supportive business environment, particularly in transitional economies, can profoundly impact student motivation (Palalic et al., 2016b, Palalić et al., 2017, Palalić et al., 2023). The role of individual networking is equally paramount in shaping entrepreneurial aspirations (Palalic et al., 2016b).

Thus, a synergistic approach involving educators and policymakers is essential to fostering an entrepreneurial ethos among university students, thereby promoting self-employment and the creation of employment opportunities (Dar et al., 2023). This approach should aim to instill entrepreneurial goal intention (EGI) and facilitate entrepreneurial implementation intention (Esfandiar et al., 2019) by developing a supportive entrepreneurial ecosystem for students (Hossain et al., 2023). Cultivating an entrepreneurial spirit is crucial, as it provides a durable foundation that encourages students to adopt entrepreneurial thinking and recognize the societal value of their future endeavors.

The primary focus of research in this field has been to examine various factors influencing student attitudes towards entrepreneurship, including entrepreneurial self-efficacy (Atmono et al., 2023, Martins et al., 2023), personal traits (Israr and Saleem, 2018), entrepreneurial motivation (Listyaningsih et al., 2023), entrepreneurial education (Montes et al., 2023), and proactiveness (Mustafa et al., 2016). These studies also explored the impact of students' attitudes, desires, and perceived behavioral control (PBC) on their entrepreneurial intentions (Nguyen et al., 2019, Al Sawaey and Palalic, 2023).

In light of the aforementioned research, this study aims to bridge the knowledge gap by integrating various factors that influence or relate to the entrepreneurial intentions of students, such as entrepreneurial alertness, the university environment, and student GPA. To further this investigation, the study proposes the following research question: What is the relationship among students' entrepreneurial alertness, university environment, GPA, and entrepreneurial intention?

The subsequent sections will further discuss the theory, results and implications, methods, data analysis and results, and discussions and conclusion.

THEORY AND HYPOTHESES

Several decades ago, Schumpeter (1934) has introduced entrepreneurial orientation pointing out that firms tend to be competitive if entrepreneurial orientation (EO) dimensions (innovativeness, proactiveness, and risk-taking) are high. Others, Miller (1983) and Covin and Slevin (1988/1989) supported this argument by stressing out validity of this approach through the scales followed by Schumpeter's study (1934) in different industries. Later on, some authors used this opportunity to apply the scale in different context and field, like education. For instance, Taatila et al. (2012) applied the same nature of the scale from adopted and modified from Miller (1983) and Covin and Slevin (1988/1989), to fit their study population.

Further studies from other regions (Palalic et al., 2016a) examined networking as well as business environment in which students operate . Meanwhile, researchers step in extra mile and introduced entrepreneurial intention that is very important beyond being entrepreneurially oriented. Entrepreneurial intention was an interesting step further to check on more real action and students' reality pertaining how much they have intention was perceived in university's students towards entrepreneurship, being self-employed and employing others. One of the studies encompassing this field was done by Liñán and Chen (2009). To understand better factors that affect entrepreneurial intention of student's different approaches were applied. To identify the gap in the literature and to fill the above gap this study provides the following discussion on the discourse of entrepreneurial intention, university factors to which university students are exposed as well as entrepreneurial alertness. Additionally, the study observes students' GPA as an important factor in these relationships.

University Factors, Entrepreneurial Intention, Entrepreneurial Alertness: Mutual Relationships

The study of entrepreneurial intention has been approached by various researchers from multiple perspectives, as this concept is often incorporated within the framework of the Theory of Planned Behavior (TPB), which was first introduced by Ajzen (1985/1991) and argued by others like Bagis (2022) where spirituality of students play an important role. This body of knowledge explores the entrepreneurial intentions of students by examining both internal factors, such as personal traits, and external factors, including contextual or environmental influences, as noted by Yildirim and colleagues (2016) as well as Barral et al. (2018) and Barba-Sánchez et al. (2022). Furthermore, the role of self-efficacy as a mediating factor has been investigated, with significant contributions made by Zhao et al (2005), and by Krueger et al (2000) as well as Elnadi and Gheith (2021), adding depth to our understanding of the pathways through which intentions lead to entrepreneurial action. Other studies

emphasize the importance of university education in shaping students' entrepreneurial intention (Cui and Bell, 2022, Hou et al., 2023).

Although the literature on students' entrepreneurial intention has got a solid attention, however, still factors that affect in either way, are still open for debate. Therefore, this study proposes the following hypothesis:

H1: University factors significantly affect entrepreneurial intention.

Entrepreneurial alertness is a cognitive concept of individuals that can spot and pursuit opportunities (Araujo et al., 2023), which can be many times uncertain, not proved as true business opportunity. The alertness has a robust measurement scale developed by Tang et al. (2012) by which studies used to examine entrepreneurial opportunity development process. In the existing literature, entrepreneurial alertness has been argued to be significant influenced entrepreneurial intention (Neneh, 2019) while other studies argue mediation effect of entrepreneurial alertness towards entrepreneurial intention (Otache et al., 2024, Uy et al., 2015). Conversely, some authors argued that it is important that alertness needs to be observed as a consequence (Valliere, 2013), implying lots of work before the alertness has the right effect.

As discussion above signifies that university factors rarely discussed in correlation with entrepreneurial alertness, as well as findings on entrepreneurial intention and entrepreneurial alertness are also scarce, therefore, this study fills the gap by proposing the following hypotheses:

H2: University factors significantly affect entrepreneurial alertness.

H3: Entrepreneurial alertness significantly affects entrepreneurial Intention.

H4: Entrepreneurial alertness significantly mediates effects of university factors on entrepreneurial Intention.

Students' performance at colleges and faculties were also discussed in the existing literature. For instance, Palalić et al. (2017) emphasized possibility of GPA in entrepreneurial education and examining entrepreneurial orientation which will turned to be an entrepreneurial action. However, scant literature exists that argues either positive or negative and yet significant relationship of GPA with entrepreneurial intention. Therefore, this study proposes the following hypothesis:

H5: GPA significantly moderates effects of entrepreneurial alertness on entrepreneurial Intention

METHODOLOGY

Data Collection Procedures

Before collecting data, informed consent was obtained from the students. Participants were informed about the study's purpose and instructed on how to complete the questionnaire. They were assured of

their anonymity and that their participation was entirely voluntary. The questionnaire, conducted online, took approximately 15-20 minutes to complete.

Population and Sample

The Sultanate of Oman incorporates entrepreneurship into its Vision 2040, focusing on economic diversification and fiscal sustainability. The national goal is to create a diversified and sustainable economy driven by technology, knowledge, and innovation. A key objective is to develop a competitive, diversified, and integrated economy based on foresight, innovation, and entrepreneurship (Vision Implementation Follow-up Unit, 2023). Exploring how universities in Oman contribute to fostering students' entrepreneurial intentions and alertness could be highly beneficial in achieving this goal.

In this study, we used non-probability, convenience sampling to select participants. We invited all students from various colleges and programs to join the study. Participants were informed that the survey is anonymous, and that the data collected would be used solely for scientific research. Additionally, we emphasized that participation is voluntary, allowing respondents the right to withdraw at any time if they feel uncomfortable.

This study collected data from universities in the Muscat area, which is highly representative of the entire Sultanate of Oman due to its distinct characteristics. Firstly, Muscat has the largest population in Oman, with 1,454,872 residents reported in July 2023 (National Centre For Statistics & Information, 2023). Secondly, it is the capital city of the Sultanate. Thirdly, Muscat hosts several higher education institutions that primarily use English as the official language of instructions.

The sample consisted of 367 responses and was well-balanced across various sociodemographic characteristics such as gender, age, GPA range, study level, and interest in entrepreneurship. Table 1 outlines the sociodemographic profile of the respondents. The gender distribution was nearly even, with 193 males (52.6%) and 174 females (47.4%), showing that the sample is quite balanced in terms of gender.

Most respondents, 45.23% (n=166), are aged between 20-22 years, followed by those aged 17-19 years, who make up 33.51% (n=123) of the sample. Students aged 23-27 years represent 18.26% (n=67), and only 2.45% (n=9) are aged 33 years and above. Regarding GPA, the largest group of students falls within the 2 to 3 range, accounting for 55.31% (n=203), followed by those with a GPA above 3,

comprising 23.98% (n=88). Additionally, 16.62% (n=61) of students reported not having a GPA yet, while 4.09% (n=9) have a GPA below 2.

Most surveyed students are in their fourth year of undergraduate studies, making up 36.24% (n=133). The next largest group consists of third-year students, who account for 26.16% (n=96), followed by first-year students at 18.26% (n=67). Second-year students represent 14.71% (n=54). A very small number are pursuing master's (2.72%, n=10) and PhD studies (1.91%, n=7). In terms of entrepreneurial experience, 72.75% (n=267) of the respondents claimed to have no practical experience, and the majority, 58.31% (n=214), had not attended any entrepreneurship seminars, programs, or education prior to university.

Measures

The measurement instrument has following structure:

Survey questions related to demographics and other characteristics of respondents: gender, age, GPA range (moderator), cycle of study, entrepreneurial experience, entrepreneurial education before university. All questions from this section of the instrument are based on categorical or interval responses.

University Factors is a three-dimensional variable (independent) with total of six items measured using a 5-point Likert Scale (1-Very Accurate to 5-Not accurate at all). *Entrepreneurial Alertness* is a three-dimensional variable (independent; mediator) with total of thirteen items measured using a 7-point Likert Scale (1- Completely disagree to 7-Completely agree). *Entrepreneurial Intention* is a unidimensional variable (dependent) with six items measured using a 7-point Likert Scale (1- Total disagreement to 7-Total agreement).

Considering that English is the language of instruction at the universities involved in this study and that the participating students are proficient in English, the questionnaire was administered in its original English language form. Three unmodified scales were used in the study, and their details are presented in Table 1.

Variable	Code	Dimensionality & Items	Sources
University Factors	UE	1. Active Support (2 items) 2. Development (3 items) 3. Initiation (1 item)	Franke & Lüthje (2004)
Entrepreneurial Alertness	EA	1. Association and Connection (3 items) 2. Evaluation and Judgement (4 items) 3. Scanning and Search (6 items)	Liñán & Chen (2009)
Entrepreneurial Intention	EI	Unidimensional (6 items)	Tang, Kacmar, & Busenitz (2012)

Table 1. Instruments for data collection

Data Analysis

The collected data were analyzed using the JAMOVI and SmartPLS4 software packages. JAMOVI was utilized for descriptive statistics and data distribution tests. SmartPLS4 was employed to assess reliability using Cronbach's Alpha and Composite Reliability, as well as to evaluate the convergent and discriminant validity of the measures. After confirming the validity and reliability, structural equation modeling (SEM) was applied to test the hypothesized effects in the research model (Ringle, Wende, & Becker, 2024).

RESULTS

The next section details the results of the normality distribution test, descriptive statistics, Cronbach's coefficients, and composite reliability tests. After presenting these preliminary findings, the section on testing the measurement model provides further evidence of discriminant and convergent validity. Once acceptable levels of reliability and validity are confirmed for the measurement model, the structural model and hypotheses testing are conducted and discussed.

Preliminary results

The examined variables in the study displayed a range of mean values from 3.21 to 4.73, with standard deviations between 0.760 and 1.111 (Table 2). The lowest score was observed in the university factors (Mean = 3.21; SD = 0.760), suggesting that these factors are not perceived as highly supportive of entrepreneurship by the respondents. In contrast, the highest score was recorded for entrepreneurial alertness (Mean = 4.73; SD = 0.956), indicating that respondents are vigilant and well-informed about potential business opportunities. The entrepreneurial intention score (Mean = 4.02; SD = 1.111) suggests that while students' entrepreneurial intentions are not extremely high, they are positively inclined toward entrepreneurship.

The variables showed skewness values ranging from -0.1745 to 0.0137 and kurtosis values from -0.1891 to -0.0383, all within the acceptable range of -2 to +2, confirming data normality (Hair, Hult, Ringle, & Sarstedt, 2022, p. 66). The Shapiro-Wilk test results, with all *p*-values above 0.05, further support the assumption of a normal distribution of the data (Ramachandran & Tsokos, 2020). Cronbach's alpha values ranged from 0.776 to 0.865, indicating a high level of internal consistency among the items (Taber, 2018; Cronbach & Shavelson, 2004; Cronbach, 1951). Additionally, composite reliability values were all above 0.843, demonstrating satisfactory internal consistency reliability (Hair, Hult, Ringle, & Sarstedt, 2022, p. 126). This comprehensive statistical analysis validates the reliability and validity of the measures used in the study.

	Mean	SD	Skewness	Kurtosis	Shapiro Wilk (p)	$C's \propto$	CR
UE	3.21	0.760	-0.0862	-0.0383	0.059	0.776	0.843
EI	4.02	1.111	0.0137	-0.1891	0.427	0.832	0.878
EA	4.73	0.956	-0.1745	-0.1730	0.147	0.865	0.890

Note 1: SD = Standard Deviation; $C's \propto$ = Cronbach's Alpha; CR = Composite Reliability
Note 2: For full name of latent variables, please see Table 1.

Table 2. Descriptive analysis, normality, and reliability

Measurement model assessment

The proposed measurement model is composed of three latent factors, namely University Factors (three-dimensional variable with six observed variables), Entrepreneurial Alertness (three-dimensional variable with thirteen observed variables), Entrepreneurial Intention (unidimensional variable with six observed variables) and GPA (one observed variable). The results of the analysis conducted using the SmartPLS algorithm are detailed in Tables 3 and 4. The items exhibited sufficient loadings and made significant contributions to explaining their underlying constructs, consistent with the criteria set by Hair et al. (2022). According to Table 3, all dimensions and variables demonstrated composite reliability values of 0.846 and above, which Hair et al. (2022) consider desirable. In terms of convergent validity, all dimensions achieved average variance extracted (AVE) values above the threshold of 0.5, as recommended by Hair et al. (2022). This indicates a good level of convergent validity, confirming that the constructs adequately measure what they are intended to.

Variables & Dimensions	Items	Loadings	p	CR	AVE
Entrepreneurial Alertness: Association and Connection Code: EA_A&C	EA_A&C1	0,801	< .001	0.869	0.689
	EA_A&C2	0,837	< .001		
	EA_A&C3	0,852	< .001		
Entrepreneurial Alertness: Evaluation and Judgement Code: EA_E&J	EA_E&J1	0,790	< .001	0.874	0.634
	EA_E&J2	0,824	< .001		
	EA_E&J3	0,836	< .001		
	EA_E&J4	0,731	< .001		
Entrepreneurial Alertness: Scanning and Search Code: EA_S&S	EA_S&S1	0,648	< .001	0.858	0.504
	EA_S&S2	0,741	< .001		
	EA_S&S3	0,622	< .001		
	EA_S&S4	0,683	< .001		
	EA_S&S5	0,747	< .001		
	EA_S&S6	0,801	< .001		
University Factors: Active Support Code: UE_AS	UE_AS1	0,874	< .001	0.850	0.740
	UE_AS2	0,846	< .001		
University Factors:	UE_D1	0,775	< .001	0.846	0.646

Development Code: UE_D	UE_D2	0,836	< .001		
	UE_D3	0,800	< .001		
University Factors: Initiation Cide: UE_I	UE_I1	1,000	< .001	*	*
Entrepreneurial Intention Code: EI	EI1	0,652	< .001	0.878	0.545
	EI2	0,781	< .001		
	EI3	0,796	< .001		
	EI4	0,734	< .001		
	EI5	0,752	< .001		
	EI6	0,707	< .001		

Note: *CR & AVE cannot be computed for dimension UE_I as it is a single item scale

Table 3. Summary of the measurement model

To assess discriminant validity in this study, the Fornell-Larcker criterion (1981) was applied (Fornell & Larcker, 1981). This criterion involves comparing the square root of the average variance extracted (AVE) values for each construct with the correlations between that construct and all others. According to this rule, the square root of the AVE for each construct should be greater than its highest correlation with any other construct, indicating that a construct shares more variance with its own indicators than it does with other constructs. The results of this analysis, detailed in Table 4, successfully meet the criterion, demonstrating adequate discriminant validity according to the Fornell-Larcker rule.

1st Order	CR	AVE	UE_AS	EA_A&C	UE_D	EI	EA_E&J	UE_I	EA_S&S
UE_AS	0.850	0.740	0.860						
EA_A&C	0.869	0.689	0.035	0.830					
UE_D	0.846	0.646	0.480	0.014	0.804				
EI	0.878	0.545	0.018	0.298	0.005	0.738			
EA_E&J	0.874	0.634	0.032	0.487	0.030	0.491	0.796		
UE_I	*	*	0.360	0.010	0.427	-0.059	0.032	1.000	
EA_S&S	0.858	0.504	-0.025	0.554	0.022	0.415	0.601	-0.074	0.710

Note 1: The right-hand part of the table displays construct correlations and square roots of AVE on the diagonal.
Note 2: For full name of 1st order latent variables. please see Table 4
Note 3: *CR & AVE cannot be computed for dimension UE_I as it is a single item scale

Table 4. Construct Validation

Testing the Structural Model

The structural model was analyzed using a Bootstrapping algorithm in SmartPLS4, and the results are visually presented in Figure 2 and detailed further in Table 5. Out of the five hypotheses tested, two were supported (H3 and H5), while three were not supported (H1, H2, and H4). The direct effects of

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university factors on entrepreneurial intention (H1) and entrepreneurial alertness (H2) were found to be statistically insignificant. Consequently, the mediating effects of entrepreneurial alertness between university factors and entrepreneurial intention (H4) also lacked statistical significance. However, the direct effects of entrepreneurial alertness on entrepreneurial intention were statistically significant (H3), as were the moderating effects of GPA on the relationship between entrepreneurial alertness and entrepreneurial intention (H5).
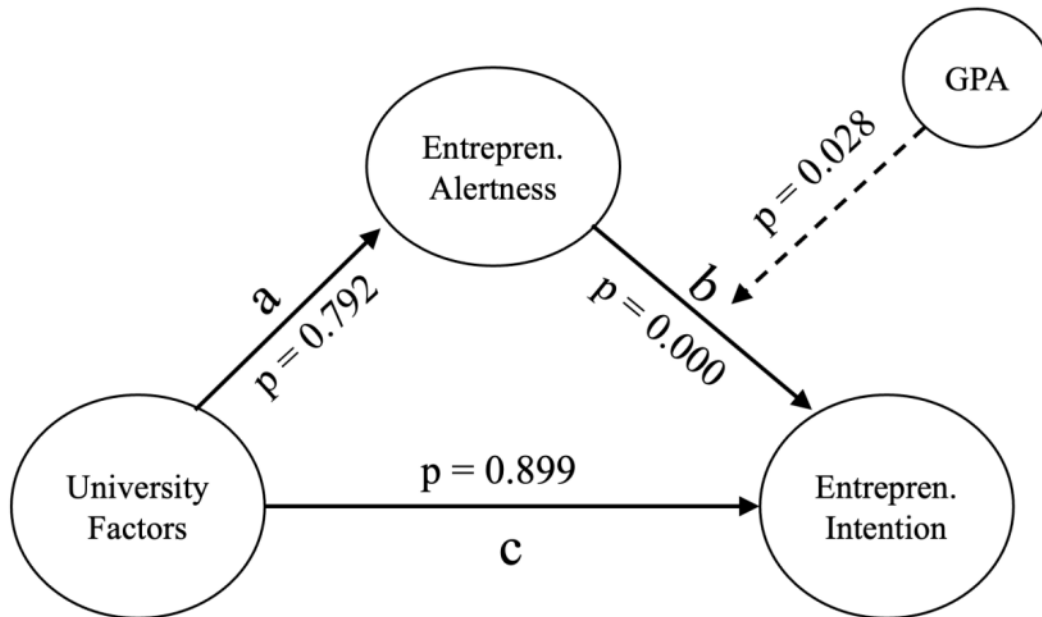
Figure 2. Results of the Structural Model

DISCUSSION AND CONCLUSION

This study aims to explore how university elements influence Omani students' entrepreneurial alertness and intentions. Despite extensive research in the field, the impact of university-related factors remains unclear. We propose that entrepreneurial alertness mediates the link between university influences and students' entrepreneurial intentions, with GPA acting as a potential moderating factor. The findings and key insights are outlined in the following sections.

Direct Effects

The table 5 below shows a detailed examination of the direct effects. It shows that university factors have a slight, positive yet not statistically significant influence on Omani students' entrepreneurial intentions (H1), with a *t*-value of 0.127 and a *p*-value of 0.899. Similarly, the impact of university factors on students' entrepreneurial alertness (H2) is also positive but not statistically significant (*t*=0.264, *p*=0.792). Consequently, both hypotheses H1 and H2 are not supported and have been rejected. These findings suggest that Omani universities may need to re-evaluate their approach to

fostering an environment conducive to entrepreneurship, such as enhancing the creative atmosphere, providing developmental support for student entrepreneurs, and promoting processes and networking for the development of new ventures.

On contrary, the relationship between entrepreneurial alertness and entrepreneurial intention (H3) is both positive and statistically significant, with a strong t-value of 10.797 and a p-value of 0.000. This indicates that improving entrepreneurial alertness could effectively boost the entrepreneurial intentions of Omani students.

H	Path in the Model	p	t-value	Status
Direct Effects				
H1	UE → EI	0.899	0.127	Not Supported
H2	UE → EA	0.792	0.264	Not Supported
H3	EA → EI	0.000*	10.797	Supported
Indirect Effects				
H4	EU → EA → EI	0.794	0.261	Not Supported
H5	EA → EI * GPA	0.028*	2.202	Supported

Note 1: *Significant at 95%
Note 2: For full name of latent variables, please see Table 2.

Table 5. Testing the Hypothetical Model

Indirect Effects

Table 5 provides an overview of the indirect effects. It shows that entrepreneurial alertness does not significantly mediate the relationship between university factors and entrepreneurial intention (H4). Although there is a small positive effect (t=0.261), the significance is not established (p=0.794), leading to the rejection of this mediating role, as path "a" in our model is not significant (refer to Figure 2). Despite H3 being supported, indicating significance in path "b", both paths need to be significant for a mediating effect, which is not the case here (EU →EA →EI with p=0.794 and t=0.261).

Conversely, GPA shows a significant moderating effect on the relationship between entrepreneurial alertness and entrepreneurial intention (H5), with a t-value of 2.202 and a p-value of 0.028. This suggests that students with higher GPAs may experience a stronger connection between their alertness to entrepreneurial opportunities and their intention to pursue entrepreneurship, as illustrated in Figure 2's simple slope analysis.
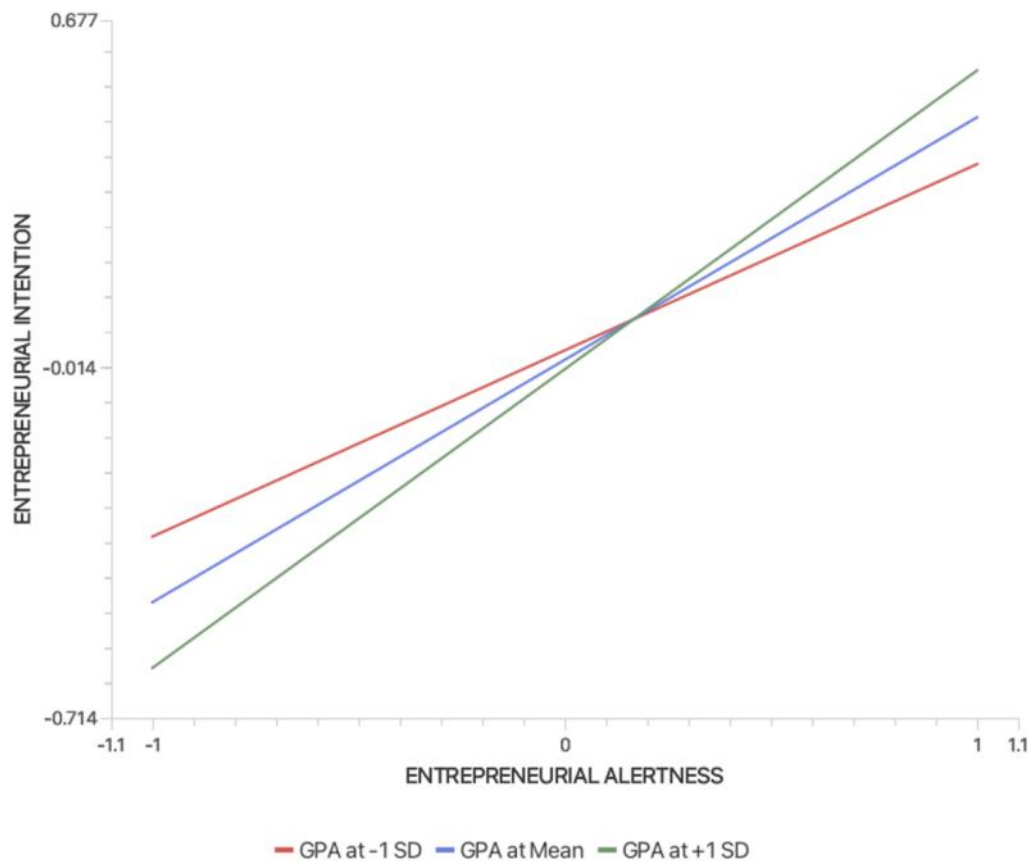
Figure 3. Simple slope analysis

Although some previous studies argue that there is a positive relationship between "environmental awareness" (del Brío González et al., 2022), the findings of this study align with previous research (Zhuang and Sun, 2023), confirming that university factors, in this case institutional factors, do not significantly impact students' entrepreneurial intentions. However, there is a clear and positive effect of entrepreneurial alertness on students' intentions to pursue entrepreneurship, confirming previous arguments (Araujo et al., 2023, Neneh, 2019).

Contrary to expectations, the potential mediating role of entrepreneurial alertness in the relationship between university factors and entrepreneurial intentions did not show statistical significance, which was not observed in previous studies.

Furthermore, and surprisingly, the study reveals that GPA plays a moderating role in the connection between alertness and entrepreneurial intention. This addresses the gap identified by Palalić et al. (2017), who suggested GPA as a potential influencing factor on entrepreneurial orientation and, subsequently, entrepreneurial intention. Upon additional scrutiny, this study did not find studies that confirms earlier research.

Finally, this study enriches the field of entrepreneurship by investigating the entrepreneurial intentions of students, highlighting that certain factors like entrepreneurial alertness and GPA can positively influence these intentions. In contrast, general university factors, potentially due to the specific context, do not strongly spur students' entrepreneurial actions.

Practical applications of these findings suggest that universities should offer more tangible entrepreneurial opportunities at the departmental level and consider financial incentives for aspiring entrepreneurs, given that the typical university environment doesn't directly enhance students' entrepreneurial ambitions. The significant, positive connection between GPA and entrepreneurial intentions suggests that while university learning methods are effective, there is always scope for refinement.

The study's *limitations* include its sample size, which could be expanded, and the need to consider the broader student population for more comprehensive insights. *Future research* could benefit from qualitative methods, like focus groups, to delve deeper into dynamics discussed above. Moreover, a regional comparison could shed light on the contextual elements that shape students' entrepreneurial intentions.

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ENTREPRENEURIAL JOURNEYS: A SYSTEMATIC REVIEW OF FEMALE MIGRANT ENTREPRENEURSHIP

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ABSTRACT

This systematic literature review addresses the field of female migrant entrepreneurship, recognising the significant socio-economic contributions and unique challenges faced by this population.

The study aims to elucidate how digitisation facilitates the empowerment of female migrant entrepreneurs, enhancing their economic and social integration and overcoming traditional barriers of geography and culture.

A systematic literature review was conducted using the Scopus and Web of Science databases, focusing on research published between 2014 and 2023 that intersects technology and migrant women's entrepreneurship.

The findings indicate that technology serves as a critical enabler for migrant women entrepreneurs, providing essential tools for market access, networking and social integration. Digital entrepreneurship is particularly helpful in balancing work and family responsibilities, especially in culturally restrictive environments. However, the study also identifies significant gaps in digital skills and access, which may hinder the full realisation of these technological benefits.

This research contributes to academic discussions by highlighting under-researched areas, such as the impact of digital marketing strategies and the potential downsides of technological dependence. It also highlights the need for targeted support to equip these entrepreneurs with the necessary digital skills.

The originality of this study lies in its focus on the synergy between technology and female migrant entrepreneurship, a relatively underexplored area in migration studies. By focusing on the aspect of empowerment through technology, this study provides a nuanced understanding of the challenges and opportunities at the nexus of migration, gender and entrepreneurship.

Keywords: Digital development, Barriers and Success Factors, Female Migrant Entrepreneurship, Ethnicity, Technology, Social Media.

INTRODUCTION

Migrant women's entrepreneurship is a rapidly evolving field with unique challenges and opportunities. The field is influenced by personal, structural and socio-cultural factors that influence the entrepreneurial journey of migrant women. Research has shown that these women entrepreneurs are driven by a combination of push and pull factors, including economic necessity, the desire for autonomy and the quest for greater social mobility (Baycan-Levent and Nijkamp, 2011).

The importance of this area of research is underlined by its alignment with the key goals of the UN 2030 Agenda for Sustainable Development, in particular Goal 5: 'Achieve gender equality and empower all women and girls', Goal 8: 'Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all', and Goal 10: 'Reduce inequalities within and between countries' (United Nations, 2023).

In addition, recent geopolitical conflicts, particularly in Ukraine and Palestine, have further complicated the migration landscape, resulting in large numbers of migrants seeking safety and new opportunities abroad. This phenomenon has increased the urgency of addressing the unique challenges and opportunities faced by migrant women entrepreneurs.

This study updates the existing literature (Chreim et al., 2018) by delving into the under-explored use of digital platforms, which have recently gained relevance and were still developing at the time of previous publications. It aims to identify how these technologies can overcome traditional barriers and facilitate market entry.

Research questions formulated to explore women's entrepreneurship in the context of digital innovation include:

- What are the main sources of training that guide migrant women entrepreneurs in the use of digital platforms?

- How do female migrant entrepreneurs use digital platforms?

- How do these digital platforms facilitate their market entry?

These questions guide the research, which focuses on the intersection of technology, entrepreneurship and personal life in the context of migrant women.

Preliminary findings suggest that technology acts as a catalyst for migrant women's entrepreneurship by providing access to previously inaccessible information, markets and networks. In particular, social media plays a crucial role in enabling migrant women entrepreneurs to disseminate ethnic traditions and customs, thereby strengthening their cultural identity and expanding their business opportunities.

In addition, digitisation assists migrant women in balancing their private and professional lives, while also reconfiguring roles within the family.

In conclusion, technology offers significant opportunities for migrant women entrepreneurs by facilitating access to key resources, increasing visibility and fostering community engagement. However, the challenges inherent in the technology sector and the digital divide underline the need for targeted support and education to fully exploit these opportunities.

METHODOLOGY

The methodology for developing the query of research in this study was outlined through findings from literature reviews focusing on two specific thematic areas: female migrant entrepreneurship and digital entrepreneurship platforms. The search terms for the first area were extracted from the 'Review of female immigrant entrepreneurship research: past findings, gaps and ways forward' (Chreim et al., 2018), which provided an in-depth overview of the challenges and social dynamics faced by female migrant entrepreneurs. Research terms used include: (immigration OR immigrant* OR migrant* OR ethnicity OR ethnicity) AND (woman OR female* OR gender OR female entrepreneur) AND (entrepreneur* OR SME OR small and medium-sized enterprise OR small and medium-sized enterprise). The time period was limited to texts published after 2014 to avoid including works that had already been covered in previous literature.

In parallel, the review 'Digital platforms for entrepreneurship: Mapping the field and looking towards a holistic approach' (Fernandes et al., 2022) highlighted the most frequently mentioned keywords in the field of digital entrepreneurship. These included 'business model', 'digital innovation', 'digital platforms', 'digital technologies', 'ecosystem' or 'entrepreneurial ecosystem', 'start-ups', 'co-creation', 'smart cities', 'entrepreneurial orientation' and 'shared economy'. These keywords reflect the main topics of interest and emerging trends in the field, thus outlining the current key issues in digital entrepreneurship.

The keywords extracted from the two literature reviews were pooled to identify common themes that intersect both female migrant entrepreneurship and digital entrepreneurship. This approach allowed for the definition of a multidisciplinary research strategy that encompasses both themes and aims to provide a more comprehensive understanding of current dynamics.

Both reviews were selected for their relevance as they each have over 100 citations on Google Scholar, indicating their significant impact and recognition in their respective fields.

For this systematic review, Scopus and Web of Science were chosen as reference databases due to their breadth and relevance in the academic research landscape. To ensure the transparency and

reproducibility of the data collected and analyses performed, specific search parameters were used in each database:

In Scopus, the search was carried out using the following criteria TITLE-ABS-KEY (("business model" OR "digital innovation" OR "digital platforms" OR "digital technologies" OR "ecosystem" OR "entrepreneurial ecosystem" OR "startup" OR "co-creation" OR "smart cities" OR "entrepreneurial orientation" OR "sharing economy") AND (immigration OR immigrant* OR migrant* OR ethnic OR ethnicity OR ethnicities) AND (woman OR women OR female* OR gender OR businesswoman OR businesswomen) AND (entrepreneur* OR sme OR smes OR "small and medium enterprise" OR "small and medium enterprises")) AND PUBYEAR > 2013 AND PUBYEAR < 2024 AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English"))

For the Web of Science database, the following parameters were used: TS= (("business model" OR "digital innovation" OR "digital platforms" OR "digital technologies" OR "ecosystem" OR "entrepreneurial ecosystem" OR "startup" OR "co-creation" OR "smart cities" OR "entrepreneurial orientation" OR "sharing economy") AND (immigration OR immigrant* OR migrant* OR ethnic OR ethnicity OR ethnicities) AND (woman OR women OR female* OR gender OR businesswoman OR businesswomen) AND (entrepreneur* OR SME OR SMEs OR "small and medium enterprise" OR "small and medium enterprises")) AND PY=(2014-2023) The results were refined by selecting only articles as the document type and restricting the language to English.

After applying the above search criteria, the results yielded a significant number of documents: Scopus produced a total of 26 relevant documents, while Web of Science produced 27 documents. The result was a total of 53 documents. Data collection was carried out in early 2024 to ensure that the information extracted was as up to date as possible at the time of the research and reflected the latest trends and issues in the field of female migrant entrepreneurship.

The selection of articles for this study was divided into three distinct phases: first, an initial screening was carried out to identify and remove duplicates in both Scopus and Web of Science, eliminating 15 papers and reducing the total number of papers to 38.

This was followed by a careful reading of the abstracts, which led to the exclusion of 17 papers considered marginal to the central theme, reducing the corpus to 21 articles. Where there was uncertainty about the relevance of the abstracts to the topic, they were nevertheless included in order to allow a full analysis of the text.

After reviewing the 21 articles, each was assessed for relevance to the topic. Four articles were not available in full text and were excluded from the analysis, reducing the total number of articles to 17.

This assessment then led to the exclusion of two further texts, further reducing the total number of articles included in the analysis to 15 (Figure 1).
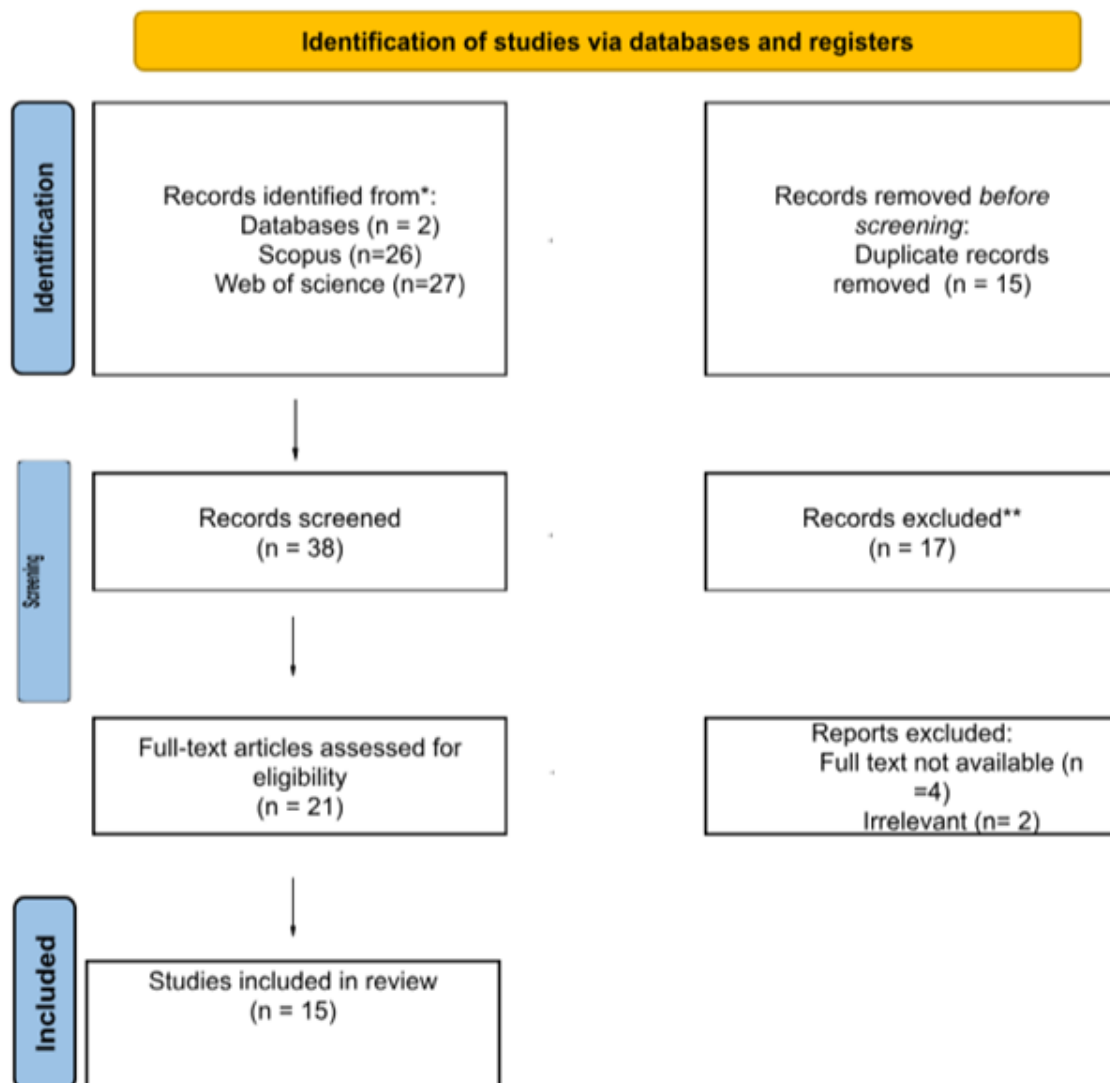
Figure 1. Reporting items for the systematic review (adapted the Preferred Reporting Items for Systematic Reviews (PRISMA) statement).

Number of publications
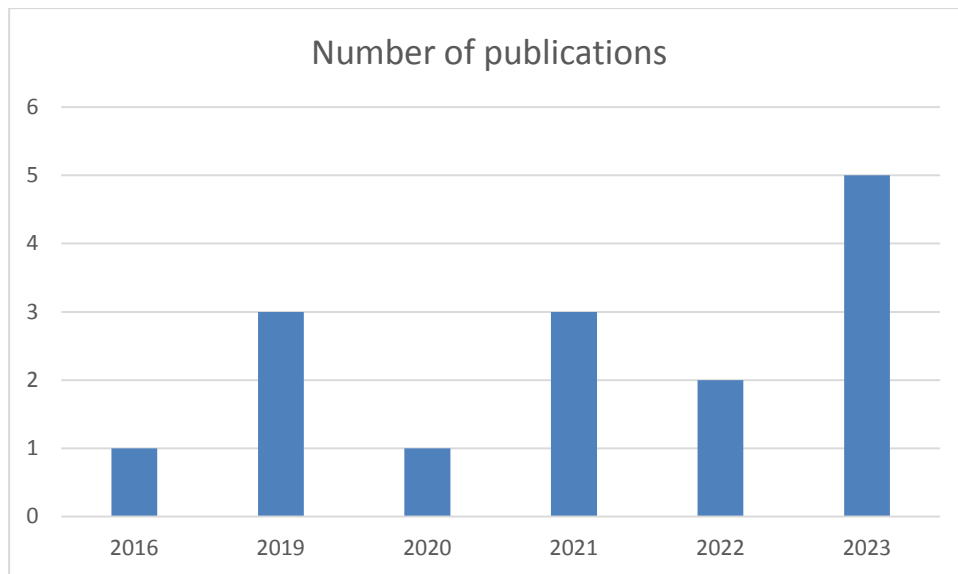
The documents examined show a recent interest in the subject, as shown in Figure 2. It should also be noted that 2023 is the year with the highest number of documents analysed.
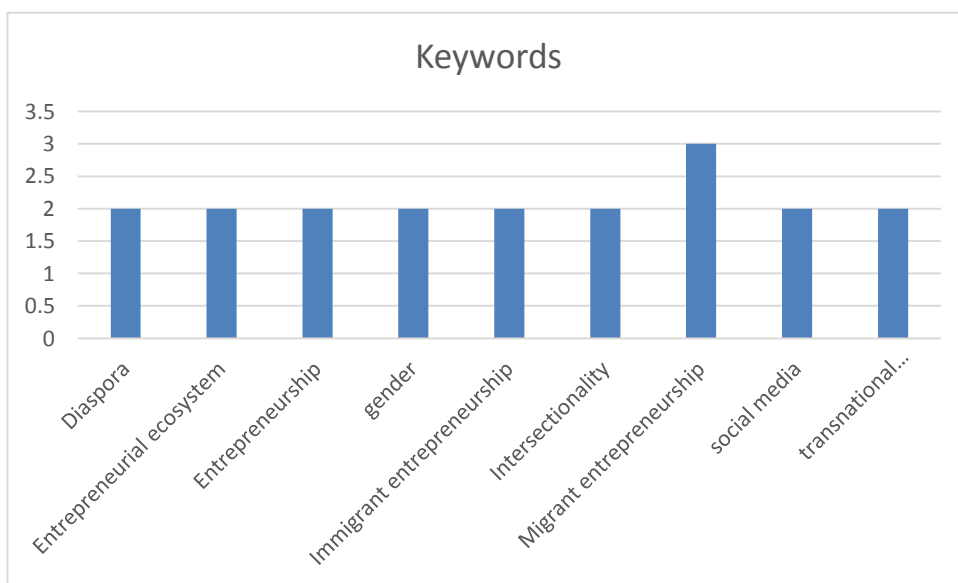
Keywords

The keywords most frequently used by the authors are shown in Figure 3, where it can be seen that 'migrant entrepreneurship' stands out as the most frequently used word.

The analysis carried out shows that most of the texts studied take a qualitative approach, as shown in the pie chart in Figure 4, which underlines the predominance of this method over quantitative studies. Consequently, the approach to the literature review will be qualitative, in line with this predominant trend.

Type of research

■ Quantitative ■ Qualitative ■

RESULTS

Entrepreneurship is traditionally a strategy adopted by migrants in contexts where access to employment opportunities is limited or hindered. (1) The main constraints include difficulties in meeting the necessary requirements to start a business, consolidating one's own clientele and mastering the local language.

Digital platforms are moving beyond their original function as communication tools to become real environments for migrant women's economic empowerment. In a migratory landscape characterised by hierarchies and inequalities, these technologies are becoming essential spaces for accessing job opportunities, achieving economic autonomy and creating mutual support networks between women.

These platforms are thus not only a means of achieving financial independence, but also of creating communities and social ties. (1) However, digitisation can also create further discriminatory challenges for offline entrepreneurs. (4)

Migrant women entrepreneurs are using digital platforms to overcome geographical barriers and access new markets. Among these, WeChat has stood out for its effectiveness in reaching customers in transnational contexts. (1;10) This platform also supports online payments through a 'red envelope' function and has gained popularity among migrants due to its untraceable nature: an advantage that is particularly relevant in contexts with severe government restrictions. (10) Piattaforme come eBay, Gumtree, Taobao, Amazon e Facebook rappresentano ulteriori strumenti cruciali per espandere i loro mercati, ampliando così la loro portata commerciale. (8;10;14)

Similarly, platforms such as Instagram and Facebook have been successfully used by migrant entrepreneurs to gain visibility and subsequently sell their products. (2;11;13) Access to these platforms is further facilitated by the widespread use of smartphones, which allow migrants to connect and do business instantly and flexibly. (1)

The popularity of these women entrepreneurs stems from their ability to play up their ethnicity, highlighting traditional products (such as 'hooded hijabs') and their ability to interact in multiple languages, attracting both a large international audience and the interest of multinational corporations. (2;13) This strategy of using ethnic and cultural resources allows women entrepreneurs to reach out to customers with similar backgrounds to their own, which is particularly important in the early stages of business start-up. During this period, many ethnic businesses tend to target mainly people from the same country of origin, often reached through social networks. This creates a solid and trusting base within their community. (3;5)

Another element that encourages networking and business expansion is the links created within faith-based organisations. These organisations provide training on issues such as customer care and business expansion, making them ideal places for women entrepreneurs to build and consolidate their clientele. Networking in these contexts provides vital support for businesses, facilitating the exchange of knowledge and resources that can significantly change business practices. (15)

Digital platforms are also crucial for maintaining a balance between personal and professional responsibilities. (1;8) However, a contrasting dynamic can be observed in the context of streaming activities used for product promotion. Live sessions, often followed by replays the next day, can undermine work-life balance, as evidenced by some cases of health problems related to the intense commitment required. (10)

Through digitalisation, these women entrepreneurs not only achieved financial independence, but also played a crucial role in reshaping traditional hierarchical structures within families, where the husband was often at the top. In some cases, despite initial opposition from their husbands, women entrepreneurs have managed to establish themselves as leaders. (15) This process has enabled women not only to assume leadership positions, but also to significantly influence family dynamics. (1;10)

In addition to economic aspects, the motivations for starting a business and subsequently digitalising it can be traced back to the development of personal skills and self-fulfilment. The texts also show that the territorial context in which the entrepreneurs are immigrants (such as Orlando and Silicon Valley) plays an important role as a push factor towards digital entrepreneurship. In these cases, a higher level of digitisation is highlighted, including the creation of iOS applications. (6;14)

A crucial aspect of the initial support for these entrepreneurial activities is funding from family members and personal connections. In the early stages, many immigrant entrepreneurs rely on resources within their community network to obtain the necessary capital to start and sustain their businesses until they become self-sufficient. (7) Digitalisation and the adoption of remote services play a key role in this context, facilitating financial exchange and communication between women entrepreneurs and their support networks, regardless of geographical distance.

The adoption of e-commerce offers the possibility of expanding their customer base and reducing the costs associated with sales and communication, thereby significantly increasing the income from their entrepreneurial activities. (8)

Digitisation of businesses can lead to significant improvements in production systems, as demonstrated by the case of a hospital entrepreneur who implemented digital solutions in hospital management, significantly improving the efficiency of patient registration processes. In this context, the European Bank's support was crucial for the purchase of the computers used to optimise the hospital's operations. (9)

In addition, the COVID-19 pandemic has had a lasting impact on the management practices of businesses in recent years, with digital promotion emerging as a crucial component, especially following the forced closure of businesses and the significant reduction in people's mobility. These circumstances have particularly affected the tourism and hospitality sectors, where many businesses have experienced significant difficulties. The adoption of digital marketing strategies has become essential to maintain contact with customers and mitigate the effects of the restrictions imposed. (11;12)

In addition, the COVID-19 pandemic caused school closures and affected the health of loved ones, increasing the domestic and personal responsibilities of women entrepreneurs and reducing the time available for their businesses. However, digitalisation has provided these women entrepreneurs with tools to mitigate the negative effects, allowing them to continue running their businesses flexibly and remotely.

Digital tools, as described above, are easily accessible, but access alone is not enough. It is also crucial to have the knowledge and skills to use them effectively. In addition, because they are in a new context, migrant women entrepreneurs face additional difficulties in finding support to set up their businesses, which can further complicate the digitisation process. (1;6;8)

Also emerging in the digital entrepreneurship landscape are key figures such as accelerators, programmes specifically designed to help migrants start and develop their businesses. These accelerators provide not only the necessary technical resources, but also support, training and access

to professional networks. These projects are essential for businesses to better present themselves to investors and obtain funding, thus helping to overcome initial barriers and speeding up the process of business creation and growth. (6;11;14) However, it has been observed that older migrants and those who do not speak the local language find it particularly difficult to acquire the necessary digital skills. In many cases, younger participants took a proactive role in supporting their older colleagues, highlighting the importance of intergenerational interaction and mutual support within these programmes. This dynamic not only facilitates learning, but also strengthens the cohesion and overall effectiveness of the acceleration programmes. (11)

CONCLUSION

Systematic literature reviews play a key role in academia, providing scholars and practitioners with an effective tool for understanding the breadth and depth of existing research on specific topics.

This study, which focuses on migrant women's entrepreneurship and the role of technology, demonstrates how such reviews can serve as a basis for applying the knowledge gained to targeted social policies and initiatives. Through an in-depth review, different aspects of the phenomenon have been explored, highlighting the growing importance of technology as a vehicle for integration and entrepreneurial development.

It is important to note that the selection of data extraction dates for this systematic review was made with the aim of including the most recent research and studies, thus ensuring that the analysis is a valuable resource for academics and practitioners interested in the latest dynamics of migrant women entrepreneurship in the digital age.

The analysis revealed that the abstracts and texts examined lacked crucial information, such as the date of data collection, the nationality of the migrants and the country in which they currently reside. These omissions represent an important opportunity for future research and highlight the need for a more detailed and specific approach to the study of migrant women's entrepreneurship.

The analysis also highlighted how the use of digital platforms can create both opportunities and challenges for female migrant entrepreneurs, depending on several factors such as local context, age, language skills and mastery of digital tools.

Programmes aimed at mitigating the negative impact on these women entrepreneurs are therefore essential. Such initiatives should not only provide technical skills related to technology and innovation, but also promote cultural and linguistic integration, thus avoiding the risk of relegating migrant women to stereotypical roles and limiting their participation in more innovative and technologically advanced sectors.

The lack of studies examining the tangible benefits of such projects suggests a lack of empirical evidence in the current literature.

Future research is therefore recommended to provide an empirical basis for assessing the effectiveness of these training and integration initiatives. The lack of research in this area signals a significant gap and underlines the urgent need for empirical research into the specific effects of such programmes.

It is important to recognise that any literature review has a number of challenges and limitations. The choice of search terms, as well as the organisation of the work, can significantly influence the results obtained, sometimes leading to conclusions that differ from those of previous work.In this case, the research delved into the specific topic of innovation, moving away from the themes of previous literature. This choice was driven by a desire to explore in more depth how new technologies and digital innovation can influence and support migrant women's entrepreneurship, an area rich in potential but relatively neglected in previous academic discussions.

In addition, this systematic review highlights another significant gap in current research: the insufficient analysis of the side effects of technology on migrant women's entrepreneurship. Despite the many benefits of technology and digitisation, there is a real risk that they may exacerbate social inequalities and widen the gap between those who have access to new information and communication technologies and the skills needed to use them and those who are excluded.

Another area for further development concerns the social marketing strategies used by immigrant entrepreneurs, in particular whether they choose to maintain their cultural traditions or adapt to the context. The choice between emphasising one's cultural roots or adapting to the norms of the target market can have a profound impact on public acceptance and business success. In this context, it would be particularly interesting to initiate a comparative study of women entrepreneurs of the same nationality but operating in different countries, in order to verify whether they adopt different social marketing strategies by adapting to the specific context or whether common features emerge regardless of the country of operation.

The main limitation of this research is the limited number of texts analysed. This circumstance reflects a lack of attention to the topic in academia, suggesting a significant gap in the existing literature on female migrant entrepreneurship and the role of technological innovation. The limited availability of in-depth studies and research on the topic highlights the need for greater engagement by the academic community.

Classification	Publication Year	Authors	Article Title	Journal
1	2021	Zani, B.	Chicken Feet, Hidden Parcels and Connected Entrepreneurs: Migration and Digital Entrepreneurship between China and Taiwan	SOCIOLOGIE DU TRAVAIL
2	2022	Punathambekar, A., Giese, J., & Bisht, D.	Curating new ethnicities in a digital era: Women and media work in the British South Asian diaspora	INTERNATIONAL JOURNAL OF CULTURAL STUDIES
3	2019	Bijedić, T., & Piper, A.	Different strokes for different folks: The job satisfaction of the self-employed and the intersection of gender and migration background	INTERNATIONAL JOURNAL OF GENDER AND ENTREPRENEURSHIP
4	2023	Evansluong, Q., Grip, L., & Karayianni, E.	Digital ethnicity affordances: from a liability to an asset in immigrant entrepreneurship	INTERNATIONAL JOURNAL OF ENTREPRENEURIAL BEHAVIOR & RESEARCH
5	2021	Patrickson, M., & Hallo, L.	Female immigrant entrepreneurship: The experience of chinese migrants to australia	ADMINISTRATIVE SCIENCES
6	2020	Lee, J. Y., & Lee, J. Y.	Female Transnational Entrepreneurs (FTEs): A Case Study of Korean American Female Entrepreneurs in Silicon Valley	Journal of Entrepreneurship and Innovation in Emerging Economies , 6(1), pp. 67–83
7	2023	Hadri, V., Dvouletý, O., Bögenhold, D., & Sawy, A.	How Family and a Migrant Background Influence Family Entrepreneurship: Findings from a Systematic Literature Review	FIIB BUSINESS REVIEW
8	2022	Dy, A. M.	Levelling the playing field? Towards a critical-social perspective on digital entrepreneurship	Futures

9	2021	Aman, R., Ahokangas, P., & Zhang, X.	Migrant women entrepreneurs and entrepreneurial ecosystems during an external shock: a case study from the healthcare sector in Kazakhstan	Asian Business & Management
10	2023	Yang, M., & Pang, C. L.	Strategic Cosmopolitanism: Chinese Female Jadeite Live Streamers in Ruili	COSMOPOLITAN CIVIL SOCIETIES-AN INTERDISCIPLINARY JOURNAL
11	2023	Denes, A., & Boonyasurat, W.	Supporting ethnic craftswomen in Chiang Mai through digital media: acknowledging the possibilities and challenges	INTERNATIONAL JOURNAL OF INTANGIBLE HERITAGE
12	2016	Vieira, E	THE WOMAN ENTREPRENEUR IN THE DIASPORA IN THE ALGARVE	REVISTA GENERO & DIREITO
13	2023	Kabbara, D., & Zucchella, A.	Transnational entrepreneurship. Insights from female entrepreneurs in the modest fashion industry	JOURNAL OF INTERNATIONAL MANAGEMENT
14	2019	Neumeyer, X., Santos, S. C., & Morris, M. H.	Who is left out: exploring social boundaries in entrepreneurial ecosystems	JOURNAL OF TECHNOLOGY TRANSFER
15	2019	Gbadamosi, A.	Women-entrepreneurship, religiosity, and value-co-creation with ethnic consumers: revisiting the paradox	Journal of Strategic Marketing

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EXPLORING GREEN BOND MARKET IN INDIA: GROWTH CHALLENGES, INFORMATION ASYMMETRY AND THE WAY FORWARD

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ABSTRACT

Green bonds are considered globally to be an important aspect in green financing. Green Financing discussions have taken a center stage in many global forums due to its contribution in sustainable development. Though awareness about green finance and green bonds, has increased worldwide, a lot of challenges still exist in terms of information asymmetry and lack of systematic initiatives in increasing its market size in developing countries. This study attempts to explore the history, current status, growth trajectory and challenges for future expansion of the green bond market in India. The challenges for green bond market are visible from the fact that many private and public companies, as well as some local bodies within India, have issued green bonds in recent years but the growth is quite limited. The study examines the important issue of expediting the growth of green bond market in India and increasing the green financing by attracting foreign and domestic funds to meet the investment requirements for the renewable energy and other sustainable development objectives. The results highlight certain critical challenges for growth of green bond market in India, such as: information asymmetry, lack of systematic policy and communication initiatives, currency risk, corporate default risk, liquidity risk in the bond market, etc. The study also proposes a framework of systematic initiatives for resolving the growth challenges of the green bond market in India which will bridge the gap in the extant literature and would be useful for industry practitioners, policy makers and researchers in this area.

Keywords: Green Bond, Bond Market, Green Financing, India INX, Green Energy, Information Asymmetry, Communication Initiatives

INTRODUCTION

Green finance refers to the sources of finance targeted for projects oriented toward the sustainable development of the economy (Ranjan et al., 2022). United Nations Environment Programme (UNEP) website defines green financing as a mechanism to increase finance flow from the public, private, and

not-for-profit sectors to projects meant for sustainable development. Green bonds are financial instruments issued to fixed-income-seeking investors, and the funds raised through them are focused on green financing projects (Debrah et al., 2021). The primary objective of green projects is to develop products or technology to reduce greenhouse gas emissions or clean energy (Syzdykov & Masse, 2019).

The green bonds are relatively a new instrument for developing and underdeveloped economies. This paper contributes to the growing literature on green finance in India by focusing on the green bond market-its present status, challenges, and opportunities. The paper presents the history of the green bonds market in India, documents the awareness trend about this new instrument in the Indian market, and compares it with Brazil, Russia, and China. The paper also presents regulatory provisions for the green bond market in India and policy measures required to promote this relatively new instrument. It tries to trace the challenges of information asymmetry in the green bond market and attempts to lists some solutions to resolve the issue to a greater extent.

The growth of green bonds in recent years has been termed a 'Green bond boom' by practitioners (Morgan Stanley, 2017, see Figure 1 for the geographical map of green bond issuing countries). The possible reasons for growth are increasing awareness about this new instrument (Shishlov et al., 2016) and the observable impact of changing climate on financial assets (Caldecott, 2017). The impact of green bonds on the environmental performance of the issuer has also been found significant and positive (Flamer, 2020). Additionally, green bonds are a cheaper source of debt funding than conventional bonds (Reboredo, 2018). Investors' appetite for green bonds has also resulted in their fast acceptance (Pham, 2016) in developing nations. In particular, investors from carbon-intensive sectors, and regions have preferred green bonds more over traditional debt investments (Byrd & Cooperman, 2018).

However, the growth of green bonds has remained concentrated in some parts of the world as shown in Figure 1. The developed economies have gained from the first mover advantage by issuing large numbers and amounts of both domestic and transnational green bonds. Emerging markets have not shown praiseworthy progress in raising green funds (Nguyen et al., 2023). China is the only emerging economy that stands second to the US in raising total green finance through green bonds in 2022 but ranks eleventh in the total fund-raised ranking across countries. India's growth has also remained tepid and ranks 20th in the overall ranking.

One of the reasons for this could be the great amount of information asymmetry which exists in the awareness about green bonds in India as well as the rest of the world. There appears to be very

less research work done in this area. As pointed out by Gao, Y, and Jochen M. S. (2022), in the IMF working paper, academic research works in the green bond area mostly focus on empirical aspects of the green bond market and have discussed the price premium and a few others talk about the green or sustainable aspect of green bonds. Gao, Y. and Jochen M. S. (2022) highlight the information asymmetry that exists between bond-issuing firms and the bond purchasing investors.

The findings suggest that in India, the awareness about green bonds has increased over the 2004-2022 period and is highest among all BRIC nations. But, due to the absence of comparable quality physical infrastructure and currency controls, India ranks lower among the Asian financial markets. The study also highlights default risks due to currency risks from the foreign currency green bonds issued by Indian companies. Section I of the paper is an introduction. Section II through an extensive literature review tries to examine the background, growth history and challenges in front of development of green bonds market in India. section III presents the methodology and the need for green bonds and the current status of the green bonds market in India. Section IV documents the findings including the information asymmetry issues about green finance in India and compares it with the awareness trend data of global and BRIC nations and Section V discusses conclusion.

LITERATURE REVIEW

Bonds are traditional financial instruments used in project financing widely to either finance or refinance projects (Weber & Feltmate, 2016). Green bonds are repackaged traditional bonds intended to meet the debt funding requirements of sustainable projects (Inderst et al., 2012). However, issues related to fund diversion, insufficient investment, etc. have been reported in many studies, commonly termed 'green washing' (Ntsama et al., 2021). Market anomalies resulting in yield differences between normal bonds and green bonds, commonly known as 'greenium', have been reported in the literature (Agliardi & Agliardi, 2019).

Green bonds have been reported as a cheaper source of project financing than conventional bonds (Reboredo, 2018, Karpf & Mandel, 2018, Agliardi & Agliardi, 2019) and the possible reason for this has been cited as the 'reputation effect of the green bond'. However, the theoretical explanation of this is not yet much explored, but Agliardi & Agliardi (2019) found that lower corporate tax is one of the explanations for the greenium effect. Though in limited literature but a higher premium for green bonds has been reported (Ning et al., 2022). The explanation of low liquidity has been cited as the reason for this liquidity premium (Febi et al., 2018). Though it seems justified from the market premium for illiquidity perspective but such a premium doesn't exist for long as market liquidity

improves. No significant difference in premium has also been reported in the literature citing reasons for unwillingness to sacrifice the returns (Hyun et al., 2019).

Azhgaliyeva et al. (2020) report that investors assigning higher weightage to the environmental and sustainability aspects than to economic gain are extending funding support to green bonds. There are some focused funds intended to invest only in sustainable projects such as Amundi Planet Emerging Green One (EGO) fund extending funding to green projects in emerging economies. Such recent development in emerging economies-focused funds has provided relief to the issuers of these markets. Real Economy Green Investment Opportunity (REGIO) funds are also another fund category targeting investment in real economy firms of emerging markets.

The available literature related to the market-microstructure of green bond markets is focused on developed economies as green bond markets in developing and underdeveloped economies are not vibrant and only limited data are available (Ntsama et al., 2021; Ranjan et al., 2021). The reasons for the non-development of the green bond markets in developing and underdeveloped nations are many ranging from political instability, information asymmetry, high taxation, poor market infrastructure, etc. (Ngyyen et al., 2023; Amuni-IFC, 2020). Ng (2018) in his China-based study report that stable financing is essential for infrastructure project development in emerging economies and hence, green finance can be alternative to bank funding. The history of delays in infrastructure projects has created a negative sentiment among investors in extending funding to infrastructure projects (Tolliver et al., 2019) and hence, information asymmetry about bond proceeds, fund utilization, and project status must be shared with investors (Biddle et al., 2019).

The emerging nations require a huge investment in infrastructure assets such as highways, airports, waterways, etc. to improve their physical infrastructure of the country (Ramamurti, 2003). The burgeoning debt-to-GDP ratio, average stands at 250% in 2022, of emerging economies impacts the further borrowing capacity and also makes credit available at higher costs hence, even a few basis points of reduction in the borrowing cost may reduce the interest burden on these economies significantly. Awareness about green bonds in emerging markets is also less than in developed markets (Ranjan et al. 2021).

RESEARCH METHODOLOGY

The paper presents the historical perspective of the green bond market and computes ranking of India among all countries who raised funds through green bonds during 2014-2022. The study also explores the need of green bond markets through the lens of sustainability targets for India. The

evolution of green bond market in India has been presented through pictorial representations of the data collected from climate bonds initiatives. Also, we captured the public awareness about green bonds through 'google trend' data and presented the comparative analysis of BRIC nations.

Tracing the Growth of the Green Bond Market

The first green bond documented in the global financial market dates back to 2007 and was issued by European Investment Bank (EIB) named Climate Awareness Bond to finance renewable energy and energy-efficient projects. A year later, in 2008, The World Bank issued green bonds to a private group of investors. Substantial growth in this segment was observed post-2014. Table 1 shows details of green bonds issued in global markets since 2014.
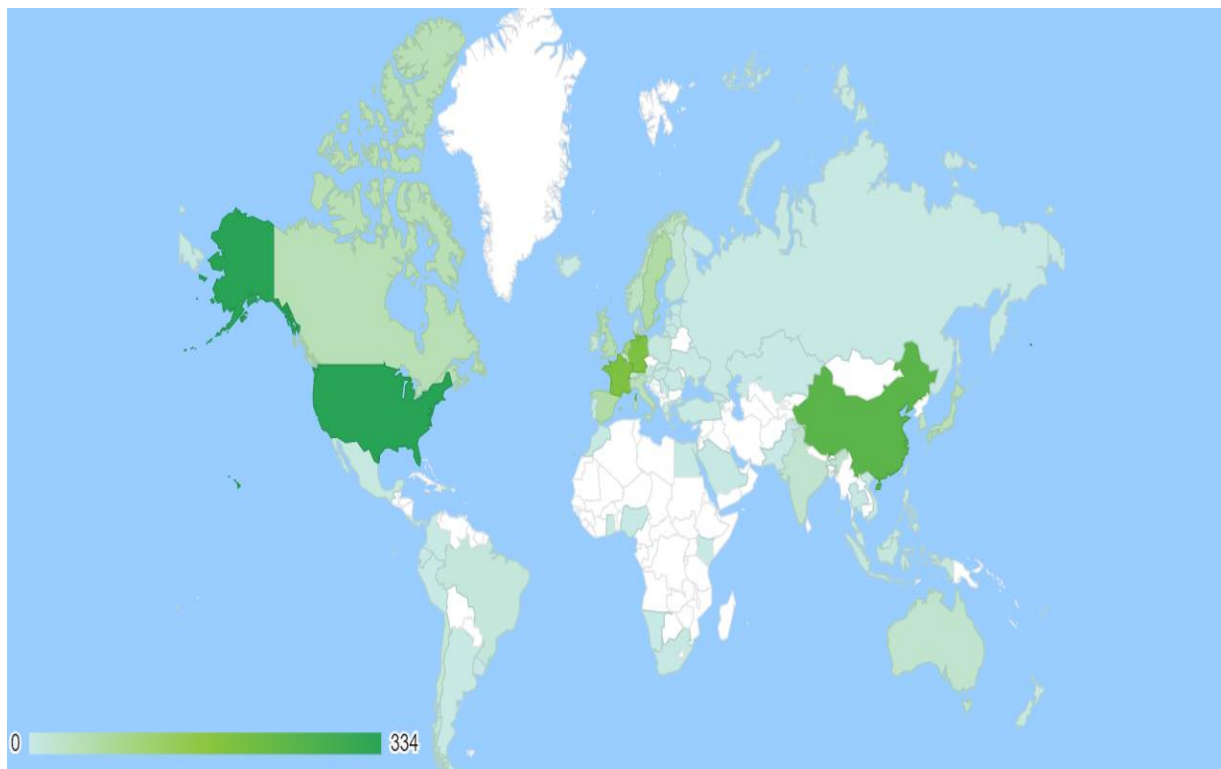
Figure 1: Geographical Presence of Green Bonds on the World Map

Source: Climate Bonds Initiative

Between 2014-2020, total funds raised through green bonds had grown at a compound annual growth rate (CAGR) of 41% in the global market, while the growth rate for the developed market was about 36.5% during the same period. The fund-raised through green bond data trend for emerging markets shows a tepid growth indicating slow acceptance of green bonds the emerging markets, including India.

Global Business Transformation in a Turbulent Era

The raised fund achieved good momentum in 2017 in which total funds raised through green bonds in the global market were US$159.7 billion, of which a major portion, about US$ 116.7 billion, was contributed by developed markets.

Year	Total Raised Fund (Including Supranational)	Developed Markets	Emerging Markets	Indian Market	Rank of India
2014	37	26.8	0.8	0	
2015	46.2	34.2	3.6	1.2	9/19
2016	84.5	47.8	26.5	1.6	8/28
2017	159.7	116.7	33.4	4.3	8/39
2018	172.6	119	40.8	0.7	25/48
2019	271.4	197.9	58.8	3.1	17/51
2020	305.7	242.2	49.7	1.09	32/52
2021	578.4	425.4	122.1	8	14/47
2022 H1	211	133.5	58.5	2.2	26/39

Table 1: Fund Raised through Green Bonds in various Markets (data in billion US$)
Source: author's representation of the data from climatebonds.net/market/data

Table 1 shows year-wise funds raised through green bonds in various global markets since 2014. Column one presents the total raised fund through the issuance of bonds in domestic and international markets. Columns two, three, and four show green bonds in developed, emerging, and Indian markets. Column five shows the rank of India in raising funds through green bonds among all fundraising nations. This rank is based on the position of India upon the arrangement of raised funds in descending order for a particular year out of a total number of green bonds issuing countries. For example, 9/19 represents the 9th rank out of 19 green bond-issuing countries in 2015.

In 2020, emerging markets showed a decline in the raised fund through green bonds. From US$ 58.8 billion in 2019, it fell to US$ 49.7 billion in 2020. A possible reason for this decline may be the eruption of COVID-19 in 2020 across the globe. Due to COVID-19, investment risks in emerging markets grew, so investors either avoided or postponed their investment decisions. Due to this reason, corporates also hesitate to issue securities during highly uncertain periods.

India's ranking dropped from 9th out of 19 countries in 2015 to 32 out of 52 countries in 2020. Also, table 1 shows that the pace of fundraising in the global market in aggregate increased between 2014 to 2020. But the emerging markets showed a highly volatile trend of raising green funds over this period. The same inconsistent pattern applies to the Indian market as well. This data trend is an eye-opener for Indian policymakers who announced a mammoth task under the COP-26 meeting held in 2021.

The green bond is a relatively new instrument in the Indian financial market; hence, there is a dearth of academic literature focused on the Indian green bond market. Some related papers explore

the status and opportunities of green finance instruments in India and conclude that only 8 out of 18 green finance instruments found in other countries are available in the Indian market (Sarma et al., 2021).

Green Bond Market and Sustainability Targets: Need Analysis

India has made an ambitious target of achieving 450 GW of additional renewable energy (RE) generation by the year 2030, as announced by Prime Minister of India, Mr. Narendra Modi, at the United Nations Climate Change Conference of the Parties (COP-26) held in November 2021 in Glasgow. For India, this targeted capacity is around 4.5 times the installed RE capacity as of September 2021 (Deorah et al., 2021). To achieve this, power-generating companies require funding of US$200 billion per year till 2030 as per the Council on Energy, Environment, and Water (CEEW) Centre for Energy Finance. Transmission and distribution companies will require additional capital on and above this amount. The International Finance Corporation (IFC) estimates a funding requirement of US$300 billion per year till 2030 to achieve this (Mitra et al., 2020).

This RE power generation target seems highly ambitious. Still, it is an urgent demand of the time as India is consistently moving up in the ranking of the country having the worst air quality year on year and stands at 3 in 2020 (as per the ranking of IQAIR). In 2019, it was in 5th place in this ranking when 21 out of the 30 most populated cities of the world were in India (IQAIR). The distribution of greenhouse gas (GHG) emission sources suggests that electricity generation is the primary source (39.5%) of air pollution in India, followed by road transport (8.6%) [See Table 2] of GHG. Hence, curtailing this emission by focusing on RE generation may immediately arrest the primary concern source.

Source	% Contribution
Electricity Generation	39.5
Road Transport	8.6
Enteric Fermentation	7.8
Cement	5.6
Iron and Steel	4.7
Other	33.8

Table 2: Emission sources of Green House Gases in India
Source: Author's representation; Data Source: India Third Biennial Update Report to the United Nations Framework Convention on Climate Change.

Further, the rising urban population has created an excessive strain on energy consumption, leading to poor air quality (Gurjar et al., 2016). It is essential to mention that India's power generation

has remained inclined towards thermal power generation since its independence in 1947. Around 47% of the sources of city pollution are directly or indirectly related to energy consumption; hence, shifting the source of power generation towards RE is one of the most crucial tasks for the government in this direction. However, as discussed in the next section, the government's challenge is providing funding opportunities to power generation companies for these RE projects.

In India, traditionally, banks and non-banking finance companies have remained priority funding avenues for power projects. But these institutions are currently struggling with rising non-performing assets and corporate defaults. The government, an alternate source of financial assistance to infrastructure projects, is also stressed with a high debt-to-GDP ratio. India's debt-to-GDP ratio is increasing and has remained above the tipping point of 64% since 2015, as defined for emerging economies (Grennes et al., 2013). This means that raising further public debt to finance these projects would hurt the real annual growth of the economy. Therefore, private debt remains the most viable option for these RE projects. Indian companies have jumped on this route and have arranged around US$ 5.1 billion in 2021 by issuing green bonds in foreign markets. The investors oversubscribed these issues; hence, issuers have shown pricing power also in further fundraising. However, history suggests that Indian corporates have witnessed defaults in meeting the obligations of foreign currency bonds primarily due to currency risk arising from less developed derivate markets in India. Thus, the currency risk can't be ignored for these recently launched foreign currency green bonds as well. Hence, the need of the hour is a well-developed domestic green finance bond market.

Evolution of the Green Bond Market in India

In the Indian market, the first green bond was issued in the year 2015 by Yes Bank Limited to raise green funds amounting to Indian Rupees 5 billion. The objective of this fund was to provide funding for renewable and clean energy projects. This bond was issued for a coupon of 8.85% with a maturity of 10 years. The issued bonds were listed on the Bombay Stock Exchange (BSE). However, green bonds as a source of finance have not been much accepted by Indian financial corporates but non-financial corporates [see Figure 2].

	2017	2018	2019	2020	2021 H1
Non-Financial Corporate	50.9	0	96.2	60.9	93.9
Government Backed Entity	46.7	100	3.8	39.1	6.1
Financial Corporate & Local Government	2.3	0	0	0	0
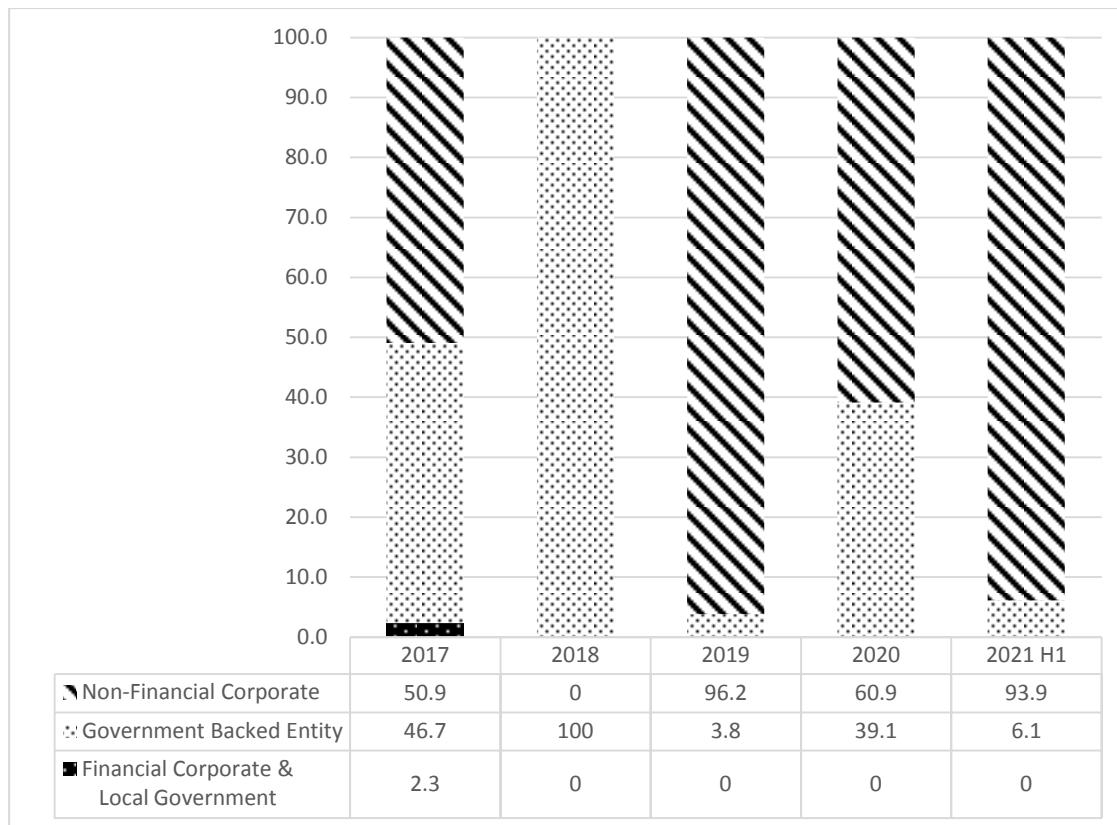
Figure 2: Indian Green Bonds by Issuer Type (in Percentage)
Source: Author's representation of the data collected from Climate Bonds Initiatives

The figure shows green bonds issued in the Indian market by various issuers from 2017 to the mid-year of 2021. The data presented are in percentage and show that from 2019 onwards, non-financial corporates have raised a significant portion of the total funds through green bonds in India.

In 2017, 50.9% of the fund raised by issuing green bonds were from non-financial corporates, and 46.7% were from government-backed entities. Financial corporates and local governments issued only 2.3% of the total funds. Surprisingly, in 2018, all green bond issues were done by government-backed entities; in 2019, around 96% of the funds raised through green bonds were done by non-financial corporates. In 2020, government-backed entities became active again and contributed to 39% of the total funds raised through green bonds. This shows inconsistency in the contribution of the total green funds raised by Indian corporates.

Acceptance of the green bonds issued directly by the Indian corporates sent a positive sentiment about the investors' attitudes and preferences. Also, it saves margin for the project firms as the absence of financial firms saves profit margin eaten by them in borrowing and lending activity.

But for small but credit-worthy project-sponsoring firms, raising funds directly would be a challenge, particularly under poor market sentiments.

As of March 2022, there are two international green bond exchanges in India- India International Exchange IFSC Ltd. (India INX) and National Stock Exchange IFSC Limited (NSE IFSC). India INX is the first international exchange located at Gujarat International Finance Tec-City (GIFT City). It is a subsidiary of the oldest stock exchange in India, the Bombay Stock Exchange (BSE), and started its operations on January 16, 2017. Following the guidelines prescribed by ICMA's Green Bond Principles and Climate Bond Initiative, India INX offers a platform for global investors to invest and trade in Indian green bonds. Till March 2022, 10 Indian corporates have issued green, social, and sustainable bonds of US$ 10.52 billion on India INX.

NSE IFSC, incorporated in 2016, is a subsidiary of the National Stock Exchange (NSE), India. It started trading operations on 5th June 2017. The green bond issued by the Indian Railway Finance Corporation Limited (IRFC) can be traced as the first green bond issued and listed on this exchange. IRFC issued this listed green bond in 13-Dec-2017 but was listed on the IFSC platform on 30 July 2021. This green bond issued by IRFC was for US$ 500 million with a maturity of 10 years and a coupon rate of 3.835%. IRFC issued another green bond on 21-Jan-2022 with maturity on 21-Jan-2032. This bond was listed on the exchange on 2-Jan-2022.

In April 2021, Ghaziabad Municipal Corporation (GMC) issued the first municipal green bonds in the Indian market and listed them on BSE. The issue raised Rupees 1.5 billion through a 10-year bond at a coupon rate of 8.1% per annum. The proceed will be used to construct a tertiary sewage treatment plant.

Thus, it can be concluded that green bonds have been accepted well, albeit slowly, by Indian corporates mainly issued by non-financial corporations. Initiation of bond issuance by local bodies such as municipal corporations is a welcome move and requires a lot of policy-level push from the government to achieve the target.

The green bonds have been successful in catching the attention of investors due to the increasing concern for environmental sustainability, and the call for fostering sufficient investments to finance sustainable environment goals (Syed, A.A. et al. 2022). Despite that, there is a dearth of data in terms of sources and availability of green bonds in the global market. A critical challenge exists for green bond market development and that is, information asymmetry related to environmental impacts and greenwashing-related reputational risks (Suk Hyun et al., 2022). On the supply side, there

is a lack of targeted initiatives for developing a good reputation amongst stakeholders to get positive investor recognition and catch the attention of a more diversified investor base (Flammer 2021). Many researchers believe that there is an increasing demand for disclosure and that more disclosure will reduce information asymmetry (Healy and Palepu, 2001).

Hahn and Kühnen (2013) in their research state that overall, the concept of sustainability itself is a specific example of information asymmetry because of the information gaps that exist between external investors and stakeholders and company management related to sustainability practices. To get a piece of credible information on an issuer's sustainability performance is very difficult and costly. Flammer (2021) mentions about company's environmental commitment to investors which gives them the benefit of building a strong reputation as a company with environmental consciousness. But with an absence of any legal or compulsory requirement of reporting, issuing green bonds does not generate enough credibility. Thus, a big information asymmetry exists in this case. This is also highlighted in the work of Gao, Y., and Jochen M. S. (2022), wherein they mention the need for disclosure and reporting requirements which might substantially increase the greenwashing costs and therefore reduce greenwashing. They also assert the need for strong supervision and regulations to make green bonds work.

Measuring Public Awareness about Green Bonds

It is clear that there is a big lack of awareness in this case, and hence, the Google trend has been used in this study to measure public awareness about the global green bond among Brazil, Russia, India, and China (BRIC) nations. Google search time-series data provides us interest trends for a particular topic. Google search trend data shows that out of total searches done at Google's search engine, what is the frequency of a particular search term then. For example, Google's search engine shows a frequency of 18 in January 2004 for the term Green Bond; the meaning of this can be inferred as 'out of the total searches made at Google's search engine, 18% searches were of Green Bond. Figure 3 shows the trend of Google searches related to Green Bond terminology.
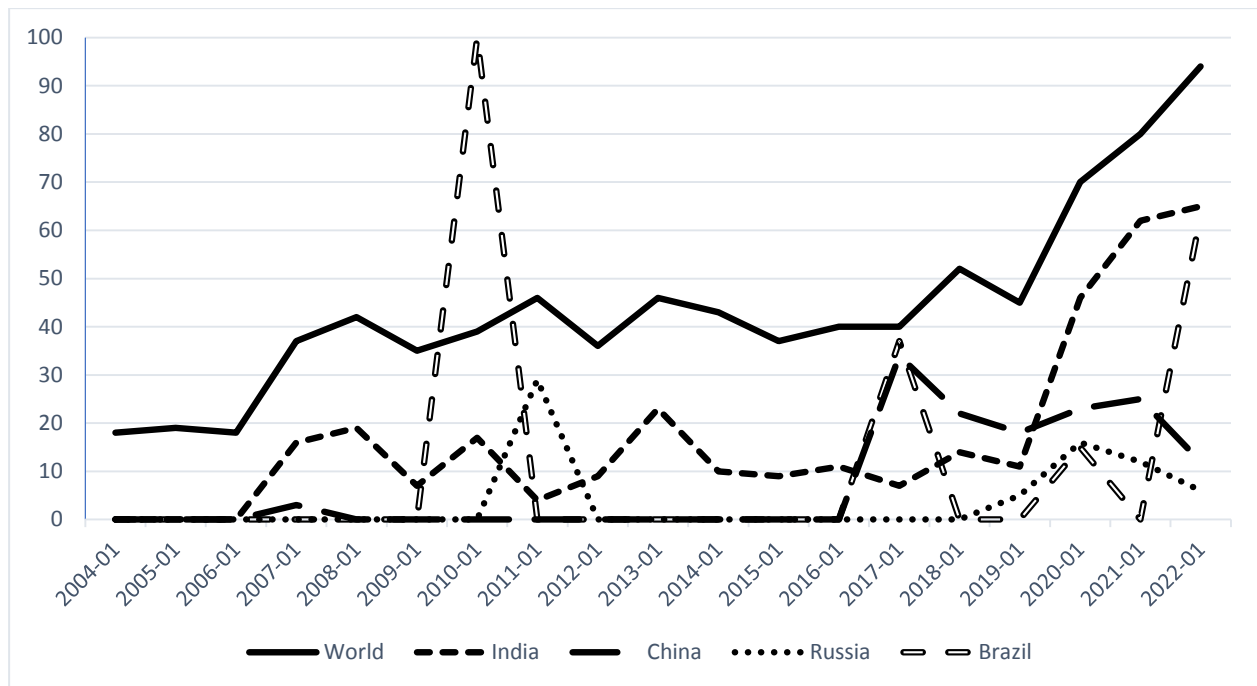
Figure 3: Green Bond Google search: trend in the world and BRIC nations
Source: Author's representation of the data from Google trend

The figure shows the green bond Google search trend in the world and BRIC nations. Google search trend data reflects about out of total searches done at Google's search engine, what is the frequency of a particular search term then. For example, Google's search engine shows a frequency of 18 in January 2004 for the term Green Bond; the meaning of this can be inferred as out of the total searches made at Google's search engine, 18% searches were of Green Bond.

The trend shows, in the aggregate, a rising awareness trend of global green bonds. In 2019 a sharp peak was observed in global awareness about green bonds as measured through Google search trends. For Brazil, 2010 marks the most popular year for the term green bond, and again in 2021, this term has become half popular in Brazil. In Russia and China, the green bond is not much popular. Awareness about this began in 2016 in China, while no clear trend is visible in Russia. Out of all BRIC nations, only India has shown a clear uptrend in awareness post-2019.   In other BRIC nations, the awareness trend has shifted downward. Brazil has shown a sharp up-move in 2021. In conclusion, the awareness measured through Google search shows that awareness about the green bond in India has increased over the period and is the best among all BRIC nations. But there is no assurance that this translates into an actual investment increase in green bonds and develops a big interest in all interest groups due to the overall information asymmetry in the area.

FINDINGS

1. Information Asymmetry and Need of Systematic Communication Initiatives

The above discussions indicate that green bond issuance by Indian corporates and awareness about green bonds have increased in India over the period. However, to meet the investment requirement of the announced projects at COP-26, India needs to make many policy-level changes to attract foreign and significant domestic funds. To bridge the gap of information asymmetry in the green bonds market, a lot of systematic communication initiatives are needed to be taken.

Aligned with the G20 Green Finance Study Group (GFSG) findings of the need to develop local green bond markets, India announced a competitive tax regime for its International Financial Service Centre (IFSC) located in the GIFT City, Gujarat. These developments suggest the good intention of the government, regulators, and issuers in promoting green bonds in Indian markets. But, the 2021 ranking by the Asia Securities Industry and Financial Market Association (ASIFMA) places India in 10th position out of 13 Asian markets mainly due to poor scores in physical infrastructure and currency control in the ranking parameters. Therefore, India must build a competitive financial market infrastructure and resilient regulatory frameworks to attract local and global private funds to its green bond market.

One of the reasons for the large number of green bond issuers is the current low rate of interest in the global market. But, this trend of sizeable green bond issuance might vanish as soon as the interest rate curve starts moving north, owing to the cost of this instrument. Corporations need policy-level incentives for these bonds to make them lucrative to both issuers and subscribers. Providing fast approval to green bond issue applications, reduction or removal of stamp duty, reduced transaction costs, etc., may help boost the sentiments of this bond market segment.

 Attracting retail investors to this market is another essential need of the hour. A well-developed domestic bond market is essential to attract and retain them in this segment. Defaults by stock-exchange-listed corporate borrowers in 2019 raise serious concern about the credit evaluation system followed by credit rating agencies and the regulator. 60 Indian listed companies defaulted on various loan payments amounting to Indian rupees 750 billion as of 31st December 2019. Such default data alert small debt investors and channel them to traditional bank term-deposit.

Spreading awareness about the benefits of investing in bonds over fixed or recurring deposits may help attract retail investors to the bond market through systematic investment plans (SIP). The Indian equity market has done this successfully, and almost every month, around Rupees 100 billion flows

into the equity market as SIP. This success story of the equity market needs to be replicated in the bond market.

Managerial Implications and Proposed Framework of Initiative to Reduce the Asymmetry

From the literature review and the analysis of current status and challenges of green bond market in India, it can be said that systematic policy and practice-oriented initiatives are required to increase the growth of green bonds in India. Without a strong preference of investors for green bonds, it is very difficult to increase the green bond market in India. Pedersen et al. (2021) and Pastor et al. (2021) suggest that investors towards green finance can be attracted by motives such as a general green preference, environment consciousness etc. To specifically address the issue of information asymmetry amongst the related stakeholders, systematic communication initiatives and specific incentives are suggested which could act as a strong trigger for investments in green bonds.

Following framework of systematic initiatives is proposed as managerial implications of the study which would definitely help in boosting the interest of the investors in green bond market:
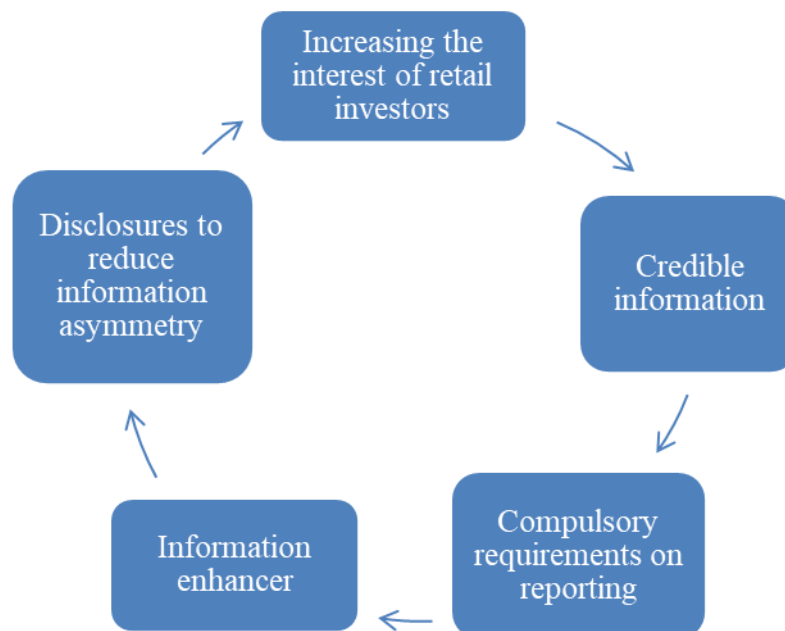
Figure 4: Proposed Framework for Reducing Information Asymmetry and Growth of Green Bond Market in India

Source: Authors' Representation

a) **Increasing the interest of retail investors in green bonds through lucrative policy frameworks**: In the initial stage, as the awareness about the benefits and need of green bonds is much less among consumers, there is a need of reaching out to retail consumers in different ways and increase their interest in this mode of investment, Pedersen et al. (2021) and Pastor et al. (2021). This could be done through initiating various lucrative customer-friendly policy frameworks, advertisements, or offers that will make the retail investors aware as well as be interested in choosing green bonds as a preferred option of investment.

b) **More disclosures to reduce information asymmetry**: In many cases, consumers get dissuaded from investing in a particular option because of a lack of transparency and trust. The green bond issuers could come out with more disclosures to reduce information asymmetry (Healy and Palepu, 2001). This will reduce the information gap, increase credibility and help investors to trust green bonds.

c) **Providing credible information on an issuer's sustainable performance:** When the free flow of credible information is not available, there could be doubts related to the bond issuer's sustainable performance (Flammer 2021). Hence increasing communication channels and making sure that credible information about green bond issuer's sustainable performance reaches all consumers is essential.

d) **Legal or compulsory requirements on reporting:** One more option is to make reporting a compulsory requirement for green bond issuers. This will also help to reduce the issue of information asymmetry in a great way (Gao, Y., and Jochen M. S., 2022).

e) **An information enhancer such as verification to create value for investors and issuers:** Many information enhancers such as verification could be added which will create value for all interested investors and bond issuers in the green bond market. As pointed out by Ranjan et al. (2021), there is lack of awareness in investors and bond issuers as well about the importance of green bonds. Hence systematic interventions of information enhancers could be used for creating value for investors and bond issuers.

CONCLUSION

The study highlights the importance of green bond as one of the important financial instruments for green financing. Green financing has become a key aspect in project finance. Considering the fact that discussions on green finance needs, methods, and regulations have taken a

center stage in academia, governments, and research think tanks, it is imperative to think about green bonds, which is an important source of green financing. Though there is a continuous upsurge in the funds raised through green bonds showing an upward trend, which even reached an all-time high of US$ 578 billion in 2021, the concern is that more than 75% of the total funds raised over 2014-2021 were done by developed nations. Emerging markets, including India, need to do much policy-level push to participate actively in fundraising.

India has started attracting foreign funds to the green bonds issued by Indian corporates and has set up international exchanges to facilitate global trading. However, green bond trading infrastructure requires upliftment as India ranks low in physical infrastructure among Asian peers. Currency control is also one of the significant areas that require the immediate attention of policymakers as highly volatile currency raises risk and cost for foreign currency green bond issuers and investors.

The awareness about green bonds is little slow paced in India as compared to developed nations though it is the highest among BRIC nations. A policy-level initiative to attract retail investors may help Indian corporations receive a good amount of money in green bonds in the form of one-time investments and Systematic Investment Plans. Systematic Investment Plans may help in providing a regular flow of investment to bond markets and increasing the trading liquidity on the bond exchange. Dedicated communication initiatives would help to reduce information asymmetry and foster the growth of green bonds by creating more awareness and generating more interest. The framework proposed in the study would be immensely useful for green bond issuers and industry practitioners to achieve the desired objective of increasing the growth of the green bond market.

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MEDIA PRESENTATION OF THE DEVELOPMENT AND REGULATION OF ARTIFICIAL INTELLIGENCE ON THE MOST READ CROATIAN PORTALS

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ABSTRACT

At the end of 2022, OpenAI launched the chatbot ChatGPT, which popularized the subject of AI, but also discussed the possibilities of application and its positive and negative aspects. In parallel with highlighting the positive characteristics of the development of AI, the negatives were also noticed, which led to a discussion on the issue of regulation of AI.

The aim of the paper is to gain an insight into the media image of the development and regulation of artificial intelligence by researching and analyzing articles on the most read portals in the Republic of Croatia.

For the research period, one year was taken, starting from the day of the release of the chatbot ChatGPT to the public, November 30, 2022 until November 30, 2023. The research included 175 articles. The paper uses the method of content analysis. Using quantitative content analysis, the frequency of articles, topic of articles, geographical focus, journalistic approach and authorship of articles were analyzed. In order to gain an insight into the content of the articles, a qualitative content analysis was used to analyze a selected number of articles. The researched portals showed an interest in following the topic of development and regulation of artificial intelligence, writing about innovations, general topics, fraud and abuse, application and strategy of AI development, fear of uncontrolled development and other related topics on a dominantly European and global, and to a lesser extent, national level. The paper contributes to the research of media coverage of artificial intelligence.

Keywords: AI, ChatGPT, content analyse, Croatia, Newsportals

INTRODUCTION

The aim of the paper is to gain an insight into the media image of the development and regulation of artificial intelligence by researching and analyzing articles on the mentioned topic on the most read portals in the Republic of Croatia. With regard to the influence of the media on the creation of public perception and the popularity of the topic of the development of artificial intelligence, but also the

ethical issues in the use of artificial intelligence, with this work we want to contribute to the research of the media image of one of the most intriguing issues today.

The media is important for shaping public opinion on many topics, including scientific and technological achievements such as AI. According to agenda-setting theory, the media have the power to focus public attention to particular issues, highlight specific topics, rarely address them or nonmention them at all, and the importance attached to a topic influence the priorities of the public (McCombs, 2002).

Lipmann (1922, cited in McCombs and Guo 2014: 251), at the beginning of the 20th century explains how the media influence the perception of reality claiming that the media serve as the main bridge between "…the world outside and the pictures in our heads...". Regarding the recent launch of a type of AI technology like ChatGPT, there is very little research on how this powerful language model is covered in the media (Roe and Perkins, 2023), as well as research on the representation of AI in the media despite significant interest and speculation about its benefits and risks (Chuan, Tsai, and Cho, 2019).

OpenAI launched its AI-based chatbot on November 30, 2022, and since then, the general public has equated the terms ChatGPT and AI, using them interchangeably (Karanouh, 2023). However, analyzing AI and its representation in the media is challenging given that almost 70 years have passed since the introduction of the concept of AI but there is still no single definition of it. In 1955, in the proposal for the Dartmouth Conference, McCarthy (2006) first mentions the term AI and explains it as"…the artificial intelligence problem is taken to be that of making a machine behave in ways that would be called intelligent if a human were so behaving." However, this approach has proven to be inadequate considering the difficulties in defining and measuring human intelligence (Kaplan, 2016). Considering the key features of AI, such as perception of the environment, collection and interpretation of data, decision-making, execution of tasks, adaptation and achievement of goals (Samoili et al. 2020) in the Artificial Intelligence Act artificial intelligence is defined as:

AI system' means a machine-based system designed to operate with varying levels of autonomy, that may exhibit adaptiveness after deployment and that, for explicit or implicit objectives, infers, from the input it receives, how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environment. (European Parliament, 2024)

Among the simplest and most popular examples of AI are chatbots, computer systems that simulate a conversation, respond as an intelligent entity to queries made by text or voice, understanding one or more languages (Khanna et al., 2015).The large language model ChatGPTis based on GPT-3.5 (Generative Pretrained Transformer) and it is "…optimized for dialogue by using Reinforcement Learning with Human Feedback (RLHF) – a method that uses human demonstrations and preference

comparisons to guide the model toward desired behavior." (OpenAI, 2022). ChatGPT responds to queries through a simple user interface, generating a new, unique text, and it can also be assigned text length, writing style, text summarization, paraphrasing, translation, responds in dozens of languages, understands nuances of language, predicts words by recognizing context, simulates human conversation, can create program codes, generate illustrations (Koenders and Könning, 2024). The model was trained on more than 150 billion parameters, which gives it the possibility of detailed answers, but they are also making them harder to control thus increasing the likelihood of inaccuracies or biases in the data (Reagan, 2023). Therefore, among the limitations of ChatGPT are biased answers, meaningless, inaccurate or untrue answers, responses based on the data collected until the end of its training (Koenders and Könning, 2024). To reduce these limitations, OpenAI collects user feedback and utilizes a content filter to reject inappropriate requests, block, or issue warnings about inappropriate content (OpenAI, 2022). The lack of transparency about the data source used by the model, the security and potential misuse of large language models like GPT, as well as the privacy protection issues also causes concern (Koenders and Könning, 2024). Italy was the first country in the European Union to temporarily ban ChatGPT and launched investigation into ChatGPT creator OpenAI for possible violations of the EU privacy law, the General Data protection regulation (Goujard, 2023). At the same time as the temporary ban in Italy, a group of AI experts from around the world issued an open letter warning about the potential risks of AI to humanity and society, calling for a pause of at least six months in further development of AI (Future of Life Institute, 2023). Their warning was issued a few days after the EU police force Europol warned about the possible criminal use of ChatGPT (Chee, 2023), and American lawmakers highlighted the need to regulate AI due to potential implications for national security and education (Bartz, 2023).

Awareness of the need to regulate AI has increased following the launch and widespread popularity of generative AI systems such as ChatGPT, as well as the introduction of a new, more reliable and creative model, GPT-4, additionally Google launched a chatbot Bard, and ERNIE Bot began operating in China (Yu, 2023). Among the first, in the European Union, they recognized that due to the progress in the field of AI, its use, wide availability and the consequences of AI development, it is necessary to ensure "… that the artificial intelligence systems used in the EU are safe, transparent, traceable, non-discriminatory and enviroment frendly"(European Parliament, 2023a) with the aim of protecting fundamental rights, preserving security and simultaneously encouraging innovation(European Parliament, 2023b). In March 2024, the European Parliament adopted the AI Act, risk-based approach to AI. Comprehensive laws on AI are also being worked on in China and the US. In 2021, China passed regulations that partly apply to generative AI Systems like ChatGPT, according to which both the development and application of AI technology are under strict state control (Sheehan, 2023).

Despite the great hype and media attention about ChatGPT, there is little research focusing on its portrayal in the media. Roe and Perkins (2023) analyzed 671 headlines in UK news media outlets from January to May 2023, and identified six common themes. Their results showed that the highest number of headlines, 37%, fall under the theme Impending danger, which includes potential dangers and disruptions that can be caused by AI and ChatGPT. The second most common category of articles is "Explanation/Informative," which includes headlines that explain what AI and ChatGPT are, their functions, and the latest upgrades to these products. Sibagatulina (2023) conducted a study using quantitative and qualitative content analysis to examine how the media covered ChatGPT in education following a case in which a Russian student successfully defended a bachelor's thesis written by ChatGPT.

Karanough (2023) analyzed 10,902 mainstream news headlines from Western media sources related to AI and ChatGPT since the launch of ChatGPT in November 2022 to March 2023. A trend of increasing headlines from December to March was observed, which can be attributed to the launch of ChatGPT as well as other innovations.

As expected, research is also being conducted on the portrayal of ChatGPT in social media. UI Haque et al. (2022) collected 10,732 tweets in English containing the keyword "ChatGPT" from December 5, 2022, to December 7, 2022. Their results showed that the majority of early adopters expressed mostly positive sentiments related to business initiatives, entertainment, exercising creativity, and software development. Although there were more positive and neutral sentiments in topics such as Impact on educational aspects and Questions and Answering, there was also a significant portion of users expressing concern about issues such as the possible misuse of ChatGPT. Leiter et al. (2023) analyzed 300,000 tweets and more than 150 scientific papers to explore how ChatGPT was perceived and discussed. Their results show that ChatGPT is generally characterized as of high quality, with positive sentiment in social media, but there is also a noticeable decline in positive perception after the initial excitement, and negative sentiment is more pronounced among users who do not belong to the English-speaking countries. When it comes to scientific papers, ChatGPT is characterized as a significant opportunity in various fields, but also as a threat concerning ethics and in the education domain.

METHODOLOGY

The research planned to include the three most read portals in 2023 (Peruško, 2023). According to this criterion, the news portals Index.hr, Dnevnik.hr and 24sata.hr are included. Given that we didn't find any articles on the Dnevnik.hr portal that would meet the research criteria, the research results refer to newsportals Index.hr and 24sata.hr. The contemporary development of AI and more recently the

chatbot Chat GPT has encouraged debates about their positive and negative aspects of development. The changes they brought, directly or indirectly affected everyday life and business. In this context, the need for legal regulation in the field of application of AI was created. Therefore, we decided to research and analyze articles on the development of AI and regulation in the field of AI in order to gain an insight into the media image of the mentioned topic, i.e. on the most read newsportals in the Republic of Croatia. The selection of articles was made by searching the keywords "ChatGPT" and "AI" in the context of the development and regulation of AI. The research included 175 articles. Using quantitative content analysis, the frequency of articles, the topic of articles, geographical focus, journalistic approach and the authorship of articles were analyzed in order to find out to what extent they wrote about the development of AI and regulatory issues, which topics dominated, and to what extent the articles were transferred from other sources and how many were signed by the author, to what extent the selected corpus of articles related to the national, and how much to the European and world context, and whether the journalists approached the topic of the article informatively or were more deeply involved in the topic in the form of analytical and critical articles. The results of the quantitative content analysis were processed with descriptive statistics. By analyzing the content of the articles, seven (7) topics were created: in general, fraud and misuse, application of AI, fear of uncontrolled development, development strategy and other topics. The criterion for creating a topic is the existence of at least 5 related articles. In the case that there were less than 5 articles on a topic, those articles were classified under the topic of other. In order to get a more detailed insight into the content of the articles, we decided to research a part of the articles of the research corpus using a qualitative analysis. The selection of articles was made according to the following criteria: considering that the corpus consisted of two interrelated groups of articles (AI development and regulation), each group of articles provided seven topics: in general, innovation, fraud and misuse, fear of uncontrolled development, development strategy, application of AI and others. Two articles from each topic were randomly selected from each group. Given that the research period covered one year, we added the criterion that for each topic of two articles, one will be chosen from the first 6 months of the research period, and the other from the second six months. In this way, 14 articles on the development of AI and 14 articles on regulation were to be obtained for discourse analysis. From the first group, we got all 14 articles, and from the second three articles less, since the topic of innovations in the group on AI regulation was represented by only one article, and we didn't find an article on the topic of AI applications. For the research period, we chose one year, starting from November 30, 2022 to November 30, 2023. The starting date was chosen due to launch of the chatbot ChatGPT to the public, which further updated the topic and issues of AI.

RESEARCH RESULT

The research results conducted on the news portals Index.hr and 24sata.hr on the development and regulation of AI included 175 articles.

Topics	AI development	%	Regulation	%	Total	%
Inovations	34	29,82	1	1,64	35	20,00
In general	17	14,91	16	26,23	33	18,86
Fraud and misuse	5	4,39	20	32,79	25	14,29
AI application	17	14,91	0	0,00	17	9,71
Fear of uncontrolled development	10	8,77	16	26,23	26	14,86
Development strategy	21	18,42	6	9,84	27	15,43
Others	10	8,77	2	3,28	12	6,86
Total	114	65,14	61	100,00	175	34,86

Table 1. *The topic of articles on the development and regulation of AI and ChatGPT*

Table 1 shows that 65.14% of articles were published on the development of AI, and 34,86% of articles on regulation. Analyzing the articles on the development of AI according to the topic, in the overall view, most were written about innovations (20%) and general topics (18,86%), followed by the fear of uncontrolled development (14,86%) and fraud and misuse (14,29%). The application of AI was written about in 9,71% of the articles, and the topic other was the least represented. Analyzing articles on the development of AI in particular, the most articles were published on innovation (29,82%) and development strategy (18,42%), then on general topics (14,91%) and the application of AI (14,91%). A smaller number of articles were published in the topic other (8,77%) and fraud and misuse (4,39%). In the articles on the regulation of AI, fraud and misuse were mostly written (32,79%), followed by general topics (26,23%) and fear of uncontrolled development (26,23%), followed by development strategy (9,84 %), other topics (3,28%) and innovations (1,64%).
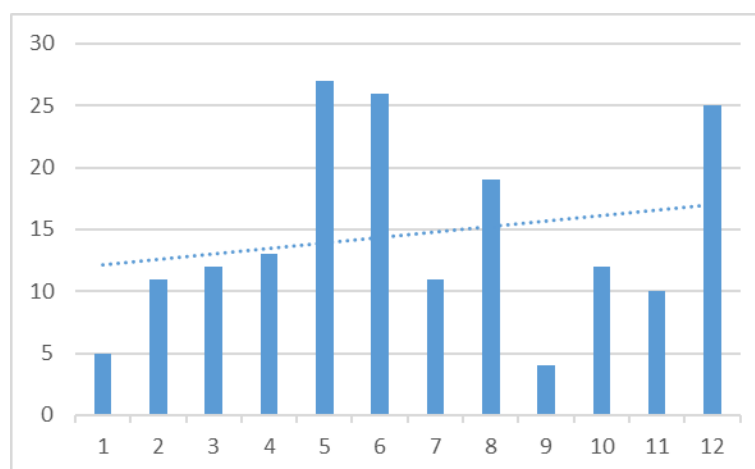
Figure 1 The frequency of the total number of articles by month with the trend line

Analyzing the frequency of the total number of articles according to the months of the research period from the year starting from November 30, 2022 (column 1) to November 30, 2023 (column 12), it is evident that from the initial announcement about the availability of the chatbot ChatGPT to the general public until the summer months, the number of announcements continuously increases. In the following months, the number of articles fluctuates quite a bit, but overall, the trend line shows an increase in the number of articles.

Analyzing the authorship of the articles, out of the total number of articles, more than half of the articles (56%) were signed by the authors on the portals Index.hr and 24sata.hr, and 40% of the articles were transferred from other sources, dominated by the Croatian reporting agency HINA (98,57%). 2,29% of the articles were not signed, and 1,71% of the articles were signed by the authors from newsportal and another source. Analyzing the geographical focus of the articles of the research corpus, world topics dominated in 79,43% of the articles. There were 12,57% of articles in the European context, and 8% in the Croatian context.

Regarding the journalistic approach to the researched topic, the research results showed that the informative approach was expressed in 94,86% of the articles, and the analytical/critical approach in 5,14% of the articles.

Development and regulation of AI

Inovations

In the subcategory Innovations, articles are classified that show news in the development of AI, especially those produced by companies such as Google and Microsoft. The company Google presented its tool for AI called Bard - chat app that relies on AI. Bard was created as a reaction to the creation of Microsoft's successful ChatGPT.Google's biggest competitor - Microsoft has produced a powerful advanced Q-star system. That system was perfected to solve basic mathematical problems that had never been encountered before (HINA, 2023a). Open AI has been working rapidly to develop AGI - general AI that "can perform a wide range of tasks at or above human intelligence - and could in theory escape human control" (Index Vijesti, 2023a). Within the Innovations subcategory, an example can be cited of the introduction of digital rules that came into effect in March 2024 and were adopted by the European Union. The documents that regulate the work of digital giants are the Digital Services Act and the accompanying Digital Markets Act. According to these rules, Apple was the first to produce a USB-C charger with the aim of reducing waste (HINA, 2023d).

In general

The General subcategory includes articles in which scientists from the field of information and communication technologies give their opinion and review the emergence of AI. Croatian computer scientist and expert in information security Carić analyzes news from the field of technology with special reference to AI. When testing it, it gave him mostly incorrect answers: "We are far from a machine that knows all the answers" (IndexVijesti, 2023b). Thanks to the development of AI, many companies have made huge profits. One example is the American company Nvidia, which produces chips and software suitable for AI applications (HINA, 2023b). Articles representing the introduction of norms, regulations and laws for the application of AI at the national, European and world level are analyzed under the General subcategory. As an example, the introduction of legal regulations on the application of AI in China can be cited (HINA, 2023e). The introduction of legal regulations on the application of AI in Croatia is linked to the Agency for the Protection of Personal Data and the Croatian Regulatory Agency for Network Activitie. The European Union passed a directive according to which each member state must pass the Law on Artificial Intelligence (HINA, 2023f).

Fraud and misuse

AI also has a role to play in the fight against disinformation that is spreading more and more within the framework of crisis communication: climate change, the emergence of the coronavirus and the war in Ukraine. Some experts believe that: …"AI is only as good at detecting disinformation as the default guidelines are (Index Vijesti, 2023c). The advent of ChatGPT caused difficulties in its use. Many users reported that they were unable to access Open AI's chatbot –ChatGPT (Index Magazin, 2023a). In addition to the numerous potential benefits for society that AI has, there are also those who question its ethical aspects, which are mostly reflected in terms of fraud and misuse. As an example of the above, an article was analyzed in which the negative aspect of using AI for the purpose of fraud is stated. AI served the kidnapper to clone the voice of the girl for whom he tried to demand a ransom of one million dollars. The girl's mother was convinced that it was her daughter's voice (IndeksVijesti 2023d). Fraud and misuse within the sub-topic of regulation is visible through the articles on the banning of ChatGPT in Italy (Jukić, 2023). Open AI's task is to introduce measures to tighten privacy conditions. American film and television screenwriters went on strike to express their dissatisfaction with the use of AI in the film industry, along with other denied rights (HINA, 2023g).

AI application

The application of AI encompasses various spheres of human life such as climate change –"It can enable the monitoring, prediction and management of the impacts of human activities on the climate, especially greenhouse gas emissions; medicine –"… AI can help diagnose diseases and determine

optimal treatment"; new drug development, energy, finance, transport –"It is already being used in the development of self-driving vehicles that can reduce the number of traffic accidents by about 90% and increase the efficiency of traffic"; safety - AI can help reduce the number of accidents, injuries at work, protect against crime and terrorism, child sexual abuse, monitoring possible natural disasters (hurricanes, earthquakes);education - ..."AI could be used for personalized learning and virtual assistants", agriculture;shop and automation (Jarić Dauenhauer, 2023). An example of the application of AI can be cited in the assessment of damage to vehicles in insurance companies. Croatia Insurance invested 400,000 euros in a new vehicle damage assessment system that performs this work in just three minutes with the help of AI (Hruškovec, 2023).

Fear of uncontrolled development

The accelerated development of AI has led to the development of fear of uncontrolled development. The world's leading experts warn that it can cause the extinction of humanity, and the leaders of the most developed AI companies also agreed with these views. They sent an open letter to the public about their concerns (Indeks Vijesti, 2023e). On the other hand, experts believe that fears about AI are overblown and unrealistic (Jarić Dauenhauer, 2023b). Examples of this include the persuasiveness of AI in political campaigns, advertising, developing emotional connections with chatbots, and spreading disinformation and fake news through social networks. Investment in AI by leading computer companies can be cited as an example of an AI development strategy. One of them is Microsoft, which invested 10 billion dollars in OpenAI (Indeks Vijesti, 2023f). Regarding the uncontrolled development of AI and the negative consequences it could cause, the governments of the leading countries of the world have reached an agreement on the initial testing of new models of AI before they are put into use (HINA, 2023c). The fear of uncontrolled AI development has resulted in the need to introduce legislation. Already a month after the appearance of ChatGPT, the adoption of the Law on AI by the European Union was announced (HINA, 2023h). Leading heads of technology companies also agreed on the necessity of introducing regulation in AI (Indeks Vijesti, 2023g).

Development strategy

The strategy of developing AI within the framework of regulation is visible through limiting the control of the export of microchips of the American company Nvidia for the Chinese market. (HINA, 2023i). Great Britain adopted the Declaration on AI, a strategic document important for the development of AI: "The adopted declaration calls for transparency and accountability of actors developing the most advanced AI technology in their plans to measure, monitor and mitigate potentially harmful capabilities" (HINA, 2023j).

Others

In the category Other, the topic of regulation is mentioned in the context of the protection of personal data on the example of the Croatian company EOS Matrix, which helps companies in the professional collection of receivables. Over 181,000 personal data were leaked from this company, including the data of minors (Ćimić, 2023). Specialists in AI and machine learning are one of the top seven professions of the future: "From healthcare, finance and the entertainment industry, the need for specialists who understand AI and can optimize it will only grow" (BeActive, 2023).

DISCUSSION AND CONCLUSION

AI is present in everyday life and across all social areas. It is integrated into automobiles, used in healthcare, manufacturing, and it changes the job market and other field. The launch of ChatGPT, based on AI, widely available and free of charge, has sparked great interest worldwide and has prompted discussions about the opportunities and threats associated with the future development and application of this technology. With increased public interest, there has been a noticeable increase in media coverage on this topic. According to agenda setting theory (McCombs 2002), in this research, the media paid special attention to the current topic of artificial intelligence, emphasizing special topics such as: fraud and misuse, application of AI, fear of uncontrolled development, development strategy and etc. However, there is still a small number of studies focusing on the media presentation of ChatGPT and similar innovations. The results of previous research mostly indicate that media interest in AI and ChatGPT has been increasing since the launch of ChatGPT (Karanough, 2023). According to Roe and Perkins (2023), most headlines published by the British media belong to the categories of Impending danger and Explanation/Informative. Their study stands out as one of the few analyses of the specific topics that the media emphasizes in reports on AI.

Given the topicality of the subject of AI, which has opened numerous questions of ethics and the influence of the media on the formation of public perception, we wanted to research media reporting on the development and regulation of artificial intelligence in this paper. The results of the research covered 175 articles that were published on the newsportal pages Index.hr and 24sata.hr. Content analysis showed seven thematic units: innovations, in general, fraud and misuse, AI application, fear of uncontrolled development, development strategy and others. In the context of the development of artificial intelligence, the most articles were written about innovations, almost one third of the articles and development strategy, and the least about fraud and abuse. In the context of the regulation of AI, as could be expected, most of the writing was about fraud and misuse, then also about general issues of regulation, but also about the fear of uncontrolled development of AI. Regarding the authorship of

the articles, more than half of the articles were signed by the journalists of the researched portals. However, in creating a media image for the public, a significant share (40%) was provided by articles, mostly from the Croatian reporting agency HINA. Analyzing the geographical focus, European and world themes dominated. Only 8% of articles talked about the development and regulation of AI.

Through a qualitative analysis of the content, we wanted to gain a more detailed insight into the obtained topics of the research corpus. In the context of development and spread of AI, it is shown through its application in various areas of human activity. A special focus on the application and usefulness of AI was highlighted in the fight against misinformation in crisis communication. The world's leading companies in the field of computing Microsoft and Google presented their innovative solutions in the form of tools and systems for AI such as ChatGPT, Bard, the Q-star. The strategic framework of AI development is highlighted through large investments by leading computer companies in AI, and the necessity of testing new AI models before putting them into use. The fear of the uncontrolled development of AI increasingly encouraged discussions about the necessity of introducing norms, regulations and laws for the application of AI. The ethical dimension of AI is visible through the analyzed examples of fraud and misuse, such as criminal acts and violations of the right to protect personal data.

It can be concluded that the subject of AI is the focus of various scientific disciplines and considering the development and application of AI in the future, we can expect this trend to intensify. The researched portals showed an interest in following the topic of development and regulation of artificial intelligence, writing about innovations, general topics, fraud and abuse, application and strategy of AI development, fear of uncontrolled development and other related topics on a dominantly European and global, and to a lesser extent, national level. Considering the role and significance of social media in public communication, in future research it would be necessary to include them in the research of media reporting on artificial intelligence, as well as sentiment analysis in order to better understand attitudes and opinions in media content.

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DEVELOPING AUGMENTED REALITY WITHIN E-COMMERCE PLATFORMS : A STRATEGIC RESOURCE FOR CREATING VALUE.

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ABSTRACT

Objective - This article examines the role of augmented reality (AR) in the value creation process of businesses. Through lived experience, this study explores how AR generates new and strong value and increases value capture through sales and recommendation.

Design/Methodology/Approach - A model based on the theories of self-determination and the AWE (awe, wonder, and excitement) experience was developed and tested using a sample of 577 respondents. The survey results were derived from structural equation modeling using SmartPLS 4.0 software.

Results - The main findings demonstrate that the interactivity and excitement generated by the technology foster the AWE experience. In turn, the AWE experience enhances satisfaction, trust, and encourages purchase and recommendation. These conclusions raise awareness among professionals to further utilize this technology in their omnichannel strategies. With augmented reality, virtual platforms are more engaging, offer enriching experiences, and increase value.

Originality/Value - The numerous technological pressures are transforming ecosystems and thereby the value creation processes of businesses. Consequently, augmented reality becomes a strategic resource for them to master. Few works, to our knowledge, address the strategic dimension of augmented reality even though it is increasingly necessary for gaining a competitive advantage. By mastering it, companies can better integrate it into their value creation and capture objectives.

Keywords : Augmented reality, Value creation, AWE experience, Satisfaction, Purchase intention, Intention to recommend.

1. INTRODUCTION

In its essence, the objective of a corporation is to generate economic value by producing, disseminating, and endorsing value for the customer and all stakeholders. High-performing corporations' harness strategic resources to attain this goal. According to the Resource-Based View (RBV) paradigm, sustained competitive advantage is attained by effectively leveraging strategic resources (Barney, 1991). Augmented Reality (AR) technology represents one such resource,

progressively integrated into corporate strategies. The global AR market is anticipated to reach approximately \$100 billion by 2026 (Schultz & Kumar, 2024), signifying its considerable strategic significance. Corporations such as Dior, Sephora, and Rolex are increasingly adopting AR (Javornik *et al.*, 2021). As a disruptive technology (Rauschnabel *et al.*, 2022), AR compels corporations to adapt their strategic and managerial practices (D'Ippolito *et al.*, 2019), thereby establishing new performance benchmarks (Mancuso *et al.*, 2023). Despite necessitating substantial investments (Cranmer *et al.*, 2021), the exploitation of AR can yield a sustainable and lucrative competitive edge. Nevertheless, despite its importance, scant studies have concentrated on AR as a strategic asset. Understanding its impact on value creation and capture processes is imperative for positioning AR as a bona fide strategic resource, offering sustainable competitive advantage and promoting further investment (Cranmer *et al.*, 2021).

By harnessing AR, corporations transform their value chains through more efficient innovation (Eswaran *et al.*, 2024), production (Bellalouna, 2021), and/or logistics processes (Lagorio *et al.*, 2022). In the RBV framework, the utilization of strategic resources engenders distinctive capabilities conducive to competitive advantage creation (Barney, 1991). In this context, AR presents opportunities for differentiation and sustainable competitive advantage. From a marketing perspective, AR emerges as a strategic resource furnishing novel digital competencies for effective omnichannel distribution. With AR, brand experiences are enriched (Javornik *et al.*, 2021), thereby creating added value for corporations (Nikhashemi *et al.*, 2021). However, the evaluation of the value conferred by AR to corporations remains deficient in marketing literature (Javornik *et al.*, 2021; Nawres *et al.*, 2023), particularly concerning purchase intention and recommendation.

From a theoretical standpoint, some emphasis has been placed on TAM, UTAUT and SOR models (Hinkel *et al.*, 2017; Nawres *et al.*, 2023) employing common variables such as immersion, enjoyment, presence, or flow (Smink *et al.*, 2020; Kowalczuk *et al.*, 2021; Yuan *et al.*, 2021; Pathak & Prakash, 2023; Hsu *et al.*, 2024). However, AR engenders an experience surpassing traditional online experiences (Hilken *et al.*, 2017), offering enchanting and astonishing experiences termed "AWE experiences" (Kautish *et al.*, 2023). To our knowledge, this concept has not yet been applied to AR e-commerce platforms. This observation prompts exploration of the role played by AWE experiences on user behavior and consequently on company performance. Thus, the following research questions are posed:

RQ1: How does AR influence individual AWE experiences in E-commerce platforms?

RQ2: How does the AWE experience influence individual purchase intention and recommendation?

The model is grounded in self-determination theory (Deci & Ryan, 2004) and AWE experience (Kautish *et al.*, 2023). We employ site atmosphere factors (Eroglu *et al.*, 2003) and hedonic motivations

(Van der Heijden, 2004) as antecedents of the AWE experience. Following the recommendations of Nawres *et al.* (2023), we integrate satisfaction and trust as mediating variables between the AWE experience and individual final purchase behavior. Our model was tested on a sample of 577 users of an AR glasses purchasing platform. The novelty of this article lies in the utilization of the AWE experience in the domain of AR e-commerce, aligning with the recommendations of numerous researchers (Javornik, 2016; Kumar, 2021). Theoretically, our contributions furnish significant insights in marketing literature, namely: (1) through its interactivity, AR plays a pivotal role in user AWE experiences, (2) AR promotes user purchases and recommendations, enriching marketing theory. These significant results prompt professionals to recognize the importance of AR as a lever for creating unique value for users and customers, enhancing performance by increasing sales through consolidating existing customer base and gaining new potential customers through deploying differentiated technology compared to competitors. This article initially reviews the literature, then presents the theoretical research model. Subsequently, the study methodology and key findings are presented. Finally, the contributions, limitations, and research prospects are discussed.

2. THEORETICAL BACKGROUND AND FORMULATION OF HYPOTHESES

2.1. Recognize the value of AR for the company and the user in e-commerce.

Extension of the real world, AR offers a mixed experience that combines computer-generated data with real elements from the user's environment (Li *et al.*, 2020). This instant overlay of the real and the virtual leads to new forms of interactions between the user and the digital world (Javornik, 2016). Unlike virtual reality, which creates an entirely artificial universe, AR is a hybrid technology in which the user maintains a permanent connection with reality (Tan *et al.*, 2022). The augmented interface adapts to the user's gestures and postures and displays virtual elements interactively (Javornik *et al.*, 2021). This facilitates digital interactions (Schultz and Kumar, 2024) and reduces perceived technological risks for users (Tan *et al.*, 2022). Moreover, its use through devices already owned by users (smartphones, tablets, or computers) encourages them to move away from traditional physical channels (Nugroho and Wang, 2023). Consequently, AR is expanding in various sectors such as tourism (Lim *et al.*, 2024), education (Chang *et al.*, 2022), video games (Li *et al.*, 2020), and online retail (Nugroho and Wang, 2023).

AR delivers specific multisensory experiences (Schultz and Kumar, 2024) that immerse the individual in product usage (Hsu *et al.*, 2024). These experiences are significant drivers in the performance of implemented strategies (Kumar *et al.*, 2024) and strengthen the relationship between the company and its users (Scholz and Duffy, 2018). Through these experiences, AR significantly impacts the value creation process (Javornik *et al.*, 2021). For example, AR influences a company's

brand capital (image and reputation) and increases sales (Aslam and Davis, 2024). Additionally, companies offering AR experiences have additional chances of having satisfied and loyal users (Aslam and Davis, 2024), who have a higher propensity to spend. Clearly, directing the value chain towards this technology is a real opportunity for value creation for both the company and the user, even though the internal skills required to develop it are costly and sometimes difficult to master (Cranmer *et al.*, 2021).

In online retail, the COVID pandemic-related situation has accelerated the deployment of AR (Aslam and Davis, 2024). This digital migration is now reinforced by a purchasing journey that needs to be playful and interactive (Flavian *et al.*, 2019). Many studies evaluate its influence on buying behavior in luxury (Nawres *et al.*, 2023), makeup (Smink *et al.*, 2020), sports (Uhm *et al.*, 2022), furniture (Rauschnabel *et al.*, 2019), and fashion (Yuan *et al.*, 2021). Li *et al.* (2020) assert that affective responses are an important factor in AR. Positive emotions and pleasure increase individual engagement (Flavian *et al.*, 2020) and encourage buying and recommending (Zanger *et al.*, 2022). Hinkel *et al.* (*2017*) suggest that pleasure positively influences purchase intention and recommendation. Kowalczuk *et al.* (2021) arrive at the same conclusions in the context of an AR-based flat-pack furniture retail website. Technological factors of immersion, presence, and flow also influence individual behavior. Yuan *et al.* (2021) demonstrate that the flow generated by AR increases purchase intention. Pathak and Prakash (2023) show that immersion and flow reinforce the purchase intention and recommendation of AR users. Finally, purchase intention is also favored by the user's perceived sense of presence enabled by AR (Hsu *et al.*, 2024).

2.2. Self-determination and AWE experience as explanatory factors of purchase and WOM in AR universes.

A fundamental framework in the study of motivation (Ryan & Deci, 2019), the Self-Determination Theory (SDT) posits that individuals have specific needs (autonomy and competence) that influence their behavior (Deci & Ryan, 2004). Thus, individuals interact with the environment (competence) and make decisions (autonomy) based on individual psychological factors. These factors influence their well-being and behavior (Ryan & Deci, 2019). The literature suggests that individuals, driven by intrinsic motivations, demonstrate great consistency in their actions. Recent works highlight the significant explanatory power of SDT on individual attitudes and behavior (Cassia & Magno, 2024; Li *et al.*, 2024; Wang *et al.*, 2024). Huang *et al.* (2024) demonstrate that self-determination plays a key role in extreme sports practice. Sun *et al.* (2022) affirm that intrinsic motivations positively influence learning. Gilal *et al.* (2020) show that self-determination reinforces eco-responsible behaviors. Given its high predictive accuracy in explaining behaviors (Cassia & Magno, 2024), this theoretical framework helps us understand why individuals may use AR.

Directly related to individuals' intrinsic motivations, the use of AR leads to pronounced affective states (Li *et al.,* 2020) that shape individuals' final behaviors. Emerging from the use of intense and novel stimuli, the AWE experience is a source of intrinsic motivations that reinforce the individual's positive valence (Yaden *et al.,* 2018). The AWE experience is an emotional response of wonder linked to a situation that transcends the individual's standard frame and transforms their perception (Chirico *et al.,* 2016) and behavior. Wonder implies that the stimulus is perceived as central in the interaction between the individual and the situation (Kautish & Kare, 2022). The literature suggests that the state of wonder strengthens engagement (Huang *et al.,* 2024), prosocial behaviors such as recommendation (Arghashi, 2022), and product purchase (Guo *et al.,* 2018).

As strong value drivers for businesses, AR has significant potential to provide exceptional experiences to users (Zanger *et al.,* 2022). Moreover, individuals use AR to experience these new and enchanting experiences (Javornik, 2016). These experiences showcase products in a more attractive manner, evoke a sense of admiration among users (Septianto *et al.,* 2020), and encourage them to purchase more. If the AWE experience has significant explanatory power in the behavior of users of new technologies (Quesnel *et al.,* 2018), the question of its influence on purchasing behavior remains to be clarified (Guo *et al.,* 2018), especially in the realm of AR purchases. Further exploration of this question helps better understand the value generated by this new technology.

2.3. Site atmosphere, interactivity, enjoyment, arousal and AWE experience.

Including augmented virtual elements, AR transforms the atmosphere of the site. The pleasant atmosphere of a site (architecture, colors, etc.) enhances emotional responses (Eroglu *et al.,* 2003) and invites the individual to navigate and purchase products. With AR, the atmospheres of online commerce sites are co-produced between the company and the user. AR develops a high local presence feeling (Rauschnabel *et al.,* 2022) that immerses the individual (Flavian *et al.,* 2019). This technology reinforces the anthropomorphism of the site and accentuates the AWE experience (Kautish *et al.,* 2023). Interactivity provides the individual with playful and effective interaction with the virtual interface (Meissner *et al.,* 2020). Many studies present AR as an interactive technology (Yim *et al.,* 2017; Kowalczuk *et al.,* 2021). Hwangbo *et al.* (2018) suggest that interactivity distracts users and positively influences the AWE experience. These results are also confirmed by Kautish and Khare (2022). The use of new technologies like AR generates enjoyment (Li *et al.,* 2020; Reer *et al.,* 2023). Enjoyement is linked to the enjoyment felt in using the technology (Davis *et al.,* 1992). Studies demonstrate a positively significant link between enjoyment and the AWE experience (Butt *et al.,* 2022; Kautish *et al.,* 2023). Finally, the AWE experience is directly linked to the state of flow (Kautish et al., Khare, 2022). Flow involves a high state of excitement related to total immersion in the environment (Csikszentmihalyi,

1990). This exciting absorption transforms the individual's sensations and leads to positive emotions of amazement (Drinkwater et al., 2022). Therefore, the following hypotheses are proposed in AR:

H1 : The AWE experience is positively influenced by the site atmosphere (a), site interactivity (b), enjoyment (c), and arousal (d).

2.4. AWE experience and satisfaction.

The AWE experience occurs when an individual's perceptions are disrupted by new, complex, and difficult-to-explain stimuli (Chirico *et al.,* 2016; Arghashi, 2022). The understanding of AWE needs to be improved theoretically (Chirico *et al.,* 2016). The literature consistently associates this experience with the positive valence of the individual (Yaden *et al.,* 2018). The AWE experience offers superior experiences promoting pleasant emotions (Yaden *et al.,* 2018) and well-being (Krause et Hayward, 2015). When using AR, users seek to satisfy strong intrinsic motivations (Dacko, 2017). Satisfaction is manifested by perceived performance exceeding the user's initial expectations (Bhattacherjee, 2001). In this context, immersive virtual technologies positively impact the AWE experience (Pizzolante *et al.,* 2023) and user satisfaction (Lee *et al.,* 2018; Lim *et al.,* 2024). Recent studies on video games (Possler *et al.,* 2021), tourism (Chang *et al.,* 2022), or services (Moliner-Tena *et al.,* 2023) highlight the influence of the AWE experience on positive attitudes and individual satisfaction. Given the discussion above, the following hypothesis is suggested in AR:

H2 : The AWE experience positively influences user satisfaction.

2.5. Satisfaction, trust, purchase intention and WOM intention.

Trust is crucial in the creation and capture of value by businesses (Shamim *et al.,* 2023), especially in emerging technologies where perceived risks are high (Li *et al.,* 2020). Trust is characterized by credibility and benevolence and can be either rational or emotional (Shamim *et al.,* 2023). Through trust, individuals perceive technology as reliable and competent for task fulfillment (Shamim *et al.,* 2023), as demonstrated notably in the works of Glikson & Woolley (2020) regarding artificial intelligence. When technology performance meets expectations, users are satisfied, thus reinforcing their trust (Teng *et al.,* 2023; Wang *et al.,* 2023). Menidjel and Bilgihan (2021) establish that satisfaction significantly influences trust. Therefore, the hypothesis below is formulated in the RA.

H3 : User satisfaction positively influences their trust in the website.

User satisfaction plays a significant role in the intention to purchase the product (Menidjel and Bilgihan, 2021). Numerous studies demonstrate the positive influence of satisfaction on individual purchase intentions (Menidjel and Bilgihan, 2021; Moliner-Tena *et al.,* 2023; Nawres *et al.,* 2023; Hsu *et al.,* 2024). Furthermore, when an individual is satisfied, they share and disseminate information.

Previous studies assert that satisfaction positively influences WOM (Le *et al.*, 2023; Sakiyama *et al.*, 2023; Nawres *et al.*, 2023; Moliner-Tena *et al.*, 2023). Thus, the following two hypotheses are proposed in the RA:

H4 : Satisfaction positively influences purchase intention (a) and WOM intention (b).

2.6. Trust, purchase intention and WOM intention.

As satisfaction does, trust also plays a central role in individual purchasing behavior. Tan *et al.* (2022) assert that trust influences individuals' purchase intention in online shopping centers. De Santi *et al.* (2023) suggest that trust positively influences both purchase and WOM intentions. Rahman *et al.* (2022) and Le *et al.* (2023) find similar significant correlations. Therefore, the following two hypotheses are proposed in the RA:

H5 : Trust positively influences purchase intention (a) and WOM intention (b).

3. METHOD

3.1. Empirical framework and sampling

To test the various hypotheses of our research model, we conducted our study on an AR glasses retail website. A Google Forms questionnaire was distributed on social networks (Facebook, Instagram, and Whatsapp) between April 2023 and August 2023. This methodological choice allowed us to obtain anonymous data from a larger sample and increase the possibility of generalizing the results obtained. The questionnaire included a link to an AR website. Respondents were invited to visit the site to navigate and test the technology. Then, they were required to answer various questions provided in the form. To alleviate potential concerns about their participation in the study, their participation in the survey was voluntary and confidential (Podsakoff *et al.*, 2003). After several reminders sent during this period, we collected 577 complete and valid responses to test our hypotheses. All collected data were analyzed using a structural equation model using SmartPLS 4.0 software.

The sample is predominantly female, with 360 women (62.4%) compared to 217 men (38.6%). Regarding age, the sample is mainly represented by individuals aged 18 - 25 years, with 261 respondents accounting for 45.2% of the sample. Subjects between 26 - 40 years old represent a total of 26.1% of the sample, with 151 individuals. With 82 respondents, those aged 41 - 50 years represent 14.1% of the sample, and the age group of over 50 years old is 14.3% with 83 individuals. Table 1 provides a more detailed overview of the sample.

3.2. Measurement instruments of the model

The questionnaire consisted of scales drawn from previous literature. All measures were translated into French. All measures were assessed using seven-point Likert scales. Regarding website atmosphere, we adapted measures from the works of Eroglu *et al.* (2003) and Wu and Hsu (2018). Scales from Srinivasan *et al.* (2002) were adapted to measure website interactivity. To measure variables related to enjoyment and arousal, we respectively adapted scales from the works of Backer *et al.* (2019) and Wu and Holsapple (2014). Additionally, we adapted scales from Kautish *et al.* (2023) to evaluate the AWE experience. User satisfaction was measured with adapted scales from Sung (2021), and trust was measured with adapted scales from the works of Anderson and Srinivasan (2003). Finally, regarding the measurement of WOM intention and purchase, we adapted scales respectively from the works of Akrout and Nagy (2018) and Sung (2021).

3.3. Analysis of the validity of measurement instrument.

The Partial Least Squares (PLS) method was used to test our measurements and hypotheses. This method is suitable for confirmatory analyses (Rigdon *et al.*, 2017) and helpful in predicting the influence of key concepts (Hair *et al.*, 2013). Regarding the analysis of the validity of our measurement scales, reliability, convergent validity, and discriminant validity tests were conducted (see Table 2). Concerning reliability, the Cronbach's alpha and composite reliability indicators for each construct are above the recommended threshold of 0.7 (Hair *et al.*, 2014), except for interactivity ($\alpha = 0.607$ and CR = 0.781). Moreover, the Average Variance Extracted (AVE) and factor loadings of all concepts are higher than the respective recommended thresholds of 0.5 and 0.7 (Hair *et al.*, 2014). Additionally, since multicollinearity can be common in quantitative studies conducted with questionnaire surveys, we assessed this risk among the items of each concept. All Variance Inflation Factors (VIFs) are below the recommended threshold of 5 (Hair *et al.*, 2013), indicating the absence of multicollinearity between the scales of the model. Therefore, convergent validity is satisfactory. As suggested by Fornell and Larcker (1981), we compared the square root of the AVE of each construct with the shared variance between the different constructs of the model to analyze the discriminant validity of the constructs (see Table 3). The discriminant validity of the constructs is also satisfactory.

4. MODEL HYPOTHESIS TESTING

Bootstrapping (resampling of 5000 random responses). Our results demonstrate that the exogenous latent variables of atmosphere, interactivity, and arousal significantly and positively influence the individual's AWE experience. Therefore, hypotheses H1$_a$, H1$_b$, and H1$_d$ are validated (H1$_a$: $\beta = 0.115$

and p < 0.05; H1$_b$: β = 0.155 and p > 0.000; H1$_d$: β = 0.494 and p > 0.000). However, enjoyment has no significant influence on the AWE experience, rejecting hypothesis H1$_c$ (H1$_c$: β = -0.027 and p > 0.1). Hypothesis H2 is validated, demonstrating the significant influence of the AWE experience on user satisfaction (H2: β = 0.458 and p < 0.000). Hypothesis H3 is also validated, proving that satisfaction positively influences user trust in the website (H3: β = 0.643 and p < 0.000). Our results suggest that satisfaction positively and significantly influences the intention to purchase and WOM. Thus, hypotheses H4$_a$ and H4$_b$ are validated (H4$_a$: β = 0.254 and p < 0.000; H4$_b$: β = 0.300 and p > 0.000). Finally, trust also significantly influences the intention to purchase and WOM of the individual, validating hypotheses H5$_a$ and H5$_b$ (H5$_a$: β = 0.428 and p < 0.000; H5$_b$: β = 0.291 and p > 0.000)

5. DISCUSSION

To conduct this study, we mobilized and tested a theoretical model aimed at exploring the influence generated by new AR interfaces for businesses and users. We primarily utilized theories of AWE experience (Kautish *et al.*, 2023) and self-determination (Deci and Ryan, 2004) as a fundamental theoretical framework to guide our work. The objective of this study was to highlight the strategic interest of AR in creating and capturing value. These two dimensions are the main pillars of a successful value chain to create and maintain a sustainable competitive advantage. Overall, our results directly address the question of how AR promotes strong value creation for companies by shaping user purchasing and recommendation behavior. The various findings advance management theory. While many articles on AR focus on marketing, few delve into its strategic dimension. However, as demonstrated by this study, AR can be considered a true strategic asset for a more efficient and effective value chain.

Firstly, AR creates new and strong value for companies. This technology allows them to better differentiate themselves from competitors. By offering AR interfaces, companies enhance new enriching shopping experiences (Pathak and Prakash, 2023) and enhance their brand capital (Javornik *et al.*, 2021). Moreover, our results suggest that AR generates strong feelings of awe that invite users to immerse themselves in these new interfaces over the long term (McLean and Wilson, 2019). Our model proves that interactivity and arousal play an important role in the emergence of the AWE experience. AR offers playful and customizable interfaces that enhance the user's virtual presence (Smink *et al.*, 2020; Hsu *et al.*, 2024). However, enjoyment is not a significant variable in shaping the AWE experience. This finding contradicts some previous studies, particularly in the realm of luxury products (Nawres *et al.*, 2023).

Secondly, the deployment of AR allows companies to capture more value. This technology enhances purchases and the development of the customer portfolio. Through the AWE experience, AR reinforces user satisfaction and confidence, encouraging them to purchase and WOM more. These conclusions confirm existing studies in the field of AR (Rahman *et al.*, 2022; Moliner-Tena *et al.*, 2023; Le *et al.*, 2023). This observation highlights that purchasing and recommendation result from a strong individual commitment requiring a close connection with the virtual interface. By deploying this advanced technology, companies will sustainably improve their performance through an effective omnichannel strategy. This adaptation also allows them to cope with the digital revolution shaking the world and disrupting current business ecosystems (Mancuso *et al.*, 2023).

6. IMPLICATIONS

6.1. Theoretical implications.

Our study brings important implications and contributes significantly to the management literature on new AR platforms. By examining the influence of this technology on lived experiences, we provide a new understanding of the process of value creation and capture. We offer an interesting contribution that extends existing work (Helfat *et al.*, 2023). Indeed, faced with the digital explosion, Helfat *et al.* (2023) assert that the RBV approach must now include technologies as strategic resources to master. These new resources need to be considered in building long-term winning strategies. Our research also contributes to studies aiming to describe the strategic processes by which companies can reconfigure their value chain to create, deliver, and capture more value (Zott and Amit, 2010). Knowing how to mobilize the right strategic resources becomes even more important to respond to structural market changes and preserve a dominant position threatened by increasingly fierce competition (D'Ippolito *et al.*, 2019). If offerings strongly influence individual behavior, technology becomes a central element in increasing sales and expanding companies' customer portfolios.

While many works demonstrate that AR is a technology serving the customer journey (Javornik, 2016), few, to our knowledge, truly shed light on its strategic and managerial importance. By considering the range of uses offered by AR, our conclusions can be applied in other research fields. Some disciplines undergoing significant changes, such as human resources, must absolutely consider the importance of AR as a tool strengthening relationships within teams of employees. Therefore, our results introduce a complementary vision to various previous research.

By analyzing the value creation process through the AWE experience, we propose an interesting framework to identify the key role played by emotions. Moreover, these works contribute to recommendations issued by the academic community (Javornik, 2016; Kumar, 2021). Emotions are

important levers of the user experience (Kautish and Kare, 2022). Companies must strive to capitalize on them in their value chain to ensure effective dissemination of these new digital platforms. Our results reinforce the need to better understand how AR influences lived experience and individual behavior (Aslam and Davis, 2024). The significant impact of the AWE experience on user behavior confirms previous studies (Nikhashemi *et al.,* 2021; Rauschnabel *et al.,* 2022; Tan *et al.,* 2022) by extending the concept of lived experience in AR. Finally, by demonstrating the significant impact of satisfaction on user trust in the site or products, our work contributes to certain recommendations (Nawres *et al.,* 2023).

6.2. Managerial implications

At the conclusion of this research, our model presents several important managerial implications. These implications offer directly actionable perspectives for companies to leverage AR in obtaining a sustainable competitive advantage.

From a strategic standpoint, companies must realize that AR significantly enhances their value chain. However, to effectively integrate it and offer truly innovative value, they must develop a set of related competencies. These competencies touch all activities of the value chain, from R&D to human resources. Strengthening IT, collaborative, and strategic intelligence skills will enable companies to develop more efficient interfaces and increase sales via these new virtual platforms. Although these key competencies require significant investments, the created value and return on investment will be substantial (Helfat and Raubitschek, 2018). Assuming that no company is smart enough to know what to do with every new opportunity it discovers, exploiting new opportunities lies in adapting the boundaries of the company (Burger-Helmchen *et al.,* 2011).

From a marketing perspective, AR benefits brand capital development and proves to be a good differentiation lever in the market. Particularly in sectors like online retail, where competition is fierce. This differentiation involves offering an immersive and emotionally strong user experience to ensure sustained individual engagement (Flavien *et al.,* 2020). To increase immersion, companies must design more realistic and anthropomorphic solutions (Garnier and Poncin, 2010). Investing in detailed 3D modeling to faithfully reproduce objects is necessary. The more realistic the elements, the more they will be perceived as authentic by users (Hsu *et al.,* 2024). Implementing realistic animations helps strengthen the illusion of interacting with reality and enhances immersion. To enhance emotions and the AWE experience, companies must enhance the interactivity of their AR platform. Offering fluid, playful, and customizable interfaces is crucial for generating positive emotions (Hsu *et al.,* 2021) and amazement. This can involve using powerful motion tracking features to allow users to interact instantly with virtual elements by moving naturally, without stuttering or image delays. The platform can also integrate object recognition to allow users to scan and identify physical objects, triggering

additional interactions or information in augmented reality. Ultimately, satisfaction and trust will be more significant, and the user will purchase and recommend the site more.

7. CONCLUSION

The main objective of this research was to study the influence of AR on value creation and user behavior. The competitive and technological pressures affecting companies are increasing. Leaders must recognize the importance of new digital technologies and align their value chain accordingly. However, this research has some limitations and avenues for further research.

Firstly, our study is based on declarative data. Each respondent filled out the questionnaire anonymously. This aspect may question its external validity. Furthermore, this study focuses on an exclusively French sample. The cultural aspect can have a significant impact on the perception of technology (Baudier *et al.,* 2022) and introduce biases in the analysis and generalization of the results obtained. Finally, this work concerns a standard eyewear sales site involving specific user motivations and profiles.

Therefore, our study opens the door to several interesting research perspectives. Researchers could conduct a qualitative study to deepen the understanding of the impact of the AWE experience on the individual and the value creation process. Future research should also incorporate other regions such as Asia or America. This would allow for a more precise measurement of the influence exerted by the cultural dimension. Furthermore, conducting a study among consumers of luxury eyewear would enable the comparison of lived experiences in the context of luxury purchases and verify the robustness of our results.

In conclusion, while this work provides many interesting insights, further research is needed to strengthen the understanding of the value creation process through new technologies such as AR.

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Figure 1 - Conceptual model and research hypotheses
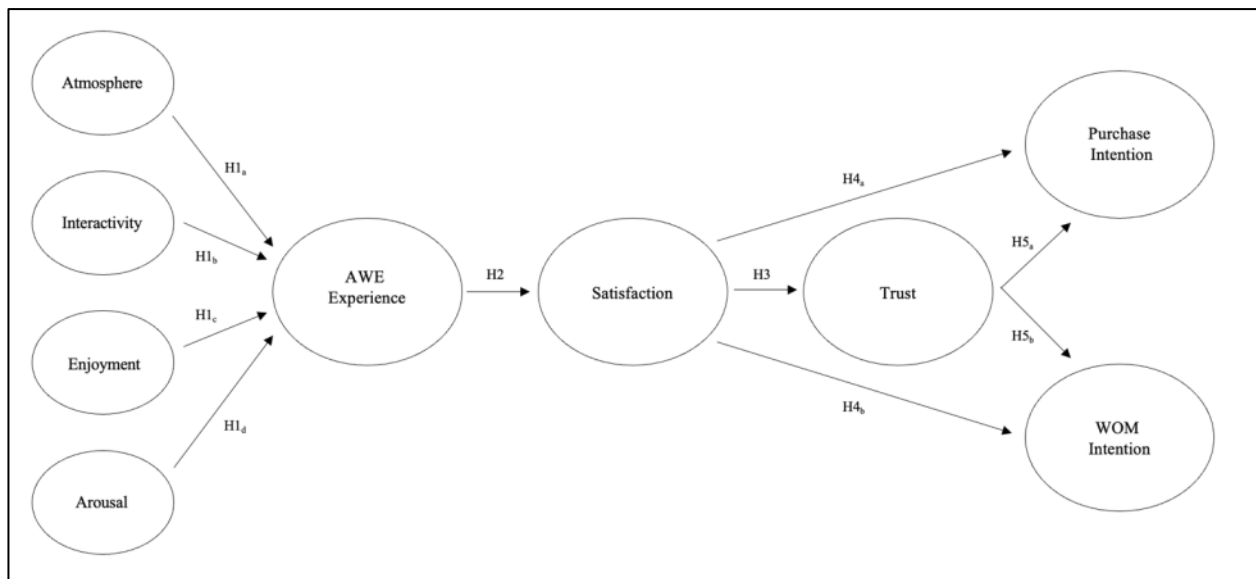
Table 1. Demographic analysis results

Classification		Frequency	Percentage of Percentage
Gender	Male	217	38,61
	Female	360	62,39
Age	18 - 25	261	45,23
	26 - 30	92	15,94
	31 - 40	59	10,23
	41 - 45	39	6,76
	46 - 50	43	7,45
	Over 50 ans	83	14,38

Table 2. Discriminant Validity and Reliability

	Cronbach's alpha	Composite reliability	AVE
Atmosphere	0,746	0,840	0,567
Interactivity	0,607	0,784	0,549
Enjoyment	0,858	0,913	0,778
Arousal	0,887	0,930	0,815
AWE experience	0,921	0,950	0,863
Satisfaction	0,873	0,923	0,799
Trust	0,858	0,913	0,779
Purchase intention	0,774	0,898	0,815
WOM intention	0,890	0,948	0,901

Table 3. Discriminant validity based on Fornel-Larker criterion

Variables	Atmosphere	Interactivity	Enjoyment	Arousal	AWE expérience	Satisfaction	Trust	Purchase intention	WOM intention
Atmosphere	0,753								
Interactivity	0,640	0,741							
Enjoyment	0,581	0,668	0,882						
Arousal	0,410	0,460	0,669	0,903					
AWE experience	0,402	0,438	0,474	0,595	0,929				
Satisfaction	0,579	0,642	0,720	0,535	0,458	0,894			
Trust	0,521	0,566	0,602	0,407	0,353	0,643	0,882		
Purchase intention	0,459	0,504	0,599	0,449	0,344	0,529	0,591	0,903	
WOM intention	0,405	0,406	0,525	0,479	0,534	0,487	0,405	0,516	0,949

Table 4. Estimation of the structural model.

Relationship between the variables studied	Path coefficients	t-value	p-value	Hypotheses
Atmosphere => AWE experience	0,115	2,478	0,013	H1a : Supported
Interactivity => AWE experience	0,155	3,333	0,001	H1b : Supported
Enjoyment => AWE experience	- 0,027	0,498	0,619	H1c : Not supported
Arousal => AWE expérience	0,494	12,238	0,000	H1d : Supported
AWE expErience => Satisfaction	0,458	12,196	0,000	H2 : Supported
Satisfaction => Trust	0,643	21,364	0,000	H3 : Supported
Satisfaction => Purchase intention	0,254	6,044	0,000	H4a : Supported
Satisfaction => WOM intention	0,300	6,156	0,000	H4b : Supported
Trust => Intention d'achat	0,428	9,648	0,000	H5a : Supported
Trust => Intention de recommandation	0,291	6,200	0,000	H5b : Supported

BUSINESS MODEL INNOVATION THROUGH THE DIGITAL MATURITY LENS: EXHIBITION ORGANIZER'S PERSPECTIVE

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ABSTRACT

With a rapid development of digital technologies, the significance of partnership between event organizers and service suppliers is growing. The opportunities provided by digital technologies should be factored in when innovating the exhibition organizer's business model. The main goal of the study is to propose a conceptual framework for studying event organizer's business model through the digital maturity lens as one of the key determinants on the path of digital transformation. For each determinant the study describes and discusses some relevant variables that could be used by managers and exhibition organizers to get in-depth understanding how they can innovate their business model.

By applying the mixed method combining quantitative and qualitative research based on the interviews with the leading organizers of trade shows and exhibitions the study systematically analyzed the innovation of the exhibition organizer's business model and the process of reshaping relationships within its business ecosystem on three levels: organizer - partners, organizer - exhibitor and organizer - visitor.

The results indicated that such digital maturity determinants as dynamic capabilities and ecosystem adapted for the event industry can be applied to measure the effect of digitalization on the exhibition organizer's business model. Digital literacy, usage of digital platforms and implementing digital strategy can define the innovative business model, reshaping the network configuration within the organizer's ecosystem. While the digital platforms variable has the strong effect on the exhibition organizer's network, the effect is not unambiguous. There are also barriers preventing the organizer from getting its business model innovated.

Keywords: Digital maturity, Business model, Event industry, Exhibitions, Digital technology

INTRODUCTION

The event industry covers a wide range of services for organizing business and non-business events. Exhibition sector, special events sector and meetings sector are considered as three main sectors in the

event industry. The global market for exhibition organizing estimated at US$19.7 billion in the year 2022, is projected to reach a revised size of US$60.7 Billion by 2030, growing at a CAGR of 15.1% over the analysis period 2022-2030. Exhibitions are among the significant enablers of global trade and economic growth (Research and Markets, 2024). The event industry landscape has been undergoing changes stipulated by digitalization and the development of digital technologies that create a highly-competitive business environment for event companies. Companies that fail to keep up with digital trends risk failing their competitor (Henfridsson *et al.*, 2014). In this perspective competitive advantages can be achieved through innovating business models (Kaplan, 2012; Chesbrough, 2010; Gassman *et al.*, 2013; Teece, 2017; Fitzgerald *et al.*, 2013) as well as reaching digital maturity (Teichert, 2019; Remane *et al.*, 2017; Colli *et al.*, 2019; Tutak and Brodny, 2022). In the report of the Global Association of the Exhibition Industry the impact of digitalization and internal management challenges were named as the most important business issues in 2022 with new digital products, business model adjustments and responding to customer digitalization needs specified (UFI 2023).

A business model is to be interpreted as made up of different components aiming at creating, delivering and capturing value (Foss and Saebi, 2017; Teece, 2010; Bocken *et al.*, 2014; Chesbrough, 2007). Network or partnership is a common feature in business model literature. It is proposed that firms recognize that multiple stakeholders (internal and external) need to interact and cooperate in order to face challenges (Zott and Amit, 2010). In relation to business models of the event organizers, the network component is represented by a large pool of venues, advertising or communications agencies and services suppliers that are involved in planning, organizing and delivering trade shows or exhibitions. All these actors are co-creating a value proposition and building an ecosystem where changes in one component cause changes in the other ones resulting in reshaping and reconfiguration of the whole partner network.

There is much research studying different aspects of the digitalization phenomenon in the event industry (Hradecky and Kennell, 2022; Davidson, 2019, Getz and Page, 2016, Laing, 2018, Neuhofer *et al.*, 2020). But there is a lack of studies about digital transformation or implementing digital technologies in relation to business model innovation in the event industry and even less is written about it in the exhibition context. Business models can be transformed under the influence of digital technologies. At the same time implementing digital technologies contributes to the level of a company's digital maturity (DM). The study finds the network or partners as a key component of the exhibition organizer's business model and explores the relationships between the organizer's DM and business model addressing the following research questions:

RQ1: Which determinants of DM can be applied to measure an impact of digital technologies on the network component in the exhibition organizer's business model?

RQ2: How can the innovative network component change the relationships on three levels: organizer - visitor, organizer - partners, organizer - exhibitor.

The schematic view of relationships between the organizer's DM and business model through digital technologies is presented in Figure 1.
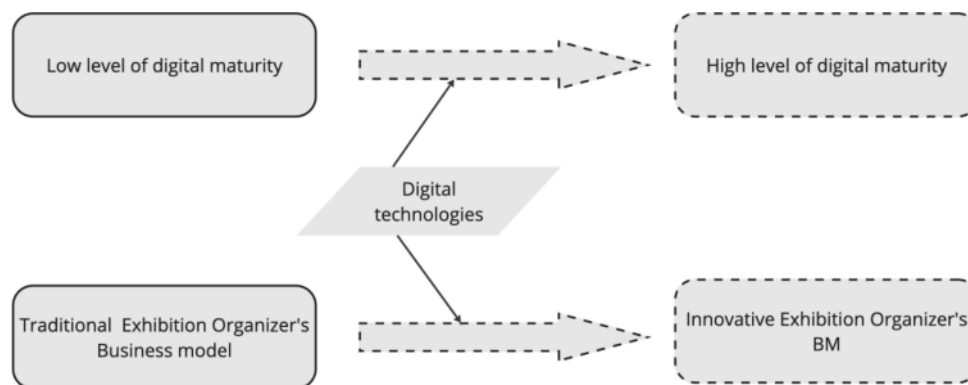
Figure 1. The scheme of relationships between the organizer's DM and business model under the influence of digital technologies

The structure of the paper is as follows. In the second section an overview of the existing literature devoted to DM and business model innovation is given. Section 3 describes the research methodology applied to study an impact of DM determinants on the event organizer's business model innovation. The results of hypothesis testing and followed-up semi-structured interviews with the Russian exhibition organizers are presented in the Section 4. Lastly, the research paper closes with a discussion of findings, implications and a conclusion.

DIGITAL MATURITY AND BUSINESS MODEL INNOVATION

Business model innovation can be considered as the main instrument for companies to adapt to environmental changes and continuously create value (Karimi and Walter, 2016; Caputo *et al.*, 2016; Spieth *et al.*, 2016). Depending on the approach different scholars propose different sets of components to describe a company's business model. Wirtz et al. (2015) give an overview of selected business model components ranked by spectrum of the components and the intensity of use in scientific literature. With this in mind it is reasonable to consider the impact of digital technologies on a

company's business model through its components. The network business model component is widely discussed in business model literature. Collaboration within ecosystem stakeholders increases their capacity to transform organizational structures by influencing each other (Skylar *et al*. 2019). Ecosystemic challenges that change the way of how an organization creates and delivers value by orchestrating new interactive and interorganizational processes are considered in studies describing digital platforms as one of the ways to reinvent traditional business models (Baber *et al*., 2019; Russo-Spena *et al*., 2022; Remane *et al*., 2017; Pizzi *et al*., 2021). Among scholars there are attempts to propose conceptual frameworks to study connections between digital transformation and innovations in business models through digital strategy (Mahboub and Sadok, 2023; Wang *et al*., 2020) or dynamic capabilities (Matarazzo *et al*., 2021; Teece, 2017; Oliveira-Dias *et al*., 2022; de Aro and Perez, 2021). The research devoted to business model in the event industry is scarce, meanwhile it is worth mentioning empirical and theoretical studies that explore of some components of the exhibitors' business model (Sarmento and Simoes, 2019; Simonov, 2020) where the authors consider the innovation of exhibitors' business model and how to reshape their interaction with users through innovation. Organizers, exhibitors, and visitors are mentioned as the key stakeholders in the exhibitions sector (Tafesse and Skallerud, 2017). However, a large pool of stakeholders are involved in organizing, managing and delivering events such as service providers and suppliers as well as venues, governmental authorities, universities, media and industry associations (Bauer and Borodako, 2019). Within this broad business ecosystem, it is the role of the organizers to facilitate relationships successfully (Jin and Weber, 2013). In terms of business model these stakeholders relate to such a component as "network" or "key partners".

Due to the complexity of such phenomenon as digital transformation (Hess *et al*., 2016; Sousa- Zomer *et al*., 2020) this study refers to the DM as one of the key elements and antecedents within the digital transformation setting (Nasiri *et al*., 2022). The higher a company's maturity level, the lower the risks in adoption new technologies (Da Costa *et al*., 2022). Thus, the DM is generally assessed to get a deeper understanding of how companies can handle digital technologies and get competitive advantages. The DM can be presented and assessed through a set of dimensions combined in a DM model. Based on the results of literature reviews the most DM models are developed in manufacturing and industry 4.0 domain (Teichert 2019; Schumacher *et al*., 2016; Pirola *et al*., 2019; Schwer *et al*., 2018). There are only so many studies providing directions on how to adapt these models to specific domains and no model developed to evaluate the DM in the event industry has been published at the time the literature research was performed. For the purposes of the study, we adapted dimensions that can define the DM of the exhibition organizer factoring in insights obtained in the result of interviews with subject matter experts and literature review.

To answer the first research question about determinants of DM that can be applied to measure an impact on the network component in the exhibition organizer's business model, literature review followed up by expert interviews using Delphi technique was conducted. Delphi technique was chosen as reasonable due to the lack of empirical evidence in scientific literature in the domain under study (Murphy *et al.*, 1998). For this study, a panel of 12 experts was formed, including experts from professional event organizations in Russia. Relying on the assumption that dynamic capabilities are relevant to DM assessment and companies need to develop dynamic capabilities specifically for digital transformation (Ellstrom *et al.*, 2021) three elements – innovation, strategy and culture – found in DM models were summarized in one dimension "dynamic capabilities". The following dimensions were determined: technology, dynamic capabilities, customer experience, processes and digital ecosystem. The study mainly focuses on interorganizational relationships and the network component of the exhibition organizer's business model. In light of this only two dimensions — dynamic capabilities and ecosystem — and their six determinants were chosen to test hypotheses and get an understanding of how determinants chosen affect a company's innovative opportunities and the network component enabling event organizers to innovate their business model.

Digital ecosystem

The most experts pointed out the importance of networking and cooperation for the event organizer. With this in mind such a dimension as "ecosystem" was defined. As one of the determinants of DM it implies that a company works as a part of a digital ecosystem, uses technology platforms to enable customizable solutions and seamless interactions with stakeholders including governmental authorities and clients. Based on the findings of the aforementioned empirical studies and experts' understanding of ecosystem dimension of DM, this study proposes the three hypotheses regarding the exhibition organizer's innovative opportunities in relation to the network component of its business model as follows:

H1: Using digital platforms positively affects the exhibition organizer's business model innovation.

H2: Collaboration with academicians in the area of event industry and digital technologies positively affect the exhibition organizer's business model innovation.

H3: Digital literacy among ecosystem's actors positively impacts on the exhibition organizer's business model innovation.

Dynamic capabilities

Dynamic capabilities are defined as the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environment (Teece et al. 2017). Current scientific research considering dynamic capabilities often study the concept in close relation to digital transformation (Ellstrom *et al.*, 2021; Marx *et al.*, 2021; Weritz *et al.*, 2020) and business model, innovation or strategy (Oliveira-Dias *et al.*, 2022; Sahebalzamani *et al.*, 2022; Teece 2010). The extent to which dynamic capabilities are developed can determine companies' ability to become mature in terms of implementing digital technologies. The dimension includes basic processes such as innovation, learning and agile management, and processes specific to digital transformation such as employees' digital skills improvement and developing digital strategy. This study considers well-developed dynamic capabilities to have a positive effect on the exhibition organizer's business model innovation and proposes the rest three hypothesis as follows:

H4: Using agile management technologies positively affects the exhibition organizer's business model innovation.

H5: Lack of employees' digital literacy negatively affects the exhibition organizer's business model innovation.

H6: Digital strategy positively affects the exhibition organizer's business model innovation.

Titles in the abstract and main body should be left justified, bold, Times New Roman 14-point font, and each major word should be capitalized. Titles and subtitles should not be numbered.

METHODOLOGICAL BACKGROUND

This study mainly investigated the relationships between dynamic capabilities, ecosystemic infrastructure and innovative opportunities of the exhibition organizer and as a consequence its capabilities to transform and innovate its business model. The research framework is depicted in Figure 2. Based on the feedback from the expert group, hypotheses were developed and a set of determinants of DM was coded and finalized. All the question items in our survey were measured using a 5-point Likert scale. Table 1 gives a list of determinants by two DM dimensions adapted for the exhibition sector of the event industry. The exemplary description of one DM's determinant as a variable is given in Table 2.
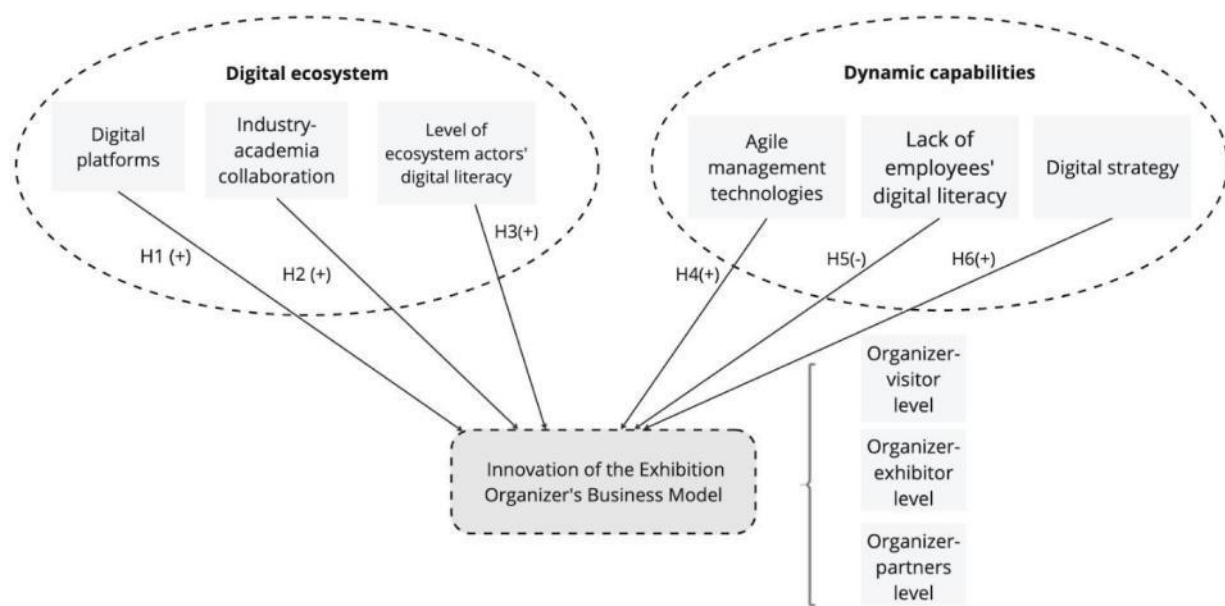
Figure 2. Research framework

To validate the research framework a quantitative survey was conducted. The survey base comprised exhibition organizers meeting the following requirements: registered as companies involved in conference or exhibition organizing activity according to the Russian Classifies of Economic Activities, registered no later than 2019 and have membership in the National Congress Bureau or the National Association of Event Organizers (NAOM). These organizations are founded to develop the Russian market of business and event organizers, represent and protect their interests and set common standards of doing business.

Code	Description
DP	Digital platforms
DLP	Digital literacy of partners
COL	Collaboration with academician in the area of digital technologies and event industry
AMT	Agile management technologies
DLE	Digital literacy of employee
DS	Digital strategy
BMI	Business model innovation

Table 1. Measurement and coding research variables

In total, we obtained the list of 217 exhibition organizers. Exhibition centers were excluded from the list of respondents as they have their own exhibition facilities and business model differs from the traditional business model of the exhibition organizer especially in terms of partner networks. Online-

questionnaire was elaborated, created and distributed through 179 exhibition organizers and 75 questionnaires were returned resulting in a response rate of 41.8%. Electronic delivery aids in reducing the costs associated with survey distribution and increases the reliability of responses by removing the need for rekeying (de Bruin et al. 2006). Data was collected between the end of October 2023 and mid-December 2023.

Code	Variable/Item
DS	Digital strategy DS 1. Well-developed digital strategy significantly enhanced innovative opportunities of our company in relation to business model. DS 2. Our company needs a digital strategy to innovate its business model. DS 3. Our company is willing to develop digital strategy to innovate its business model.

Table 2. Exemplary description of DM determinant as a variable for the study

The questionnaire content included two parts. The first part aimed at getting respondents' profile information, the second part was intended for surveying the impact of DM determinants on the company's business model innovation. The collected data were analyzed using SPSS 27 and the methods involved included descriptive statistics, reliability test, correlation and multiple regression analysis. Then qualitative research in the form of semi-structured interview was performed to get a deeper understanding of how the higher level of DM can help the organizer to innovate the network component of its business model and how relationships within its network is reshaped on three levels: organizer - partners, organizer - exhibitor and organizer - visitor under the impact of digital technologies. Semi-structured online interviews offering the opportunity to integrate open-ended and theoretically driven questions (Galletta, 2013) were used. Four respondents participated in the quantitative survey were interviewed with the main goal to get a deeper understanding of how the exhibition organizer perceives perspectives of its business model innovation under the impact of digital technologies. Two event managers and two top managers from small and medium-sized enterprises who organize more than 10 events per year including exhibitions abroad were interviewed (Table 3). Particularly, we asked the interviewees to discuss their experience of using digital platforms during the exhibition and the results of the quantitative study. Using digital platforms was one of the main selection criteria. Each interview lasted between thirty minutes and one and a half hours.

Exhibition organizer	Year of foundation	Position of interviewees	Exhibition venue location	Exhibition theme
A	2005	Events sales manager	Russia	Construction and building
B	2015	Senior exhibition manager	UAE, Dubai	Business, exhibition management
C	1998	General director	Russia	Tourism and hospitality
D	2002	Business development director	Russia	Agricultural

Table 3. Interviewees' profile

FINDINGS

The description of companies' profile in terms of distribution by number of events organized per year, company's size and annual revenue is given in Table 4. Small and medium sized companies (SMEs) prevail in the sample including micro-sized businesses (37%) with the number of employees less than 15 and annual revenue up to 120 million roubles (49%).

Number of events per year	N	%		Employees number	N	%
less than 5	13	17		less than 15	37	49.4
from 5 to 10	35	46		from 16 to 100	38	50.6
from 10 to 25	24	32		from 101 to 250	0	0
more than 25	3	4				
Position of respondent	N	%		Annual revenue, mln. roubles	N	%
CEO, General director	19	25		up to 120	49	65.4
Department head, event manager	39	52		from 120 to 800	26	34.6
CTO, Business development director	17	23		more than 800	0	0

Table 4. Sample's features

The results of quantitative research were processed via SPSS 27 software. Descriptive analysis provides an opportunity to reveal the level of agreeableness among respondents within each determinant. As shown in Table 5, the respondents' current agreeableness scored on average between 1.85 and 4.2. The top six items with highest agreeableness exceeding 3.5 belong to innovation

opportunities — "our company needs to reinvent its business model", agile management technologies — "our company is willing or has already used agile management technologies to encourage business model innovation" and level of employees' digital literacy — "the level of employees' digital literacy is high enough or no barrier on the way to business model innovation".

Item ID	Mean	S.D.	Item ID	Mean	S.D.
BMI1	4,27	1,041	BMI2	3,00	1,166
AMT2	3,69	970	AMT3	2,85	1,287
AMT4	3,62	1,169	COL3	2,81	1,767
DLE2	3,62	852	BMI3	2,81	1,297
DLE3	3,50	1,208	DS1	2,73	1,343
DLE1	3,50	949	DLP1	2,69	1,490
AMT1	3,46	1,104	DS2	2,38	1,444
DP2	3,38	1,235	COL1	2,23	1,243
DP3	3,27	1,485	DS3	1,96	1,216
COL2	3,04	1,113	DLP2	1,96	1,248
DP1	3,04	1,248	DLP3	1,85	1,377
			COL3	2,81	1,767

Table 5. Descriptive statistics results by items

At this stage we also tested the reliability of all Likert-scale questions meant to evaluate each determinant (item) of DM. Cronbach's α coefficient was calculated to ensure the internal consistency of items within each dimension. All determinants show good values (>.73) depicted in Table 6 which is above the minimum acceptable level of reliability (0.7) (Nunnally, 1975; Hair *et al.*, 2009).

Determinants	ID	Cronbach's α
Business model innovation	BMI	0,739
Employees' digital literacy	DLE	0,895
Agile management technologies	AMT	0,791
Digital strategy	DS	0,855
Partners' digital literacy	DLP	0,796
Collaboration	COL	0,834
Using digital platforms	DP	0,913

Table 6. Cronbach's α coefficient for DM determinants

Correlation analysis performed (Kendall rank correlation coefficient) provides us with information regarding the existence of correlation between dependent and independent variables. According to the analysis results each independent variable achieved significant highly positive correlations with the dependent variable when the significance level was 0.05, as shown in Table 7. High positive correlations were obtained between independent variables as well that can be a predictor of multicollinearity effect.

	BMI	DS	AMT	DP	DLP	DLE	COL
BMI	1	,697**	,661**	,703**	,556**	,617**	,655*
DS	,697**	1	,646*	,699	,673**	,450*	,746**
AMT	,661*	,646*	1	,784**	,640*	,622**	,508**
DP	,703**	,699	,784**	1	,693**	,565**	,694**
DLP	,556**	,673**	,640*	,693**	1	,441	,761**
DLE	,617**	,450*	,622**	,565**	,441	1	,509**
COL	,655*	,746**	,508**	,694**	,761**	,509**	1

**Correlation is significant at 0,01 level (two-tailed).
* Correlation is significant at 0,05 level (two-tailed).
Table 7. Correlation analysis of variables

To assess the multicollinearity a variance inflation factor (VIF) test was run while building the multiple regression model in SPSS. If a VIF value is greater than 5 it means the presence of collinearity between the independent variables (Hair et al., 2006). During our study we obtained the VIF values of all the independent variables between 1.85~4.03. No collinearity between the independent variables revealed and the data was suitable for multiple regression analysis. Table 8 describes the result of the regression analysis for DM determinants and their impact on the exhibition organizer's innovative opportunities in relation to its business model. The value of the adjusted R Square implies that the six independent variables (employees' and partners' level of digital literacy, usage of agile techniques and digital platforms, industry-academia collaboration and developed digital strategy) explain 74.3% of

the variance in the dependent variable — exhibition organizer's business model innovation — while the remaining 19.7% can be explained by other variables.

In relation to three determinants of DM in dynamic capabilities dimension only the relation between the level of employees' digital literacy and digital strategy and the organizer's innovative opportunities was found significant. It means the higher level of employees' digital literacy and the higher quality of digital strategy developed the higher level of the organizer's innovative opportunity by b = 0.290, p = 0.009 and b = 0.195, p = 0.002 respectively. Within the research framework of the study it means as well that digital literacy and digital strategy positively impact on the network component in the organizer's business model resulting in changing the organizer's relationships with an exhibitor, visitor and partners. This supports H5 and H6, where the well- developed digital strategy and adequate level of employees' digital literacy positively affects the exhibition organizer's innovative opportunities. The level of significance for the agile management determinant is too high indicating that H4 was not supported. The fact can be explained by the project type of exhibition organizers activities and implementing of agile technologies supposed to be a tone-of-voice in the industry.

	Dynamic capabilities dimension			Digital ecosystem dimension		
Variables	DS	AMT	DLE	DLP	DP	COL
B	0.253	0.180	0.174	0.208	0.293	-0.122
SE B	0.205	0.302	0.236	0.270	0.235	0.210
Beta	0.290*	0.159	0.195*	0.211*	0.231*	-0.139*
t-value	1,239	0.597	0.736	0.770	1,246	-0.580
Sig.	0.009	0.458	0.002	0.001	0.003	0.011
VIF	2.961	3.822	3.758	4.031	1.858	3.081
Model summary						
R-square	0.792					
Adjusted R-square	0.743					
F	5.827					
Sig.	0.001					

Table 8. Multiple regression analysis results

From the digital ecosystem dimension there were three proposed variables and all of them were statistically significant. This implies that the increasing level of partners' digital literacy, intensification of collaboration and usage of digital platforms will increase the probability of the organizer's business

model innovation. However, the connection between collaboration and business model innovation is weak (b = - 0.122, p = 0.011). The negative value suggests that increasing the level of collaboration will lead to deterioration of the organizer's innovative opportunities in relation to its business model. Therefore, H2 is not supported. The results of hypothesis testing are shown in Figure 3. The strongest predictor of the exhibition organizer's business model innovation is digital strategy with b = 0. 290 followed by the usage of digital platforms and digital literacy of both partners within the organizer's business ecosystem and employees. The results of the study are depicted in Figure 3.
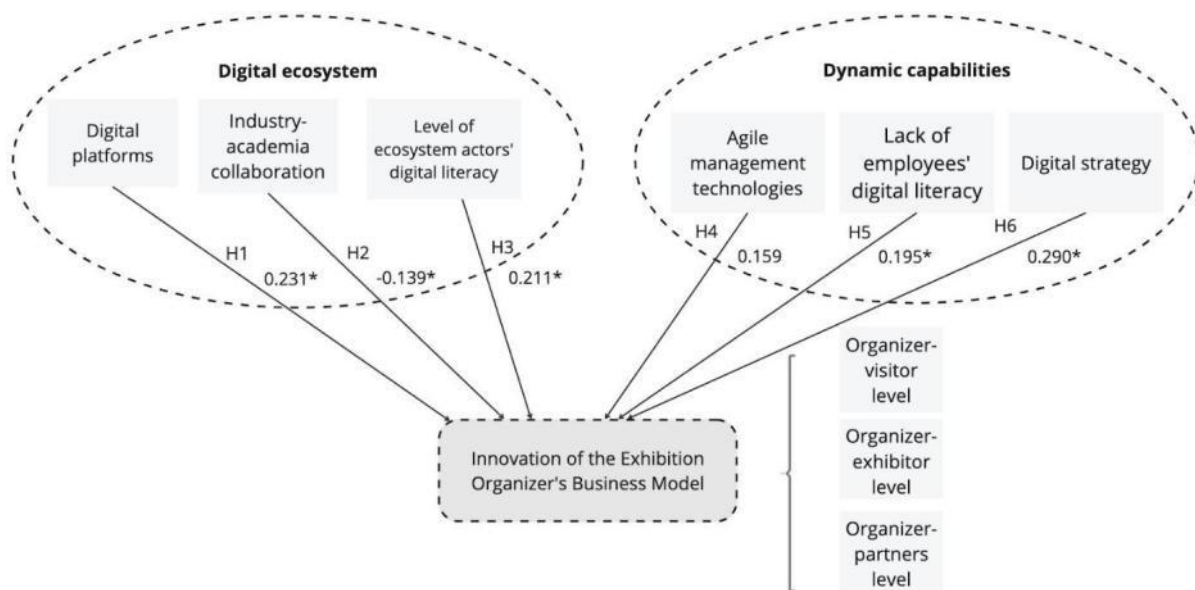
*significance at p < 0.01; standardized coefficients are reported

Figure 3. The results of the study

In the result of qualitative research we obtained insights regarding the linkage between the exhibition organizer's business model innovation and such DM determinants as digital platforms (Table 9). Despite the fact that unified digital infrastructure for the event organizer is a far-reaching goal, in most cases various digital platforms where the exhibition organizer and other stakeholders including its business partners could interact have a potential to enhance visitors' and exhibitors' experience resulting in reconfiguration of the whole business network of the event organizer through the inclusion of digital platform developers as a new ecosystem actor. We also asked the interviewees to comment on the hypothesis regarding the positive effect of collaboration with academicians in the area of event industry and digital technologies with business model innovation as the hypothesis was not supported and the linkage turned out to be weak and negative. One of the possible explanations was given by the interviewee D, representing the organizer of the largest agricultural exhibitions in Russia since 2002:

[...] I would say that one of our key activities as the organizer is a constant interaction everywhere with everyone. Of course we see a great potential in collaboration. We don't have our own exhibition facilities and have to rely on external resources when we deliver our events. Our company tries to be on the top of the industry trends but I would prefer business collaboration over collaboration with academicians. Maybe it's not so wise but that's our reality.

In the vein of digital ecosystem dimensions and its impact on business model innovation it makes sense to reconsider the notion of collaboration with the emphasis on partnership with software developers and providers. In the last section of the interview the respondents were asked to discuss the matter of changes in the organizer's relationships with visitor, exhibitor and partner in the result of innovation of the network component caused by digitalization.

Interviewee	Example Quotations
A	Mobile apps can be a real salvation for the organizer but meanwhile, it's a double-edged sword. Yes, we could attract and reach three times more online participants than previous year and a number of views exceeded 200 000, we reduced the expenses on printed products but at the same time we paid for the developer's services, technical support and it also took additional efforts and skills from our employees. To assess the advantages of digital platforms usage further calculations are needed.
B	We've tried a new mobile app from the external provider customized for our purpose. A set of application opportunities was enormous but we started with a few ones. Nevertheless, even with limited functionality we've got extremely positive feedback from our participants and customers. Invest projects competition took place among the exhibition booths, with the help of the digital platform we as the organizer could enhance activities and ease the navigation for visitors.
C	Today, event apps are essential for top-notch exhibitions, serving not just for exposition but as a hallmark of the organizer's business acumen in the industry. The app facilitates diverse event activities through features like meeting scheduling, push notifications, gamification, and feedback gathering. Although primarily for visitors and exhibitors, we envision the app becoming a complete digital platform for all partners.
D	Our company embraces advantages we can get from various digital technologies and additional value we can create for our participants but I don't get my hopes up. We've been working in the exhibition sector for more than 20 years and work with different venue providers. Must say that even the usual internet connection and other technical aspects of the venue is always a challenge for the organizer. You can be on the edge of all technological trends but when your partners can't support your efforts…it frustrates you a lot.

Table 9. Exhibition organizer interview example quotations — Digital platforms

DISCUSSION AND IMPLICATIONS

In assessing the influence of digital technologies on the event organizer's business model innovation, two main DM dimensions — digital ecosystem and dynamic capabilities — divided into six hypotheses were analyzed. Previous studies confirmed that dynamic capabilities have relation to business model innovation and stressed the importance of dynamic capability as a source of competitive advantage (de Aro and Perez, 2021; Teece, 2017; Sahebalzamani *et al.*, 2022). The findings of our study have indicated that developed digital strategy as one of the aspects of dynamic capabilities is the strongest predictor of the organizer's business model innovation with the significance level equal to 0.015. The digital strategy encourages exhibition organizers to find new ways to renew their business model. Digital strategy of the exhibition organizer focuses on using various digital channels and technologies to promote their events. This includes leveraging online platforms, technologies, and tools to reach a broader audience, increase event visibility, increase ticket sales, and engage with potential attendees. The H5 regarding digital literacy of employees was supported as well and demonstrated the high level of significance. Most respondents pointed out an adequate level of their employees' digital skills and literacy that support their innovative efforts. It implies exhibition organizers will create new competitive advantages with technology. The findings proved that determinants from another DM dimension, digital ecosystem, were suitable to consider the organizer's business model innovation through their lens but one predictor of business model innovation demonstrated the weak linkage. The hypothesis regarding the positive effect of collaboration with academicians on the organizer's business model innovation was not supported. Respondents explained that due to the rapid changes in business environment they did not see the point to develop industry-academia collaboration and preferred to invest in developed tools instead of in theoretical research (Interview/Exhibition organizer D).

The hypothesis that the usage of digital platforms positively affects business model innovation was supported. But the findings of semi-structured interviews revealed that the notion of digital platforms was misinterpreted or narrowed down by respondents. Most respondents described their experience of usage of special-purpose mobile applications but not the full-on digital platforms. It is noteworthy to discuss the results in light of previous studies. Interviewees expressed the concern regarding ambiguity of mobile apps implementation during the event that is in line with studies (Hradecky and Kennell 2022; Neuhofer *et al*. 2020; Talantis *et al* 2020). Multiple case-study conducted revealed that through digital platforms and tools, firms can establish clear channels for communication and collaboration, ensuring that innovation initiatives are in line with the strategic direction of the organization (Priyono and Hidayat, 2024). Assessing an impact of special- purpose mobile apps on

customer experience is important but the exhibition organizer is operating in a business ecosystem with multiple stakeholders where introducing any digital technology or innovation leads to reshaping the whole network's configuration and requires not only financial investment but a new mindset from all stakeholders (Bauer and Borodako, 2019). It implies that efforts of the event organizer are not always enough to obtain competitive advantages.

The study has several theoretical and managerial implications. In terms of methodology the study proposes a conceptual framework for studying the event organizer's business model through the ecosystem lens which factors in specific features of the exhibition sector and fills the gap as the research has paid insufficient attention to digital transformation phenomenon in relation to business model innovation in the event industry and even less from the exhibition organizer's perspective. The study considers the connection between DM determinants and business model innovation. For each determinant the study describes and discusses some relevant variables that could be used by managers and exhibition organizers to get in-depth understanding how they can innovate their business model through the reshaping and partner network's reconfiguration with the usage of digital platforms, development of digital strategy and increasing digital literacy.

CONCLUSION AND LIMITATIONS

Based on the study results it can be concluded that determinants of DM as an antecedent of digital transformation are associated with the exhibition organizer's business model innovation. The most relevant determinants are digital literacy of employees and partners and digital strategy, while the importance of collaboration with academics and implementing agile management technologies was not confirmed. The findings of semi-structured interviews revealed that the notion of digital platforms was often narrowed down by respondents. Meanwhile, even the usage of special-purpose applications as an example of digital platforms significantly changes the network component of the organizer's business model as it leads to the appearance of a new actor in the event ecosystem. Along with the other DM determinants the usage of digital platforms gives the exhibition organizer new competitive advantages and reshapes its relationships with all stakeholders.

Organizer-visitor level

On the organizer-visitor level DM of the exhibition organizer implying an active usage of digital technologies can significantly enhance visitors' offline and online experience, allow the organizer to reach a broader audience and collect more data about this group of stakeholders.

Organizer-exhibitor level

In terms of organizer-exhibitor relationships digital platforms demonstrate a great potential. On this level digital technologies and additional digital channels enable the organizer to deliver exhibitors more valuable services, for instance, meeting appointment system, contract conclusion, booths' activities and others.

Organizer-partners level

Any changes and innovations in the network component of the exhibition organizer's business model on the organizer-partners level are the most difficult issue. The organizer interacts with multiple suppliers, providers, and temporary services in order to organize and manage the exhibition. Thus, one new actor in the network component, for instance, a mobile application developer providing electronic navigation tools, can lead to deintensification ties with partners from the traditional printing industry.

This study has a few limitations that can drive future research. First, the analysis in this study was based on 75 valid samples. A larger sample size is suggested to further research for better representation of findings. Second, we collected samples only from exhibition organizers who have no their own exhibition facilities though exhibition centers often conduct exhibitions acting both as the organizer and the provider adding complexity to the research of the exhibition organizer's business ecosystem (Bauer and Borodako, 2019). A set of DM determinants is suggested to be corrected in light of the results. Particularly, such determinant as "collaboration" should be reconsidered. In terms of semi-structured interviews there are some perspectives as well.

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THE INTERPLAY OF PERCEIVED DIVERSITY, EQUITY, WORK ENGAGEMENT, AND PERFORMANCE: A SEQUENTIAL MEDIATION MODEL

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ABSTRACT

In the dynamic business era, corporate efforts in cultivating a positive diversity climate have surged over the past two decades. While diversification is often viewed as a strategic maneuver, there is a notable debate in evidence regarding its multifaceted impact on business success. To bridge this critical gap, this study draws upon the categorization-elaboration model (CEM) to investigate the impact of perceived knowledge diversity on employee performance mediated by job equity and work engagement. Furthermore, it deploys a sequential mediation model to empirically explore the sequential effects of mediating variables on the dependent variable. Following a cross-sectional survey research design, the data was collected from 184 employees working across various organizations in India. Descriptive statistics and measurement model were analyzed using SPSS 22.0 and AMOS 27.0, respectively. Additionally, hypotheses testing was conducted using Mplus 7.4. Results revealed that perceived knowledge diversity positively impacted individual work performance directly and indirectly via job equity and work engagement. Moreover, the sequential mediation model was validated by the observation that job equity positively impacts work engagement. This study contributes to the existing literature by proposing a comprehensive model elucidating organizational outcomes of perceived knowledge diversity and putting forth some important practical implications for diversity management policies and practices in the workplace.

Keywords: Diversity in global business environment, job equity, work engagement, job performance, DEI in business, perceived knowledge diversity, transformation

INTRODUCTION

Recognizing the pivotal role of diversity in the turbulent business environment, this research aims to investigate the impact of Perceived Knowledge Diversity (PKD) on Individual Work Performance (IWP) through a proposed sequential mediation framework. Central to this investigation is an

examination of the sequential mediating roles of job equity and work engagement, aimed at elucidating the mechanism underlying the relationship between PKD and IWP.

The rising business globalization and the accompanying demographic shifts have resulted in an increasingly diverse workforce (Williams and O'Reilly, 1998). This transformation has sparked notable surge in attention towards diversity management, evidenced in both business practices and social discourse (Desivilya and Raaz, 2015). A diverse workforce consists of employees hailing from various countries, cultures, age brackets, genders, and educational backgrounds (Van Knippenberg and Mell, 2016). While diversity provides organizations with a competitive edge by nurturing creativity, problem-solving abilities, and innovation (O'Reilly *et al.*, 1998), and by enhancing employee well-being (Jaiswal and Dayaram, 2019). However, it's important to note that diversity is often seen as a "double-edged sword" (Milliken and Martins, 1996). Alongside its benefits, studies have highlighted the detrimental consequences of diversity, such as ostracism, straining interpersonal trust, and undermining well-being and engagement (Tian *et al.,* 2021; Guillaume *et al.*, 2017; Jackson *et al.*, 2003). Despite this complexity, fostering diversity within businesses is not merely a commendable virtue; it's a crucial strategy for global competitiveness in today's turbulent era (Zanoni *et al.*, 2010).

Moreover, simply increasing organizational diversity does not yield favorable outcomes (Guillaume *et al.*, 2017). Without equity and inclusion, diverse team members may encounter feelings of disengagement and separation (Lyman *et al.*, 2021; Berry, 2016); this suggests that conceptually, diversity, equity, and inclusion (DEI) are intertwined values. DEI has the potential for an organizational impact only when they are combined. Diversity represents heterogeneity in the workplace, whereas equity considers an individual's unique features and needs during treatment so that the outcome is equal. Awareness of knowledge diversity (i.e., functional background, job category, education, etc.) within organizations might lead employees to view the workplace as fair and equitable, where employees' unique characteristics (i.e., experience in the field, job roles) and needs are the basis of treatment (i.e., promotions, pay raises). Employees' perception of fairness and justice will enhance work engagement (Pritchard, 1972). For instance, if diversity within organizations results in employees positively acknowledging(perceiving) others' skills and abilities, these positive perceptions may foster diverse perspectives while solving a problem, thereby indirectly enhancing engagement and performance. Building on this assumption, the present study mainly centers on exploring the role of employees' perceptual experiences of diversity, equity, and work engagement as precursors of individual work performance.

Over the past three decades, several researchers have underscored the profound significance of diversity (Mousa *et al.*, 2021; Nizamidou, 2023) in business research. Following the trend, the existing literature has already accumulated insights into how actual diversity indicators foster creativity,

enhance business decision-making processes, and superior problem-solving capabilities (Ahmad *et al.*, 2019; Guillaume *et al.,* 2017). Additionally, studies have explored the role of perceptions of diversity in influencing employee performance and well-being (Wadhwa, 2022; Jaiswal and Dayaram, 2019). Despite these strides, there remains a noticeable gap in empirical research concerning the perception of diversity as an organizational precursor to work engagement (Downey *et al.,* 2015). Work engagement indicates the proactive utilization of personal resources by employees in fulfilling their work responsibilities, and engaged employees demonstrate higher levels of motivation and commitment to fulfilling their assigned tasks and additional responsibilities (Rich *et al.,* 2010). Therefore, this study examines whether perceived knowledge diversity and equity cultivate work engagement.

Drawing on the tenets of the Categorization-elaboration model (CEM), the present study proposes a comprehensive model (Figure 1) elaborating the linkage between perceived knowledge diversity (PKD) and individual work performance (IWP) by considering the role of underlying mechanisms, such as equity and work engagement. Categorization-elaboration model (CEM) (Van Knippenberg *et al.,* 2004), which advocates for the exploration of mediators and moderators to comprehend the impact of diversity on team performance and other outcomes; researchers are encouraged to delve into novel facets of diversity, this study investigates the role of job equity and work engagement as sequential mediators to understand how perceived knowledge diversity relates to individual work performance. In the subsequent sections, the study formulates hypotheses based on theoretical background and reports measurement and data analysis conducted on SPSS and Mplus, along with results and discussion. The study concludes by offering valuable practical implications and advocating diversity-friendly practices.

THEORY AND HYPOTHESES

Although commonly grouped as "diversity, equity, and inclusion" (DEI), each element carries distinct significance and is conceptually different. Diversity is "*the representation, in one social system, of people with distinctly different group affiliations of cultural significance*" (Cox, 1993, p. 5). Whereas equity is more associated with organizational and systematic approaches in distributing rewards or outcomes (Bernstein *et al.,* 2020), the study explores job equity, which refers to "*the degree to which employees perceive to be fairly treated considering their education, training, experience, responsibilities, etc.*" (To and Huang, 2022, p. 6). Moreover, the research evaluates how employees' perceptions of D-E influence their level of work engagement and individual work performance, which is defined as "*a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual,*

or behavior" (Schaufeli *et al.*, 2006). In contrast, job performance is defined as *"behaviors or actions that are relevant to the goal of the organization"* (Campbell, 1990).

Diversity, a debatable term, includes observable attributes like race, age, and gender alongside less tangible factors such as values and perspectives. The former are surface-level diversity indicators, while the latter denotes deep-level diversity (Harrison *et al.*, 1998). This study explores characteristics of informational/functional diversity in terms of perceived knowledge diversity. Whether information or functional characteristics are classified as surface or deep-level diversity varies depending on the context (Pelled *et al.*, 1999). For example, in this context, perceived knowledge diversity is operationalized in terms of educational level, background, work experience, tenure in the organization, job category, and functional background, identified as significant attributes of PKD that make them less salient and visible. Hence, this study considered knowledge diversity a subtype of deep diversity.

The current model (Figure 1) is presented based on the tenets of the categorization-elaboration model (CEM, Van Knippenberg *et al.*, 2004). It suggests that diversity operates through two channels that intertwine: the first is intergroup bias arising from social categorization, and the second channel is information elaboration processes. The presented study is rooted in an information-elaboration approach, which is characterized by an individual-level process of exchanging, discussing, and integrating information and perspectives. Enhancing the information-elaboration approach will improve performance. Based on this theoretical paradigm, the present study assumes that following the information-elaboration channel, the perceived knowledge diversity (deep diversity) will enhance individual performance via factors strengthening the information-elaboration approach, i.e., job equity and work engagement.

DEI increases a team's performance through heterogeneous input of differing ideas and perspectives, leading to positive outcomes of improved diagnostic accuracy, patient satisfaction, and quality of care in the healthcare industry (Coleman *et al.*, 2023). Aligning with similar reports, a study demonstrated positive associations between diversity, quality, and financial performance (Gomez *et al.*, 2019). Organizations realize that incorporating DEIB into culture and strategy creates more robust relationships, improves quality and retention, and increases profitability. (Stamps *et al.*, 2023).

Parallelly, actual demographic diversity, i.e., age diversity, and functional diversity, i.e., educational background, significantly influence employee performance in the participating. However, workplace dimensions such as gender, ethnicity, and religion do not significantly affect employee performance (Tjimuku & Atiku, 2024). Mirroring the actual diversity studies, employee perception of diversity is also reported to be positively linked to perceived organizational performance, and the findings suggest that the relationship gets more robust in the presence of perceived organizational justice

(Blouch and Azheem, 2019). Based on the previous literature and theory, the following hypothesis is proposed.

H1. Perceived Knowledge Diversity is positively related to individual work performance.

Undoubtedly, when employees evaluate how they are treated within a diverse group with different skill sets, knowledge, roles, and functions, they form perceptions about either fulfillment or

violation of equitable treatment. Acknowledging the differences and perceiving that the treatment is based on a unique set of characteristics regarding skillset, knowledge, etc., will lead to fair and positive perceptions of job equity. In turn, job equity will mediate the relationship between PKD and IWP. Aligning with the study's assumptions, earlier studies reported between workplace diversity and pay equity (Buttner and Lowe, 2015). Organizational justice mediated the relationship between diversity management and referent outcomes (Fujimoto *et al.,* 2013). Justice perception was positively associated with performance (Swalhi *et al.,* 2017; Shan *et al.*, 2015). Inuwa (2017) and Pritchard *et al.* (1972) highlighted the positive relationship between job equity and work engagement. Aligning with the findings, Downey *et al*. (2014) reported that diversity practices through a trusting climate positively influence work engagement. Rooting in the principles of equity theory and organizational justice theory, the present study hypothesizes that PKD will positively affect job equity.

H2 Perceived Knowledge Diversity (PKD) is positively related to job equity.

H3 Job equity is positively related to individual work performance.

H4 Job equity mediated the relationship between PKD and individual work performance.

H5 Job equity is positively related to work engagement.

Previous studies reported that the empirical work focuses on the perception of diversity climate as an organizational antecedent to work engagement is scant (Downey *et al.,* 2015). A study confirmed a positive association between HR practices focused on diversity and employees' work engagement, with a diversity climate mediating this relationship (Luu *et al.,* 2019). Backing the results of a previous study, recent research reported a positive correlation between the perception of diversity practices and engagement, which is mediated by the perception of inclusion (Jeronimo and Henriques, 2021). In line with the above findings, work engagement positively predicted work performance in a study by (Bakker and Bal., 2010). Based on the review of extant literature, the following hypotheses are formulated.

H6 Perceived Knowledge Diversity (PKD) is positively related to work engagement.

H7 Work engagement is positively related to individual work performance.

H8 Work Engagement mediates the relationship between perceived knowledge diversity (PKD) and employee performance.

METHODOLOGY

Sample and procedure

Data was collected (N=184) by employing convenience sampling as a non-probabilistic method that relies on high accessibility, voluntary, and convenient participation (Creswell, 2012). The sample consisted of individuals from various private enterprises spanning diverse work sectors, including Manufacturing, IT, and banking. To verify the adequacy of the sampling size for the study, the study adheres to the recommendations established by Fritz and MacKinnon (2007), suggesting that a sample size ranging from 151 to 200 respondents is necessary. Moreover, Comrey and Lee (1973) suggested a minimum of 100 valid responses for robust analysis. Based on the above theoretical tenets, researchers assumed that the sample obtained for the study aligns with the conventional requirements.

Based on theoretical assumptions, researchers empirically confirmed the adequacy of sample size by conducting statistical power analysis with the help of MedPower by following the methodology initially employed by (Ismail *et al.*, 2023). Statistical power analysis assessed the probability of detecting true mediation effects, considering a power of .80 to be an adequate benchmark (Cohen, 1988). This value reflects a low risk of committing a Type II error. The analysis indicated that the power was nearly 1 in all mediation scenarios, substantially exceeding the recommended threshold of .80. As a result, researchers concluded that the obtained sample size had sufficient power to detect true effects.

The respondents comprised 121 males (65.8%) and 63 females (34.2%), with 82 employees from the manufacturing sector (44.6%), 54 employees from the IT sector (29.3%), and 48 employees from the banking sector (26.1%) in India. The age range of participants spans from 25 to 50 years, with an average age of 38.5.

Measures

The standardized questionnaires employed in this study were validated in previous academic research and have been formally published in scholarly journals. The composite reliability was computed and reported in Table 1, showing all the CR values above the threshold value of 0.7, as suggested by conventional standards.

1. Perceived Knowledge Diversity (PKD): PKD was assessed by a scale adapted in the Indian context by Jaiswal and Dayaram (2019) using items developed initially by Harrison *et al.* (2002) and Kirchmeyer (1995). The scale includes items based on educational qualification, background, work experience, job tenure, job functions/domains, and job categories. The 6-item scale follows a 5-point Likert form, with responses ranging from never to always. The composite reliability of the scale was 0.74.

2. Job Equity (JE): JE was assessed by using a scale adapted by To and Huang (2022) from Tai and Sims (2005). The construct was assessed with 6-items rated on a 5-point Likert scale with 1 "strongly disagree" to 5 "strongly agree. The Cronbach value was 0.923.

3. Work Engagement: The Utrecht work engagement scale (UWES-9S) by Schaufeli *et al.* (2006) assessed employees' work engagement. The scale has three subdimensions: vigor, dedication, and absorption. It consists of nine self-report statements. The items are scored on a 7-point Likert frequency scale. The reported Cronbach alpha for the scale was reported to be 0.89.

4. Individual Work Performance: Individual work performance was assessed utilizing a questionnaire developed by Villagrasa *et al.* (2019), known as the Individual Work Performance Questionnaire (IWPQ). The questionnaire comprises 18 items that measure contextual performance, counterproductive behaviors, and task performance. The scores are measured on a 5-point rating scale ranging from (0) seldom to (4) always. The reliability coefficient was found to be .87.

Data analysis

Data was analyzed using SPSS 22.0, AMOS 27 and Mplus 7.4. The use of self-report measures in the study may aggravate the common method bias. Hence, a preliminary analysis for assessing the common method bias (CMB) was conducted by deploying Harman's one-factor test. The results of unrotated factor analysis showed that the first principle factor explained only 17.91% of the variance, indicating that employed methods and data had minimal influence of common method bias on the study's findings. Confirmatory factor analysis (CFA) was performed to assess the model fit indices. Pearson correlation coefficients were used to assess the strength and direction of linear associations between our research variables. Based on the results of correlation analysis, researchers further computed linear regression with individual work performance (IWP) as a criterion variable in order to advance further mediation analysis.

Researchers assessed the direct, indirect, and total effects of perceived knowledge diversity on individual work performance via job equity and work engagement using Mplus. Subsequently, a sequential mediation model was tested in Mplus. Significance was inferred for effects where confidence intervals did not encompass zero.

RESULT

Descriptive and correlation analysis

Inter-correlations among study variables, mean, standard deviations and composite reliabilities for the study constructs are presented in **Table 1**. Significant correlations were found between PKD and IWP (r=.488, p<0.01), PKD and JE (r=.432, p<0.01), and WE (r=.372, p<0.01), and between JE and WE (r=.410, p<0.01). The full correlations are demonstrated in **Table 1.**

Significant positive correlations were obtained between the study variables, which primarily support **H1, H2, H3, H5, H6, and H7**. The high correlations between JE and WE provide the basis for further sequential mediation analysis.

Measurement model

Confirmatory factor analysis (CFA) was conducted by deploying AMOS 27 to assess the model fit of all the measures for the particular study. Researchers have used conventional cut-off points to interpret the model fit indices, and the fit indices for the proposed model II demonstrate a satisfactory fit ($\chi2$ = 373; GFI = 0.862; RMSEA = 0.05). Items with only statistically significant loadings of 0.45 or higher were retained for subsequent analysis. Moreover, after testing the measurement model I, researchers concluded that the four-factor model fits the data significantly. This model comprised of four factors and a total of 39 items (PKD = 06, JE= 06, work engagement = 09, and IWP= 18). However, as indicated in **Table 2**, the overall fit results of the initial full measurement model (i.e. Model I) suggested that the indices did not align well with the data. Thus, a thorough examination of modification indices and standard residual co-variances prompted a re-specification of the full measurement model (Hoyle, 2000). This process led to deletion of 5 items from IWP scale, 1 item from work engagement, and 1 item from JE scale due to lower factor loadings. Following the removal of seven items from the initial measurement model, the revised model (referred to as Model II), consisting of four factors and 32 items (PKD 07; JE = 05; work engagement: 08, and IWP = 13), demonstrated improved alignment with the data (Hair *et al*., 2006). Furthermore, the composite reliability of each variable was calculated, it was above 0.70, as presented in **Table 1**.

Table 1. Means, standard deviations, and correlations among variables (N = 184).

Variables	Mean	SD	1	2	3	4	CR
1. Perceived Knowledge Diversity	20.68	3.96	1				0.76
2. Job Equity	20.83	3.89	0.432**	1			0.72
3. Work Engagement	34.64	7.38	.327**	0.410**	1		0.73
4. Individual Work Performance	61.06	11.19	.488**	0.461**	.625**	1	0.81

Note: **$p < 0.01$ (two-tailed test). CR = Composite reliability

Table 2. Goodness-of-fit for measurement model

Models	$\chi2$	GFI	CFI	NFI	RMSEA
1. Model I 3 factorsa	487.2**	0.737	0.799	0.839	0.078
2. Model II 3 factorsb	373**	0.862	0.894	0.946	0.040

Note: **$p < 0.01$ (two-tailed test). $\chi2$ = Chi-square, GFI = Goodness of fit index, CFI = comparative fit index, NFI = Normal fit index, RMSEA= Root mean square approximation. **p<0.01, [a] = Model comprising 39 items, 3 factors, [b] = model comprising 32 items

Regression analysis

Following the significant results of correlation analysis, researchers further conducted linear regression analysis in which IWP was determined as a criterion variable in the model. In explaining, IWP, PKD, JE, and WE collectively accounted for 48% of the variance, with an adjusted R^2 of 48. This suggests that nearly half of the variance is attributable to all three predictive variables. The indices in **Table 3** indicate an overall satisfactory fit of the data. The multiple regression analysis confirmed the hypothesized predictive relationships proposed in **H1** (β= .26, t = 4.49, $p<0.01$), **H3** JE significantly predicted IWP (β= .15, t = 2.42, $p<0.05$), and **H7** WE significantly predicted IWP (β= .47, t = 8.06, $p<0.01$).

Table 3. Results of the multiple regression with Individual Work Performance as the criterion variable.

Variables	β	SE	t	p
1.Perceived Knowledge Diversity	.26	.16	4.49	.000
2. Job Equity	.15	.17	2.42	.016
3. Work Engagement	.47	.08	8.06	.000

Note: β = Standardized coefficients, SE= Standard error

Sequential mediation model

The Mplus software was employed to assess the sequential mediation model. Initially, a structural equation model of sequential mediation was evaluated, and the fit indices reported below showed *(χ^2= 204.47, df=6, CFI=0.98, TLI=0.93, RMSEA=0.00) adequate fit to the data.*

*The sequential mediation estimates are presented in **Table 4** and **Figure 1**. Perceived knowledge diversity positively influences job equity (estimate= 0.432, p<0.01); simultaneously, PKD positively predicts work engagement (estimate=0.196, p<0.01).* Moreover, job equity (mediator 1) positively influences work engagement (mediator 2) (estimate=0.331, p< 0.01), constituting a sequential mediation model. Additionally, PKD, JE, and WE positively influence the criterion variable, i.e., IWP (estimate= 0.268, p<0.01; estimate=150, p<0.05; estimate=0.476, p<0.01). *Table 4. Sequential Mediation Analysis (N = 184).*

Dependent variable	Independent variable	R2	Est/SE	Estimates	95% CI [LL, UL]
Job Equity	Perceived knowledge diversity	0.187**	3.603	0.432**	[0.333, 0.531]
Work Engagement	Perceived knowledge diversity	0.196**	3.732	0.184*	[0.064, 0.303]
	Job Equity			0.331**	[0.261, 0.446]

Dependent variable	Independent variable	R2	Est/SE	Estimates	95% CI [LL, UL]
Individual work performance	Perceived Knowledge Diversity Job Equity Work Engagement	0.497**	9.499	0.268** 0.150* 0.476**	[0.172, 0.418] [0.050, 0.250] [0.387, 0.565]

Note: CI= confidence Interval, Estimates = standardized regression coefficients, ** significant at p < 0.01, * significant at <0.05.

Figure 1: Sequential mediation model with standardized estimates
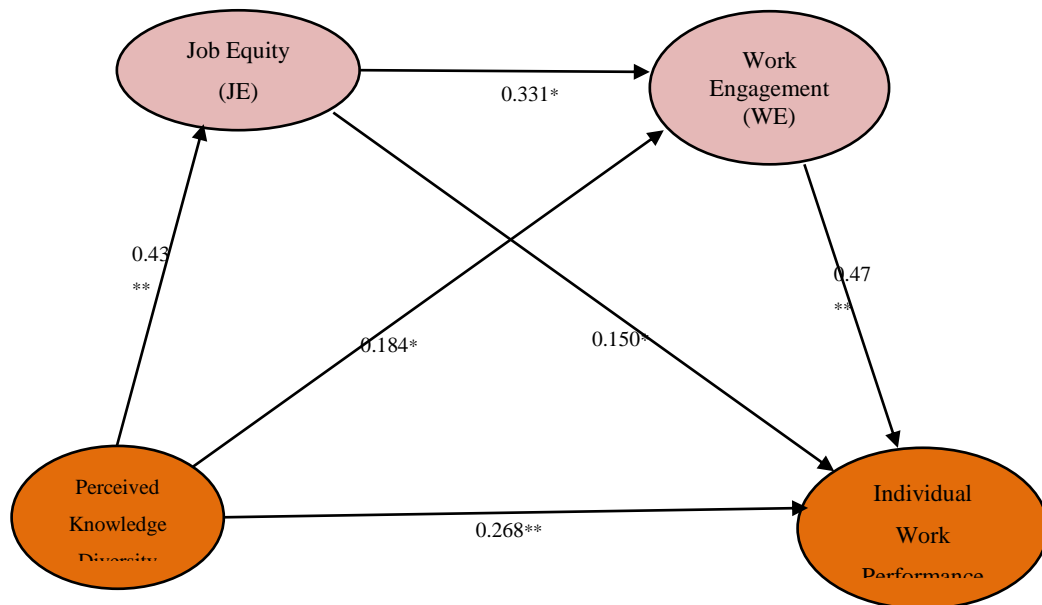
Table 5 presents the mediating effects along with their respective 95% confidence intervals, indicating that all indirect pathways and effects were statistically significant. Results indicated that PKD had a positive and significant indirect influence on IWP (std. estimate = 0.220, SE = 0.042, CI: 0.151 - 0.290). Particularly, PKD indirectly influenced IWP through three main mediating pathways: (1) Job equity (std. estimate = 0.065, SE = 0.028, CI: 0.019 - 0.111) supporting **H4**; (2) Work engagement (std. estimate = 0.087, SE = 0.035, CI: 0.029 - 0.146) supporting **H8**; and (3) the sequential mediation effect of job equity and work engagement (std. estimate = 0.068, SE = 0.019, CI: 0.036 - 0.100). Additionally, the

direct influence of perceived knowledge diversity on individual work performance was significant (std. estimate = 0.268, SE = 0.058, CI: 0.172 - 0.363).

Table 5: Total, Direct, and Indirect Effects of Perceived Knowledge Diversity on Individual Work Performance Via Job Equity and Work Engagement (N=184)

Pathways	Estimates	SE	95 % CI [LL, UL]
Total effect	0.488**	0.056	[0.395, 0.580]
Direct effects	0.268**	0.058	[0.172, 0.363]
Total indirect effects	0.220**	0.042	[0.151, 0.290]
Perceived Knowledge Diversity → Job Equity → IWP	0.065*	0.028	[0.019, 0.111]
Perceived Knowledge Diversity → Work Engagement → IWP	0.087*	0.035	[0.029, 0.146]
Perceived Knowledge Diversity → Job Equity → Work Engagement → IWP	0.068**	0.019	[0.036, 0.100]

Note: CI = confidence interval.

DISCUSSION

This study aimed to examine how perceived diversity in knowledge influences a fundamental organizational outcome, which is individual work performance. In contemporary discourse among researchers and practitioners, diversity has emerged as a pivotal aspect of the global business landscape (Haas and Mortensen, 2016). Acknowledging its potential advantages and associated challenges, it becomes imperative to study the mechanism through which it impacts organizational performance. Considering the need to investigate the role of other underlying organizational factors, the present study proposed a sequential mediation model to explore how certain organizational factors, such as job equity and work engagement, might influence the relationship between PKD and IWP. Building upon the theoretical framework provided by (Van Knippenberg *et al.*, 2004) categorization-elaboration model (CEM), the research posits that perceived knowledge diversity (PKD) fosters exchanges of knowledge and information, along with the integration of ideas, subsequently influencing individual work performance.

The present study identified a significant positive relationship between the explanatory variable, i.e., PKD, the mediating variables, job equity and work engagement, and the criterion variable, i.e., IWP. Further, results of multiple regression analysis illustrated that PKD, job equity, and work engagement positively and significantly predict IWP. Mediation analysis unveiled that PKD positively predicts IWP through a total direct and significant path. This finding is backed by (Coleman *et al.*, 2023; Blouch and Azheem, 2019; Gomez, 2019). Furthermore, the sequential mediation results demonstrated that job equity served as a mediator between PWD and IWP. Supporting the model investigated in this study, a previous study has reported that perceived organizational justice (a term closely associated

with job equity) mediates the relationship between perceived diversity and organizational performance (Blouch and Azheem, 2019). Without equity and inclusion, employees of a diverse team may experience disengagement, separation, racism, and poor cooperation (Lyman *et al.*, 2022; Berry, 2016). The study suggests that PKD can lead to higher IWP by strengthening feelings of fairness (JE). As hypothesized, the second mediator in the sequence WE served as a significant positive mediator in the relationship between PKD and IWP, which suggests that PKD can lead to higher IWP by increasing feelings of vigor, dedication, and absorption at work. Furthermore, the study confirmed the sequential mediation model by analyzing the significant positive role of JE in predicting WE.

Despite the non-trivial limitation of a smaller sample size, which restricts the findings' generalizability, the current study's findings offer significant applicability across various contexts. While broadly consistent with existing literature, the uniqueness of this work lies in its contextualization of diversity factors and the sequential mediation model.

IMPLICATIONS

Firstly, the practical implications of this study reside in the formulation and execution of diversity management policies and practices. The results emphasize on devising training program which should incorporate awareness and further strategies such as adaptive contact initiatives to foster positive interactions between employees. Additionally, enhancing organizational effectiveness can be achieved through the implementation of cross-functional job restructuring programs. As proposed by Kalev (2009), prioritizing cross-training opportunities can significantly improve employees' proficiency across diverse tasks, thereby facilitating cross-cultural adaptation. Furthermore, interventions guided by the principles of contact theory, as outlined by Allport (1954), can be strategically designed to further enhance organizational inclusivity and effectiveness The study advocates the ethos of "unity in diversity" and recommends that managerial interventions transcend social categories and hierarchical distinctions in the workplace, thereby harnessing knowledge diversity and job equity, which will, in turn, reflect in work engagement and performance of the organization.

CONCLUSION

In summary, the present research revealed that perceived knowledge diversity leads to higher IWP by strengthening feelings of fairness (JE), and work engagement. The proposed model illuminates how JE positively impacts work engagement, thereby confirming a sequential mediation model. These findings hold vital importance for devising diversity management policies in businesses, specifically in addressing the challenges of globalization. The study significantly enriches and expands theoretical

comprehension of understanding of how diverse perspectives and equitable practices propel business achievements.

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HOST SCALING AND REVENUE MANAGEMENT: IS THERE A LINK?

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ABSTRACT

This study explores how a revenue management capability can be created by Airbnb hosts and the role played by the professionalization degree, defined as the number of listings managed by a host. The theoretical lenses used by this study is the resource-based. Based on previous studies on revenue management in the field of hospitality, a wide list of routines, skills, know-how and coordination mechanisms are considered to explain how the revenue management capability can be created by a host.

The study is based on qualitative data collected through interviews in the Milan destination. In line with previous studies, three different groups of hosts were identified. The interviews were recorded, transcribed and coded using the software NVIVO. Results reports strong differences between the three groups of hosts and especially between single and big hosts (those managing ten or more listings). The goals itself are different: while single hosts prefer to select guest and maximize price, big hosts, supporting higher fixed costs, are strongly focused on revenue. Small hosts are widely involved in the operating processes (check-in, cleaning, guest interaction) and in many cases the short-term rental is only an additional activity (the main work in another). Therefore, the time dedicated to data collection and revenue management strategy is limited. The opposite is for big hosts that are usually organized as a company with employees specialized per function and with a strong focus on revenue maximization. The paper is supportive for the emerging idea of professionalization degree.

Keywords: Revenue management capability; Airbnb; professionalization degree; individual hosts; professional hosts; data analysis; dynamic pricing; benchmarking; single host; corporate host.

INTRODUCTION

This study, that based on Milan hosts' interviews, explores the links between professionalization degree and revenue management capability creation. Four theoretical blocks, later presented in the literature review section, are analyzed.

The large diffusion of the sharing economy and in particular the phenomenon of short-term rentals (STR) has attracted the interest of many supply papers, mainly focused on price/revenue determinants (Sainaghi, 2020a). This literature is growing and based on quantitative data has identified many price antecedents and more generally pricing strategies. Size, listing amenities, host variables, accessibility, guest reviews and contractual terms are the main groups of variables used (Sainaghi & Chica-Olmo, 2022; Vassilikopoulou et al., 2022).

The previous studies agree that host professionalization has an impact on revenue management and pricing strategy. Professional hosts are more oriented on revenue rather than on price maximization (Oskam, et al., 2018). At the same time, some previous articles agree that this quantitative approach is unable to explore why professional host are more efficient and in particular how they are able to create a revenue management capability (Cocola-Gant, et al., 2021). The theoretical lenses used by this study is the resource-based view and in particular the capability approach. Resources are the assets that the firm possesses or controls, whereas capabilities refer to the firm's skills in exploiting and combining these resources through organizational routines (Amit & Schoemaker, 1993). Previous studies on hosts suggest the presence of some relevant capabilities, as the preparation of the listing, commercialization, interaction with guests, financial capability (Cocola-Gant, et al., 2021). This study focuses on the commercialization capability, defined in this paper as revenue management capability.

PROFESSIONALIZATION DEGREE AND HOST PERFORMANCE

Some quantitative studies exploring the price determinants, revealed that professional hosts achieved higher (Chica-Olmo, et al., 2020), lower (Tong & Gunter, 2020) or even marginal positive or negative effects on STR rates. Therefore, professionalization degree appears generating controversial effect on STR price (Sainaghi, 2020a). However, these ambiguities are mainly related to the focus on price rather than on revenue (Sainaghi, 2020b). In fact, other quantitative supply studies agree that professional hosts achieve higher revenue than unprofessional hosts (Sainaghi, et al., 2021). The professionalization degree is usually operationalized considering the number of listings managed (Abrate, et al., 2022) eventually integrated with other variables, as experience, type of listings and year-round availability (Bosma, 2021). While in many studies there is a juxtaposition between professional and individual hosts, recent articles introduced the idea of professionalization degree (Bosma, 2021). In big cities, there are dozens of thousands of hosts. The twofold segmentation (professional and non-professional) appears too simplistic. The reality of the STR hosts is more complex and the boundary between different types of providers is more nuanced. The professionalization degree favoured the recent development of some new type of hosts. For example, the corporate hosts were threefold segmented

(Cocola-Gant, et al., 2021), while in the case of marginal hosts some analytic distinctions have been proposed (Semi & Tonetta, 2021) or the hosts' segmentation based on the number of listings managed has been enlarged, distinguishing between single, two listings, three listings, four to ten listings or more than ten listings managed (Sainaghi & Baggio, 2021).

Considering the explorative nature of this study, the professionalization degree in the current paper has been operationalized considering the number of listings managed. Furthermore, the focus was only on host managing an entire apartment or house, excluding shared room providers. This choice is related to the goal of this paper, that is exploring the revenue management capability.

REVENUE MANAGEMENT CAPABILITY

This section identifies which resources can generate a revenue management capability. The resource-based view defines resources as stock of factors that are own or controlled by a company, while capabilities focus on firm ability to use these resources, usually in combination (Amit & Schoemaker, 1993). Resources can be tangible and intangible, human and financial. Following a resource-based view of the firm, the pricing process is considered a capability that combines routines, skills and coordination mechanisms (Dutta, et al., 2003).

Based on previous studies on revenue management in the field of hospitality, a wide list of routines, skills, know-how and coordination mechanisms are considered to explain how the revenue management capability can be created by a host. In particular, the revenue management process can be segmented into four major components: i) identifying the required information to set the revenue management strategy, ii) taking strategic and then tactical pricing and revenue management decisions, iii) managing the communication and interaction with the guests, and iv) the availability of a software dedicated to revenue management.

The first activity focuses on the information necessary to set up the revenue management capability and includes, among others the following resources, skills, and coordination mechanisms: i) data availability, ii) data analysis know-how, iii) benchmarking know-how, iv) demand forecasting know-how. The availability of data can support the revenue management process, especially if they are well-organized and simply to access. However, data sometimes are available, but the host has not the skills to use them. For this reason, the data analysis know-how is very relevant for the entire revenue management process. Rates should generate a transaction between the landlord and the guest; however, STR providers operate under concurrence. Benchmarking know-how is considered an important skill to understand who the most relevant competitors are, to scan their rates and to

consider them in the revenue management process. Rates focus on the future transactions, therefore when a host decide the prices should have an idea about the future market condition. This requires a demand forecasting know-how, able to consider if the demand is rising or not, if the destination offers some special events, and so on.

The second component can be defined as pricing formulation and is the heart of revenue management capability. It includes mainly the following sub-topics: i) dynamic pricing know-how, ii) revenue rather price maximization focus, iii) multi-channel ability, iv) presence of a revenue manager. Dynamic pricing know-how is able to improve the listing revenue, but this pricing strategy generates additional work. In fact, to change continuously price requires knowing the destination seasonal periods, the rates proposed by competitors, the saturation degree of host capacity. Not surprisingly, many hosts prefer to achieve less revenues but avoiding this additional work. Some papers analysing price determinants revealed that professional hosts apply lower rates rather than single-unit hosts, or, more generally, the relationship between commercial host and price is controversial (Sainaghi, 2020). However, other studies shown an interesting relationship, professional hosts achieve higher revenue, rather than mom-and-pop providers. Said differently, what really changes comparing professional and single-listings providers is a different focus. While single providers search price maximization, professional hosts are more interested on revenue maximization. To improve the listing revenues, the hosts can use (simultaneously or not) more than one channel. In the study of corporate hosts, three main platforms are used: Airbnb, Booking.com and VRBO (Cocola-Gant, Jover, Carvalho, & Chamusca, 2021). Multi-channel ability is therefore needed, including the ability to set-up the rates for the different platforms, to avoid rate disparity or overbooking. Finally, the presence of a revenue manager or a host with a background in this field represents a crucial point, able to change and improve the entire revenue management activity. The revenue manager can be an external consultant that support the host (Cocola-Gant, et al., 2021).

The third component focuses on managing, communicating, and interacting with the guests. The skills, resources and routines are many. In this study we focus on. i) ability to interact with potential clients and ii) reputation. The ability to interact with potential clients plays a pivotal role. As confirmed by some quantitative studies, response rate and time positively affects the listing results, as well as the number of photos published (and their quality). Moving to reputation some items refer to the number of reviews collected by the listing, the overall rating, the presence of superhost badge, the host experience.

Finally, a coordination mechanism is introduced and is the presence of a revenue management software. The availability of a revenue software plays a crucial role. In fact, all the items previously identified are influence by the software – for example the software can store data, can support benchmarking activity, demand forecasting, defining and dynamically adjusting the price, but can also help the host to quick respond to potential guest or managing some reputation indicators.

METHODOLOGY

Considering the explorative nature of this research, a qualitative approach based on interviewees was adopted, in line with some recent papers focused on STR hosts (Cocola-Gant, et al., 2021). These studies usually realize 30-40 interviewees mainly on Airbnb hosts, using semi-structured questionnaires (Bosma, 2021). When saturation is achieved, the authors report the main findings using quotations and typically describing categories (as different types of hosts). The same approach was used in the current study.

The sample was extracted by the AirDNA database from Milan. Milan is the second leading Italian destination after Rome and attracts different targets, as business, leisure and trade fair. Focusing on this last segment, Fiera Milano organizes dozens of events (Sainaghi & Mauri, 2018). Therefore, in the Milan city there are continuous change in off- and on-pick (Sainaghi, et al., 2018), constituting an ideal setting for exploring the creation of a revenue management capability (Sainaghi, et al., 2018).

As typical for qualitative research, a polar approach was adopted in this study, in order to understand how the professionalization degree can help the emergence of a revenue management capability (Eisenhardt, 1989). In line with previous studies, three different groups of hosts where identified: i) single hosts (also called group one), ii) hosts managing 3-5 listings (group two), iii) hosts managing more than 10 listings (group 3). The host segmentation based on listings managed was used in some previous studies (Deboosere, et al., 2019; Sainaghi & Baggio, 2021). Only hosts managing entire apartment/house were considered. The final sample includes 27 interviews: interviews numbered 1-11 for single hosts, interviews numbered 12-20 for 3-5 listings and interviews numbered 21-27 for hosts managing more than 10 listings. All the interviews were recorded, transcribed, and coded using NVIVO software.

FINDINGS

This section is based on the four theoretical blocks depicted by the literature, as previously discussed.

The following sub-headings reports the main evidence emerged from the interviewees.

Information and data analysis skills

The code data availability illustrates some relevant differences moving from single to multiple hosts. Single host usually do not have a dedicated register with all the past data; they use the repository offered by Airbnb but mainly for fiscal and administrative purposes. "The archive is used only for personal information and documentation for any checks, including for tax purposes" … "I don't consider the historical archive important for formulating prices" (interview #5). The opposite is for big hosts (group 3). "The reservation archive is entered in the PMS (Property Management Systems). The data is analysed directly by the system. The historical data are our starting point for defining the future rates" (interview #22). The second group oscillates between hosts that do not consider very relevant the historical data and others that invest more time and attention. The threshold is again the presence or not of a software. "It has a historical archive of reservations, which can be consulted in the company management system. The software proposes the prices charged in the past and the occupancy rate. The wheelbase data is very useful for orienting the tariffs to be applied" (interview #18).

Data analysis know-how is the second code. Many hosts of the first group invest limited time for analyzing data. "Historical data is not used to formulate prices" (interview #9) or "I have a historical archive of bookings, but it doesn't seem very important to me and then it's complicated to extract the information" (interview #11). Again, the approach of the third group appears the opposite. Thanks to the software, the data process analysis is simple, fast, and is made periodically. "We collect a lot of data: past sales data, competitors' prices, offers near our apartments, events, weather (it's not the same thing as a sunny weekend or a rainy one). Thanks to the software we can combine all this data on one platform and examine it easily. We regularly set aside time for this activity" (interview #22).

Benchmarking know-how is perceived an important activity during the start-up by the single host. "I spent a lot of time for benchmarking activity at the start-up of my business. Currently I dedicate about an hour a month" (interview #3). Some hosts affirm the relevance of benchmarking however they have not time enough to do this activity. "I'm aware about the importance of benchmarking. It would be useful to do so but I have not the necessary time to dedicate to it" (interview #9). For the second group, benchmarking is an ordinary activity perceived relevant. "I look on Airbnb and Booking what are the prices in the area and the services that are offered. This activity is useful for defining prices and it requires at least ten hours a month" (interview #19). Big hosts (group three) declare the strategic relevance of benchmarking. "I constantly look at the websites of competitors, I observe their prices, I

consider the quality of their listings, the area. This continuous observation helps me a lot in changing the price frequently. I certainly dedicate a lot of time to this activity which is one of the most important" (interview #21). "I dedicate at least an hour a day to this activity. It is essential for my work" (interview #24).

Concerning demand forecasting know-how, the city of Milan is registering a strong turnaround after the Covid. The demand is growing, and the consumer behaviour patterns are changing. For this reason, some hosts (small and big) consider unpredictable the demand. "After the pandemic there is an incredible demand" (interview #13). "The prices we are practicing from May 2022 onwards are very high compared to the past. There is a boom in requests" (interview #24). "After the pandemic, the seasonality of Milan has changed: there is almost always a very high demand" (interview #27). With this premise, small hosts are not able to predict the tourism demand. "I wouldn't know how to predict the number of customers or even what data I could use" (interview #4). The second group forecasts demand considering the Milanese seasonality. "Thanks to the calendar of events in Milan, I am able to roughly predict the number of customers" (interview #17). The professional hosts (group three) use mainly the software and the number of requests/reservations. "To predict potential demand I use price lab, a module of our revenue management software" (interview #22). "The intensity of the requests we receive, together with the reservations made well in advance, help us to estimate the expected demand" (interview #27). The availability of historical data are also very important for demand forecasting. "We predict demand based on our experience and the historical data (the company is 12 years old)" (interview #25).

The findings confirm the relevance of the variables taken from the literature, on one side, and the importance effects plaid by professionalization degree, on the other hand.

Pricing and revenue management decisions

This second group of activities and routines plaid a crucial for understanding the role of professionalization. Dynamic pricing know-how is probably a key threshold between small and big Airbnb providers. Single hosts tend to use one static price or to articulate the rates in few classes of price. "For my apartment, I consider a price of €80 to be optimal" (interview #1). "I set the price 10 years ago and have broadly held it constant" (interview #3). "Prices from the apartment are always quite similar" (interview #4). "If we take a year as a reference, I use 2 or 3 different prices" (interview #5). The second group abandons the static price and uses a deeply price discrimination. "The prices of the apartments during the course of the year are differentiated mainly when there are events" (interview #17). Furthermore, the price variation increases. "Within a year, I use about four

significantly different prices" (interview #18). Big hosts enlarge the price discrimination or adopt a dynamic pricing approach. "In a year I use at least 6-7 different prices and then further changes are made within them" (interview #26). "I don't use price ranges but continue to rebalance rates based on demand. The dynamism of the price is guaranteed by the daily observation of the market" (interview #21). "Every day I apply a different price. We do the same work that hotels do" (interview #22).

Concerning revenue or price maximization focus the interviews confirms important differences among the groups. Single hosts are more oriented on price. "For me it is more important to have a high price rather than higher revenues" (interview #3). "I prefer to have a high price and less reservations" (interview #6). Sometimes a higher price is perceived as a useful tool to select guest and avoid problems. "Lowering prices would bring disrespectful people to my house who are different from my target" (interview #15). The quote, despite focuses on the second group of hosts emerges in many single host interviews. Again, big hosts show a completely different approach. "Our revenue management system helps us fill apartments at the optimal price. Every unsold night is a loss of revenue" (interview #22). "We have fixed costs to cover, which is why it is more important to generate high revenues" (interview #24).

Big host show a clear multi-channel ability. "To sell apartments, I use many different portals: Airbnb, Booking, Expedia, TripAdvisor, Trivago, HomeAway, VRBO, casavacanza.it, Home Togo and others. The most efficient channels are Booking and Airbnb" (interview #22). The presence of a channel management software plays a pivotal role. "Multi-channel is managed through a management system called "cross booking", a channel manager" (interview #24). Some hosts have dedicated employees responsible for this activity. "Multi-channel is managed through a channel manager and the people in charge of booking" (interview #24). Also, many hosts of the second group show a multi-channel ability. "To sell apartments, I use Airbnb, Booking and our site" (interview #12). However, the prevalent focus is on Airbnb. "Booking generates more traffic, but I prefer working with Airbnb because these customers are much more polite. They have the idea that they come to my house, and they have respect" (interview #12).

Moving to presence of a revenue manager, the first two groups are not big enough to have a dedicated person in staff. "I formulate the prices" (interview #3). "I've never felt the need to have external support or a dedicated figure to formulate the prices" (interview #12). Some big hosts have a revenue manager in their staff. "The prices are formulated by the staff who take care of the booking and are familiar with the principles of revenue management" (interview #24). Nearly all hosts in group three have attended price training, while hosts in groups one and two report the opposite.

Pricing emerges as a central topic able to differentiate single versus multi listings hosts. The qualitative evidence confirms the importance of dynamic pricing, as shown in quantitative studies (Abrate et al., 2022).

Guest communication and interaction

The ability to interact with potential clients is a crucial activity for Airbnb hosts. Single hosts usually are enthusiastic to have a personal relationship with guests. In fact, these hosts are involved in many operating activities, as check-in, cleaning service (sometimes with the support of collaborators), and guest assistance. "I personally welcome my guests upon check-in" (interview #2). "The interaction with the potential customer is very intense. I also like to provide information about Milan. It's more of a friendly relationship than a professional one" (interview #5). The answers are similar for hosts belonging to the second group. By contrast, in the third group the interaction is partially mediated by the employees and collaborators, on one side, and technology, on the other. "We have digitized the entire check-in process, thanks to digital locks" (interview #22). "Our company has eight employees. We also make use of external collaborators. Check-in is done by our staff" (interview #25). Response rate and response time is very efficient for all the hosts, without significant differences concerning the number of listings. In the interaction process the listing photos are considered very relevant. While single hosts prefer to realize by themselves the pictures, big hosts (group three) use more intensively professional photographers. "I've realized the photos by myself. I'd like to change them and have better quality images, but I've never trusted a professional photographer" (interview #2). "The photos used on the platforms are not changed often. However, if an apartment does not sell as it should, we intervene, perhaps even just changing the order and putting the most beautiful as the first photo. The photos were taken by a professional photographer who specializes in interiors" (interview #22). Another important difference between the host groups concerns the guest selection. Single hosts are more sensitive to select their guests and to avoid problems. "I do everything by myself. I host people in my house, and I want to know who comes" (interview #1). "I no longer use Booking because customers arrive who think they are in the hotel and therefore leave dirt, break objects and say nothing" (interview #12). Host belonging to the third group usually adopt instant booking and therefore do not select their guests. "We spend little time interacting with the customer before booking as we have adopted the instant booking system" (interview #22).

The second item is reputation. Hosts consider very important the reviews, more the score than the number. Reviews as so relevant that some Airbnb providers, during the start-up, prefer to apply cheap price to attract many guests and collect reviews. "During the first four months we applied very

low prices. It has served to have a greater number of reservations and therefore increase the number of reviews. Once we reached a reasonable number, we were able to increase the prices" (interview #6). "Reviews are a key element in building trust to the listing" (interview #12). A difference among hosts emerges considering the ability of reviews to guide listing and service improvements. Host belonging to the first two groups usually have a strong and personal interaction with guests. Therefore, they are able to intervene when problems arise. "Weaknesses almost never emerge from the reviews because I intervene promptly during the stay when problems arise" (interview #14). By contrast, big hosts use more intensively reviews for identifying problems. "I happened to intervene on weaknesses that emerged from the reviews: for example, if it happens several times that they tell me that the apartment is too hot, I try to boost the air conditioning" (interview #22). The majority of big hosts have reported concrete examples of improvements introduced thanks to the reviews. Another important difference regards the time dedicated analysing the reviews. While small hosts affirm only to quickly read the reviews – "I spend little time analysing the reviews" (interview #4) –, large hosts invest more time. "Every time I check out, I scan the reviews. They help me understand how each apartment is positioned" (interview #21).

Again, the professionalization degree deeply changes the guest interaction and the relevance of reputation. Concerning the guest relationships, professional hosts manage mainly indirectly the ties with clients, using technology, the opposite choice is made by the single host.

Revenue management software

The presence of software has a strong influence on the entire pricing process. Single hosts do not use software and Excel file. The support provided by the Airbnb platform is enough. Not surprising the multi-channel approach is not used and prices are mainly static or basically discriminated. By contrast, the third group of hosts largely adopt a software, mainly related to the benchmarking and pricing activity.

CONCLUSIONS

Focusing on theoretical conclusions, the study supports the host classification in three proposed groups. The first threshold is one and the second is around ten and support the idea of professionalization degree. The rising number of managed listings, in fact, require a progressive creation of a firm, with employees and external collaborators, rising the fixed costs. By contrast, single host are widely involved in the operating activities (usually they realize everything by their self), are less skilled, especially in providing and using information to orient the pricing. Furthermore, the goals

are different. Small hosts are more interested to select their guests and to preserve the listing. Therefore, they prefer maximizing price rather than revenue. Big hosts are organized as company, with employees and fixed costs. Therefore, they are "number" driven, researching more volume and revenue than price. Second, the four theoretical blocks used to understand the revenue management capability are relevant in explaining why and how the professionalization degree is able to change the pricing process.

The study is reach of possible empirical implications for Airbnb hosts and more generally for people involved in short-term rentals. The four blocks and sub-blocks provide concrete examples about the pricing formulation. Examples include how to organize and manage information and data analysis skills, as an important step to orient the pricing process. Moving to price, the relevance of dynamic versus static price and price versus revenue maximization play a central role. Professional host tend to adopt multichannel structure. The relationships between hots and guests are centered, in the case of single providers, on direct and personal ties. In the case of professional hosts, the guest interaction is often mediated by technology (self-check-in, WhatsApp, Internet) and/or staff. The presence or absence of software is crucial to manage the entire revenue management capability.

The main study limit is the space constraint that limited the findings. For this reason, the article reports only the pricing components without providing the "overall picture" (how the four blocks and the sub-topics interact). By contrast the number of interviews is not perceived a limitation. In fact, there is a high overlapping between the interviews (especially for host pertaining to group one and two) and saturation is quickly reached. Said differently, additional interviews tend to repeat the same items.

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THE ECONOMIC EFFECTS OF THE WAR BETWEEN ISRAEL AND HAMAS FROM OCTOBER 2023 THROUGH APRIL 2024 ON THE ECONOMIES OF EGYPT, THE WEST BANK, LEBANON, GAZA AND ISRAEL

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ABSTRACT

This paper examines the economic effects of the war between Israel and Hamas six months after Hamas attacked Israel on 7 October 2023 on the economies of Egypt, the West Bank, Lebanon, Gaza and Israel. While Egypt has lost some earnings from ships not passing through the Suez Canal and a loss of tourists due to the war, it has received more aid from the IMF because of the war, which could mean that it has benefited from the war. The Palestinians living in the West Bank has suffered economically from the war mainly due to Israeli restrictions limiting them from working in Israel. The war has also led to a decline in tourists to Lebanon and a reduction in agriculture in southern Lebanon due to Hezbollah's partial entry in the war in order to help Hamas. The war has had huge economic costs to the people in Gaza due to a stoppage of most economic activities and the destruction of homes, businesses and infrastructure in Gaza. The war has also led to a steep drop in Israel's GDP in the fourth quarter of 2023, and an increase in its government debt to pay for the war. However, Israel's economy seems to be recovering in 2024 since many soldiers who had been called up to the army have returned home. The ultimate effect of the war on the different areas will depend on the outcome of the war and the ensuing developments that may or not result from the war.

Keywords: *Wars and economic growth, Economic costs of wars, Economic consequences of wars, Wars and economic performance, The Middle East in 2023 and 2024*

INTRODUCTION

On 9 September 2023, The Economist (2023b, p. 9) heralded "The new Middle East: More money and less mayhem. For now." Similarly, on 29 September 2023, the US National Security Advisor, Jake Sullivan, speaking at The Atlantic Festival, stated "The Middle East region is quitter today than it has been in two decades," (The Economist, 2023c, p. 20). All this optimism of improving times in the Middle East was shattered on the morning of 7 October 2023, Hamas, the de facto ruler of the Gaza

Strip, attacked Israel and murdered around 1200 Israelis and abducted 240 Israelis (Saidel, Said and Peled, 2024). In response, Israel attacked Hamas by invading the Gaza Strip to rescue the hostages, and as of this writing, another 260 Israeli soldiers have died in the fighting, which is continuing, and, according to the Hamas health ministry, 33,000 Gazans. This horrific loss of life and the accompanying even greater number of wounded Israelis and Gazans, some permanently, are the major costs of the war, but there are also the economic effects of the war, which impact the people living in both areas both during the war and potentially after the war is over. In addition, the war has also impacted on the economies of other Middle East countries, who are peripheral to the fighting between Israel and Hamas, such as Egypt, the Palestinians in the West Bank and Lebanon.

Six months have now passed since the war between Israel and Hamas began, and this period of time allows us to examine the economic impact of the war on these different areas. The economic impact of wars while usually negative, can also be positive, and the economic impact of a war after a war ends can differ from the impact during the war depending on the results of the war and developments that may or may not arise after the war. The war under discussion here is on-going at the time of this writing, and hence we will examine the economic impact of the war on Egypt, the West Bank, Lebanon, Gaza, and Israel as of April 2024, though we will also discuss some possible future economic consequences to the war.

EGYPT'S ECONOMY

Egypt borders on the Gaza Strip, which means the war between Israel and Hamas has affected its economy, even though Egypt is not directly involved in the conflict between Israel and Hamas. One minor positive effect from the war on Egypt's economy is that prior to the war most goods entering Gaza came from Israel, but now food and other supplies are being sent to Gaza via Egypt under the auspices of the Egyptian Red Crescent, which enables Egyptian firms to profit from selling these goods, which are paid for by various aid agencies (The Economist 2024c). On the other hand, an unexpected escalation of the war was that starting in November 2023 and continuing to the present, the Houthis in Yemen have attacked ships when they pass near Yemen. While initially the Houthis claimed they were only attacking ships that were travelling to and from the Israeli port of Eilat, they have also attacked numerous ships that are not linked with Israel and were either coming from the Suez Canal or travelling towards the Suez Canal. In February 2024, it was estimated that the number of ships travelling through the Suez Canal had declined by 50%, which reduces the transit fees that Egypt earns from passage though the canal, as usually these fees are 2% of Egypt's GDP (The Economist, 2024e). In addition, Egypt's tourist sector, which previously was rebounding from corona and contributed around 3% of Egypt's GDP, has also declined due to the war.

These declines in earnings compounded the debt problems that Egypt had been struggling with. Due these problems, prior to the war, Egypt had been in negotiations with the International Monetary Fund (IMF) for an aid package of 3 billion USD. However, in the midst of the war between Israel and Hamas, Egypt raised its request to 8 billion USD.   This much larger aid package was approved by the IMF on 29 March 2024, and was justified since Egypt was/ is facing a "challenging external environment" namely the effects of the war between Israel and Hamas (IMF, 2024). This large aid has prompted Ahmed Aboudouth, from the Chatham House, to claim that overall "Egypt has benefited a lot from the war" (The Economist, 2024e, p. 32). This question of whether the war between Israel and Hamas will benefit or harm's Egypt's economy would then depend on how long will there be declines in shipping through the Suez Canal and reductions in the number of tourists' arrivals to the country versus how beneficial will the IMF's aid package be for Egypt.

THE ECONOMY IN THE WEST BANK

While many people view the Palestinians in the West Bank and Gaza as compromising one entity, the West Bank and Gaza are two distinct non-contiguous areas (40 km apart at their closest point), and at different times in history, as for example from 1948-1967, there were practically zero economic connections between the two areas. Prior to the war, there was limited trade between Palestinians living in the two areas, and the fighting between Israel and Hamas in Gaza could have had no or very limited economic effects on the Palestinians living in the West Bank. However, immediately after Hamas' attack, Israel was worried that Palestinians in the West Bank would join Hamas' fight and Israel imposed several restrictions on Palestinians in the West Bank, which have negatively impacted on their economy.

The most significant restriction is that since 7 October 2023, Israel has revoked the work permits of around 160,000 Palestinians living in the West Bank to work in Israel (The Economist, 2023f). The World Bank (2022, pp. 8-10) estimated that prior to the war, Palestinians from the West Bank who worked in Israel comprised around 25% of Palestinians workers in the West Bank, and that the average daily wage of these workers was more than twice the daily wage of workers in the West Bank. Accordingly, Israel's action to not allow Palestinians workers into Israel caused a significant contraction of the economy in the West Bank, and also the loss of these workers negatively impacted Israel's economy.

Another restriction is that within the West Bank, Israel has imposed new checkpoints, which hinder or completely stop Palestinians from travelling within the West Bank (The Economist, 2024d).

A third action by the Israeli government is that the government has withheld much of the taxes that it collects for the Palestinian Authority (PA). In 1994, Israel and the PA signed the Paris Accords

in which Israel agreed to collects tariffs on goods that entered Israel but were destined for either the West Bank and Gaza and to pass on these tariffs to the PA. Prior to the war between Israel and Hamas, these tariffs constituted around 64% the PA's revenue, and hence Israel's action to withhold these funds, means that the PA cannot pay its workers (The Economist, 2024d).

Prior to 7 October 2023, the Palestinian economy in the West Bank had been growing. The World Bank (2023) reported that the economy in the West Bank had grown in 2021 and 2022, and that in the first quarter of 2023, the GDP in the West Bank had increased 4.3% year over year. However, with all the declines in economic activity since the start of the war, the World Bank (2024a) reports that in the fourth quarter of 2023, the GDP in the West Bank declined 22% (annual percentage changes) and for all of 2023, 2.5%. This is a short-term decline. The crucial question is what will happen when the war between Israel and Hamas ends, will the Palestinian economy in the West Bank rebound or will the restrictions, especially regarding access of Palestinian workers to working in Israel, become permanent, and then the Palestinian economy will face a long period of limited growth. This author's guess is that since Israel has not been able to replace the Palestinian workers, then once the war ends, or even beforehand if the war continues, then Israel will allow most of the workers to return, though there may be more security checks, and then the Palestinian economy should rebound unless there are new negative economic shocks.

LEBANON'S ECONOMY

Ostensibly there is no reason why the war between Israel and Hamas should have any effect on Lebanon's economy since Lebanon's southern border with Israel is around 200 kilometers north of northern Gaza, but Hezbollah, the largest political and military group in Lebanon, which effectively controls southern Lebanon, decided to attack Israel almost immediately after Hamas attacked Israel, on 8 October 2023, to support Hamas. These attacks consist of Hezbollah shooting rockets, mortars, and anti-tank missiles into Israel, sending drones into Israel, and allowing various Palestinian groups that are in Lebanon to shoot these same types of projectiles at Israel. Israel has responded by attempting to target the people shooting into Israel, and to destroy various munitions and supplies of Hezbollah in Lebanon (The Economist 2024a). Incredibly, these almost daily exchanges of shootings are considered a "low-level conflict" and as of the writing of this paper, thankfully, have not escalated into a full-fledged war. The "low-level conflict" has led to numerous causalities in Lebanon and Israel, and has hurt both economies.

A shared negative impact on both Lebanon's and Israel's economies is that due to all of the shootings, many people on both sides of the border have moved away from the border to areas that are considered safer. This not only ends all run of the mill commercial translation in the various

towns, which have become deserted, but also all farming in the areas near the border has practically ceased.

A second negative effect of the fighting between Hezbollah and Israel is that due to the ever-present threat of a full-fledged war breaking out, there has been a large drop in tourists in Lebanon. In 2019, Lebanon's economy had a meltdown due to a banking scandal, and its GDP has declined from 2019 through 2022.   This contraction was beginning to stabilize with a large increase in tourist (51%) in 2022 and a decline of just 0.6% in its GDP in 2022. It was then expected that in 2023 finally there would be some minimal growth in Lebanon's GDP around 0.2% (World Bank 2023b). Instead, due to the war, it is estimated that Lebanon's GDP declined again in 2023 primarily due to the fall in tourists in the fourth quarter of 2023.

While one would like to believe that once the war between Israel and Hamas ends, then there will be a return to the relatively peaceful conditions between Israel and Lebanon prior to 7 October 2023, this is not self-evident. It is possible that the tense conditions on the border between Israel and Lebanon will remain in the foreseeable future, and then people will not move back to the border areas, and tourists could still be scared of coming to Lebanon. If that happens, then the conflict between Hezbollah and Israel will remain as a negative strain on both economies for quite some time.

GAZA'S ECONOMY

Whereas the fighting between Hezbollah and Israel can be labeled as a "low-level conflict," the fighting between Hamas and Israel has been very intensive for six months from 7 October 2023 through 7 April 2024, which has led to a cession of production of almost all goods in Gaza.   Yet, in order to assess the extent of this decline, we need to have an assessment of the economy in Gaza prior to war. However, it is difficult to get an accurate assessment of the economic conditions in Gaza prior to the war since much of the activities of Hamas, such as building tunnels, more than hundreds of kilometers, which has created subterranean cities, is not recorded in the official data about the area (The Economist 2024b).

Notwithstanding this difficulty, according to the official numbers of the Palestinian Central Bureau of Statistics, Gaza's GDP was increasing around 5% a quarter from the second quarter of 2021 through the third quarter of 2022, but then the growth rate started to decline, and in the first quarter of 2023, Gaza's GDP declined 2.6% (annual percentage change, World Bank 2023a). With the war, Gaza's GDP nosedived, declining by 80% (annual percentage change) in the fourth quarter of 2023.

The agricultural sector, which was not that large prior to the war, has been particularly damaged during the war, and the production of food has practically ceased (World Bank 2024b). This means that almost the entire population of Gaza is dependent of receiving aid to live on. According to

one estimate, prior to the war approximately 600 trucks containing commercial goods and aid entered Gaza a day. However, through the first six months of the war, on average only 121 trucks entered Gaza, though starting in mid-April, the number increased to around 400 trucks a day (Said, S., Lieber D. and Jones, R. 2024). Furthermore, as noted by the Economist (2024c), the distribution of the aid has become a logistical nightmare, and much of the aid has been stolen, which has led clans and gangs to control the distribution of the the aid (The Economist, 2024f).

Another opaque set of data in Gaza is the government budget data, since the finances of Hamas are not revealed publicly. According to unofficial estimates, Hamas generates income from collecting taxes on goods being imported in Gaza both above ground and through tunnels into Egypt, from donations from government and private individuals throughout the world and from investments in various countries (The Economist, 2023e). This money is used to provide social services in Gaza and to pay for Hamas' army. While the tax income from goods coming into Gaza during the war has fallen, it is very likely that Hamas had seen an increase in its revenue from donations during the war, and then this would be an economic benefit to Hamas from the war.

One definite economic cost of the war to Gaza has been the extensive damage to the capital stock in Gaza. In the first few days of the war the fighting was taking place in Israeli towns near the border with Gaza, but then afterwards, the fighting has occurred in the Gaza Strip, which has led to a huge destruction of the homes, the businesses and the infrastructure in Gaza. The World Bank (2024b), partially using satellite imagery, estimated that as of the end of January 2024, the cost of this destruction was 18.5 billion USD, which was 97% of the total GDP of the West Bank and Gaza in 2022. This estimate will definitely increase when the destruction that occurred in February, March and April is appraised. The largest damage was to the housing sector. As of the end of January, the war has damaged either completely or partially an estimated 62% of all homes in Gaza. This has led to numerous Gazans living in tents during the war, and it is not clear how quickly houses will be re-built even after the war ends, which means that many Gazans could be living in tents for quite some time.

Another economic cost of the war is that like in the West Bank, Israel has stopped allowing Gazans to work in Israel. Prior to the second *intifada*, in the first three quarters of 2000, 25,000 Gazans worked in Israel, but by the middle of 2004, there were no Gazans working in Israel (World Bank 2004). Gazans in limited numbers began to start working in Israel again after the war between Israel and Hamas in 2014, initially under the guise of being businessmen, and by 2023, the number of Gazans working in Israel almost returned to the pre-*intifada* days, albeit with a larger population, of 20,000 workers (Harel, 2019, and The Economist, 2023a). This was one of the most hopeful signs of Gaza's economy improving and of better relations between Hamas and Israel, but Hamas' attack on 7 October ended all these hopes.

It is extremely speculative to predict what will happen to Gaza's economy when the war between Israel and Hamas ends since it is not clear what will be the outcome of the war. Will Hamas continue to rule Gaza, which could lead Israel to end all economic connections, such as trade and banking, between Gaza and Israel that existed before 7 October? Or, will the Palestinian Authority or some new body that Israel will be willing to work with become the reigning power in Gaza, and then one would expect most of the bilateral economic ties that existed between Israel and Gaza prior to the war to return. One question even in the latter case is whether Israel will allow Gazans to work in Israel after the war ends. Another set of questions is what will be the economic links between Gaza and Egypt after the war ends? Prior to the war, there was limited movement of people and goods between Gaza and Egypt, and maybe after the war Egypt will open its border more fully with Gaza.

Another set of questions concerns the paying for the rebuilding of Gaza after the war, which might relate to the question of whether Hamas will be the reigning power in Gaza   After previous conflicts between Israel and Hamas, Qatar picked up the tab for rebuilding homes that had been destroyed, as according to one estimate Qatar gave Hamas, with Israel's approval, 1.1 billion USD from 2012-2018 (Kubovich 2019). However, in this war, the scale of destruction is so much greater than in previous conflicts, it is unclear if Qatar is willing to shoulder all of the costs. Will Hamas use its funds to help the rebuilding of Gaza? Will foreign donors be willing to pay for the rebuilding, and if yes, how much will they be willing to pay? Will these donors be willing to work with Hamas? If the rebuilding is a slow process, which it most likely will be, then that will certainly hamper the economic revival of Gaza, though it is possible, that due to the massive destruction, then the new infrastructure, which needs to be rebuilt basically from scratch, could be a significant improvement in comparison to the old infrastructure, which eventually would help Gaza's economy to recover.

ISRAEL'S ECONOMY

Israel's economy is the only country under discussion here who the IMF lists as having an advanced economy, and in the latest United Nations Human Development Report (2023/24), Israel's Gross National Income per capita was 3.5 times higher than Egypt's and Lebanon's and six times higher than in the West Bank and Gaza. In order to understand the economic costs of the war on Israel, it is helpful to review the state of Israel's economy before the war.

In November 2022, Israel had its fifth election since 2019, and Binyamin Netanyahu, who has been Prime Minister of Israel from 2009 through 2021, resumed being Prime Minister of Israel. The government he formed was based on his political party, the Likud, two Ultra-Orthodox (Haredi) parties and depending on how you count, one to three parties who base are Jews who live in the West Bank. One of the first actions of the new government was to try to change various aspects of the

judicial system in Israel, presumably to help Netanyahu, who had been indicted for corruption on three separate criminal cases, and the first legislative success of this judicial change occurred in July 2023, when the Knesset, Israel's legislative body, voted to weaken the powers of Israel's Supreme Court. These attempted changes led to massive protests, which seems to have impacted Israel's high-tech sector, the leading economic sector in Israel. For example, in one survey in the summer of 2023, 68% of start-up firms were transferring the money they had raised out of Israel and changing the location of the registration of the company to being outside of Israel due to the proposed judicial changes (Veizberg, 2023). Furthermore, Israel's GDP had increased 2.6% (annual percentage changes) in the first quarter of 2023, 2.9% in the second quarter of 2023, but then the growth declined to 1.8% in the third quarter of 2023 (Israel's Central Bureau of Statistics, ICBS, 2024). Thus, Israel's economy was not in good shape prior to the war.

Hamas' attack on Israel on 7 October was a complete surprise to Israel, and Israel responded hastily by calling up 360,000 reserves (around 3.5% of Israel's population) and, for the first time in 40 years, Israel called up its entire armored corps (The Economist, 2023d). This panic was due to a fear of a war both in the south with Hamas and in the north with Hezbollah, but in retrospect it is clear that too many soldiers were called up as the army was not taking account of economic considerations when it called up its reserves. After a few weeks, the army began to gradually release the reserve soldiers, and as on April 2024 most of the reserve soldiers had returned to civilian life. In addition, initially as many as 250,000 Israelis were displaced from the south near Gaza and from the northern border with Lebanon, though after a short time, this number declined to 125,000, and as April 2024, there remain 27,000 displaced Israelis. Some of these people went to live with relatives, but many stayed in hotels, which the government paid for, 6.4 billion shekels as of April 2024 (Abdel-Baqui and Solomon, 2023; Haruti-Sober, 2024). Finally, in the beginning of the war, when Hamas was regularly bombing central Israel, many Israels stayed home, and schools closed or had lessons on zoom, akin to lockdowns during corona. After a few weeks, the Israeli army successfully ended the bombings from Hamas, and gradually civilian life in Israel has returned to normal routines.

With all the people called up for the army and the displaced people, it was estimated that in the fourth quarter of 2023, around 20% of Israeli workers were absent from their jobs (Abdel-Baqui and Solomon, 2023). In addition, due to Israel's restrictions on Palestinians from the West Bank, many of whom work in construction in Israel, the housing industry collapsed in the fourth quarter of 2023, as the value of output of residential buildings declined by 95% in the quarter (ICBS, 2024). Another industry which took a huge hit was the tourist industry, as tourists stopped coming to Israel and initially foreign airlines stopped flying to Israel, though domestic hotels benefited from the government paying for the displaced people, and the major Israeli airline, ELAL, which continued to

fly throughout the period had a 370% increase in its profits (Ariel, 2024). Also, Israeli arms producers such as Elbit, have seen increases in orders both due to the war and increased in demand from European countries (Habib-Valdhorn, 2024). One surprising result is that Israel's high-tech sector has not been that adversely affected by the war, even though numerous high-tech workers were called up for reserve duty, and it seems than the proposed changes in the judicial system had more of a negative effect on the sector than the war (Gilead, 2023). In addition, the attacks by the Houthis are not expected to have a major effect on Israel's economy since the port of Eilat is a small port for Israel. In total, in the fourth quarter of 2023, Israel's GDP declined 19.4% due to the large fall in the housing sector, and large declines in consumer consumption and physical investment by Israeli firms, even though the spending by the government on the war and other social spending increased by 88% (ICBS, 2024).

It is likely that in 2024, Israel's economy will begin to recover from the huge decline in the fourth quarter of 2023 with the return of most soldiers to civilian life, and the war will not cause any large permanent reductions in the production of goods and services in Israel. One possible small reduction could be that if the agricultural areas near the borders with Gaza and Lebanon are not re-settled, then there will be a small loss in the future agricultural production in Israel. Another possible long-term loss could be that that due to a backlash against Israel's policies in some countries, such as South Africa and Turkey, and by some individuals, there could be reductions in trade and foreign investment in Israel. On the other hand, a possible positive result of the war could be an increase in the labor force participation rate of Haredi men in Israel's economy. Many Haredi men do not serve in Israel's army and do not work, but due to the war, there has been pressure afoot in Israel to require some Haredim to join the army. If this would occur, then after they would finish their army service, these Haredim would probably join Israel's labor force.

Another question with regard to the permanent effect of the war on Israel's economy is the question how will Israel pay for the war? This question relates to Israel's government budget deficit and overall government debt. In the decade from 2010 through 2019, Israel managed to slowly reduce its government debt from 69% of its GDP to 59% of its GDP (IMF 2023). However, with corona, government spending increased massively and Israel's government debt jumped to 71% of its GDP in 2020. Surprisingly, Israel's government's revenue surged in 2021 and 2022 due to the high-tech sector and the housing sector, that Israel's government had a budget surplus in 2022, and the ratio of its debt to GDP declined to 61% in 2022. This trend ended with the new government, which went on a spending binge even before the war began to fund their "pet" coalition projects such as funding for Haredi institutions and Jewish settlements in the West Bank, and the budget deficit was higher than the planned deficit already in September 2023 (Dori, 2023a, b). With the war, spending by the Israeli

government increased massively both to pay for army expenses, and to compensate people who had been harmed by the war. This spending is "being paid for" by borrowing and increasing the ratio of the budget deficit to the GDP to 6.6% in the revised 2024 budget in March 2024 instead of cutting expenses. However, by April 2024 it was already evident that this high figure was optimistic, as of April 2024 it seems that the 2024 government budget deficit will be at least 7.5% of Israel's GDP (Dori 2024). The Israeli government has increased some taxes (VAT starting in 2025, and the health tax), but it seems that the Israeli government is counting on the strong fiscal rebound that occurred after corona to happen again after the war ends. If this does not happen, and there is no reason to think that it will, then this will force the government to either increase taxes more significantly or cut expenses. Both of these actions could contribute to a brain drain from Israel, a process that might already have started with the proposed judicial changes, and if this occurs, this would be a permanent negative effect of the war effect on Israel's economy.

CONCLUSION

The economic effects of wars can be positive or negative depending on numerous factors, as for example, how much destruction occurs due to the war, does the war stimulate economic production, and does the war lead to improved economic opportunities after the war. In this paper, we have briefly reviewed the economic effects of the war between Israel and Hamas, six months after the war began on 7 October 2023 on the economies of Egypt, the West Bank, Lebanon, Gaza and Israel. For all of these five areas, there have been definite economic losses from the war, and only in Egypt, who is not directly involved in the war, has there been to this point some economic benefit from the war, which might be greater than the losses to its economy from the war. When the war ends, depending on the outcome of the war, maybe there will be some new economic opportunities in the five areas, but as of April 2024, the economic costs of the war in the four areas, the West Bank, Lebanon, Gaza and Israel just compound the human suffering of the war.

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HAPPY COUPLES – HAPPY SMART CITIES? WILL ONLINE DATING PLATFORMS INCREASE HAPPINESS IN SMART CITIES?

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ABSTRACT

This research is about the link between Online Dating Platforms, Sustainability and Smart Cities. It adds the fourth pillar of sustainability to the traditional three pillars: social, economic, ecological and fourth: online life. The research question is: How can Online Dating Platforms contribute to Smart Cities? New technologies in Online Dating Platforms, especially Artificial Intelligence, are changing the way Online Dating Platforms are used by daters. From the standpoint of sustainability, innovation management and entrepreneurship development the Online Dating Business is bringing a positive venue to Smart Cities through Sustainability and Happiness. Hence, this study investigates how 'sustainability', 'responsible leadership' and 'online dating platforms' are linked, and more specifically, how to avoid the uncertainty involved in new encounters in online dating platforms and/ or in business. Additionally, the study makes the connection between online dating platforms' love and online dating platforms' distrust and lies. To reach this goal, the author uses data collected in interviews with 15 respondents from January 2024 until April 2024, and from previous studies from 350 respondents about online dating platforms from 2020 until 2023, and with 197 respondents about responsible leadership from 2015 until 2019. It is about Responsible Leadership in Smart Cities. The fourth pillar of sustainability - online life - is added to the three traditional pillars: social, economy, and environment. This is innovative regarding Social Innovation, enhancing social integration, human relations, happiness in general and a creative way to improve Smart Cities.

Keywords: Smart Cities, Online dating platforms, Sustainability, Creativity, Digitalisation, ICT, Happiness, Imagination, Responsible Leadership, Hofstede's cultural dimension Uncertainty Avoidance

INTRODUCTION

The purpose of this study is to explore how 'online dating platforms' are related to 'smart cities' (Kaufmann et al., 2020), 'sustainability' (Vrontis et al, 2020), and 'responsible leadership' (Maccoby, 2011; Schinzel, 2018; 2019; 2020) seen from an innovation standpoint (Leonidiou et al, 2020), and, more

specifically, how to mitigate the uncertainty (Hofstede, Hofstede, and Minkov, 2010) involved in online dating platforms and business encounters. The research question is: How can Online Dating Platforms contribute to Smart Cities? Research about 'Smart Cities' has been in the focus for the last years (Albino et al., 2015; Angelidou, 2015; Chamoso et al, 2018; Lwakatare et al, 2015; Senapathi et al, 2018), the link to 'online dating platforms' is innovative and the author's contribution to knowledge.

A by-product of this question is the proposition that the imagination and creativity used in personal misrepresentation on online platforms have the potential to be used in the process of the recruitment of new employees in organizations.

Online Dating Platforms have seen significant increase in use in the last years. With the coronavirus pandemic confining people to their homes, they went online to socialize in general, and on Online Dating Platforms in particular. Once the pandemic was over, they remained online. Research and experience have shown that people are not always completely honest, nor in presence, nor online, by not always telling the truth about themselves. While some might see misrepresentations as 'lies,' others may see them as 'imagination' or 'creativity,' and yet others as the mis-representer's 'second life.' Hence, creative misrepresentations produce new useful ideas for the future, at universities among others (Papaleantiou et al, 2014).

How much responsibility lies with the management of the online dating platforms to ensure the security of their users through 'responsible leadership' and overcoming 'uncertainty avoidance'? Deception comes from lies, told by the online partners (Markowitz and Hancock, 2018). Are these partners lying or are they using their 'creativity' and 'imagination'? Do they use misrepresentation of personal attributes such as age, gender, photos, salary, availability and other characteristics to allow themselves to experience a 'second life' of another person, online, and sometimes in reality?

The research question is: How can Online Dating Platforms contribute to Smart Cities? What is the link between Smart Cities, sustainability, responsible leadership, and online dating platforms? A secondary associated question is: How can one mitigate the uncertainty that exists in new encounters on online dating platforms? The study contributes to knowledge by linking and offering a comprehensive model of the relationships between Smart Cities, sustainability, responsible leadership, online dating platforms and uncertainty avoidance.

While every new encounter, online or in presence, dating or while negotiating, brings uncertainty, the question is how to mitigate this uncertainty and to increase the safety for the users. Additional questions come to the researcher's mind, such as: While digitalisation is the big winner of the 2020/2021 coronavirus pandemic (Schinzel, 2021), what are crucial parameters for a safer on-line future (Harari, 2020)? What are the dangers behind this (Harari, 2020; Floridi, 2014)? And what is the outlook for the future? Thus, this timely research about digitalisation of remote collaboration, friending, networking,

and, of course, romantic dating, combines research about Smart Cities (Kaufmann et al, 2020), with Geert Hofstede's (2001) cultural dimension of 'Uncertainty Avoidance' and Maccoby's (2011) 'Responsible Leadership' with 'online dating platforms' (Markowitz and Hancock (2018) and the success of– Information Communication Technologies (ICT) and the Internet of Things (Leonidou et al, 2020; Santoro et al, 2018). It may also result in the improvement of the use of negotiation tactics as examined by Stefanidis, Banai, Schinzel (2021) and Stefanidis et al. (2016). Moreover, this research offers unexplored ways of collaboration and networking; unexplored, unelected, unlived ways of knowing new people, and letting our imagination flow. More specifically, focus is drawn more on our imagination than on our lying capacity (Schinzel, 2021a, 2021b).

SMART CITIES

Smart Cities "are no longer about optimized traffic patterns, parking management, efficient lighting and improvement to public works." (Gartner, 2018). Following Kaufmann et al. (2020), key elements are "increased interconnectivity, real time data exchange, machine learning based on artificial intelligence implying self-controlling production systems. The "four perspectives of DevOps are: 1) Collaboration Culture; 2) Automation; 3) Knowledge (architecture, cloud computing, threat modelling); Sharing knowledge (product and sprint backlogs). Key success factors for the Smart Cities of the future are, following Kaufmann et al. (2020): Connectivity and Networks between administration, Stakeholder and Citizens. They differentiate between different competences required by The Smart City Planner, The chief Digital/IT officer, The Co-operation with external partners, and Training demand. These different competences are: 1) Specific Technical Competences, 2) General technical / Transversal competences, 3) Methodological competences, 4) Social competences, 5) Personal competences, 6) Legal competences, 7) Smart City Planner's competences, 8) Civilizational competences.

Following Bencardino and Greco (2014) "smart city" is generally meant as a city capable of joining "competitiveness" and "sustainability", by integrating different dimensions of development (economic, mobility, environment, people, living and governance).

For Kar et al. (2019), research moves beyond 'Smart Cities', to 'Digital Nations', involving the betterment of diverse social innovation initiatives, interdisciplinary approaches, and intellectual property creation with the citizen being the most important stakeholder. It is especially about innovation, the Internet of Things, Artificial Intelligence, and data driven services. Smart cities require smart citizens who need to be developed in the following domains: 1) digital, 2) social, 3) economic, 4)

professional, and 5) personal. Governments need to take initiatives of empowerment in 1) relational, 2) cognitive, 3) behavioural and 4) psychological domains.

Different cultures have cultural differences and need different approaches. This is where Geert Hofstede's research on cultural differences intervenes.

SUSTAINABILITY

Traditionally, sustainability has three pillars, namely social, economic, and ecological life (Purvis, Mao and Robinson, 2019). This current research adds a fourth pillar: online life. Sustainability, and especially sustainability in online services, has become a focus of interest in the last months and years, notably due to its complexity and dynamism, sometimes unpredictability, constituting a powerful stimulator in many social and economic aspects (Fait, Vrontis, Maizza, and Cavallo, 2019). Particularly, and furthermore the current central question is how sustainable are online dating platforms, and in case, how to increase their sustainability? Using technology advancement to increase chances in first dating and finally marriage in research conducted by Izang, Kasali, Ajayi and Adegbenjo (2020) proved them right in their hypothesis about the positive link between the use of social media and sustainable marriage, notably in a world with increased time spent on communication devices and social networks. Especially, and because of the benefits provided by the companies behind the online dating services, the revenues generated, the employment created, these online dating platforms constitute an economic and commercial factor not to be neglected my marketing, communication and management in terms of sustainability and profitability (Jung, Bapna, Ramaprasad, and Umyarov, 2019).

RESPONSIBLE LEADERSHIP

Maccoby (2011) defines leadership as follows: "There is only one irrefutable definition of a leader: someone people follow. Therefore, leadership is a relationship between the leader and the led. Unlike management, the leadership relationship cannot be delegated or automated."

This research concentrates on 'responsible leadership,' as a leadership style, that is classified along other leadership styles (Northouse, 2012) such as autocratic leadership, laissez-faire leadership, strategic leadership, responsible leadership, transformational leadership, transactional leadership. Responsible Leadership spans three areas: economic, social/human, and ecological (*Financial Times*, n.d.). Responsible leadership is defined as being "about making business decisions that, next to the interests of the shareholders, also takes into account all the other stakeholders such as workers, clients, suppliers, the environment, the community and future generations" (*The Financial Times*, n.d.). Responsible leaders build sustainable relationships with stakeholders to achieve shared objectives, for

the common good (Pless, 2007). In this fast-changing world, and following technology used in online dating platforms, combining artificial intelligence and human resource management (Vrontis et al, 2022) has the potential to enhance organizations' recruitment technology and process.

HOFSTEDE'S CULTURAL DIMENSION OF 'UNCERTAINTY AVOIDANCE'

In the 1960s, Geert Hofstede defines cultural dimension 'Uncertainty Avoidance' (UAI) as "the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity." The 1960s and the 2020s span 60 years of fast changes and innovation in the Information and communication Technology (ICT), justifying highlighting the following sentence of this definition by Geert Hofstede: "The fundamental issue here is how a society deals with the fact **that the future can never be known**: should we try to control the future or just let it happen? Countries exhibiting strong UAI maintain rigid codes of belief and behaviour and are **intolerant of unorthodox behaviour and ideas**. Weak UAI societies maintain a more relaxed attitude in which practice counts more than principles" (Hofstede insights, 2024). Contemporary developments, especially the Internet, online presence, and ICT, allow for particularly different views of what is 'unorthodox behaviour and ideas' in the 2020s compared to the 1960s regarding traditional ways of encounters.

ONLINE DATING PLATFORMS

Social innovation can be online dating (Blossfeld and Schmitz, 2011). Traditional encounters for some of us – mainly the young generation - might be **online**, while for others – mainly the old generation, might be **in person**. However, in every new encounter, might it be online or in presence, the three following theories apply equally: Impression Management, Truth Management, and False Consensus Effect. Especially lies. Or, more precisely, small lies, let's call them misrepresentations or small deviations of the reality, you might say: fantasy, objects of our dreams, wish-to-be. First, strikingly, called '**impression management'** (Markowitz and Hancock, 2018; Ellison et al, 2012, 2006), meaning the beautification of one's self-presentation, where people would deviate slightly in describing their personal attributes such as age, height, weight, professional occupation, personal interests and hobbies, leisure priorities, sexual preferences, alcohol consumption, smoking, and 'personality traits', as well as showing earlier age photos, (Lim, 2021). Second, considering the before said, **'truth management'**: where you would ask yourself if the person was telling the truth or not. Consequently, Levine (2014) developed the **Truth-Default Theory**, suggesting that despite knowing the other person, you can never collect enough information about a person to be able to make the right judgement. Thus, focus is drawn

on the deception originated by these lies. Third, there is the **'false consensus effect'** (Epley, 2015) which suggests that daters decide if it is acceptable to lie because they surmise that the other person also lies. Fourth, people might deviate from the reality and be creative when talking about their 'availability.' This is called **'availability management'** and involves marital and/or relationship status availability, general time availability, and, more specifically, time for meeting in person availability. Furthermore, some people may underestimate the time any kind of relationship expected of them.

In recent months, focus has been drawn on the **'safety'** of users by reducing the 'uncertainty of dating platforms' (Corriero, and Tong, 2016); and by online dating platform requiring users to publish information and share it with all other daters. This information includes identities, background information, criminal records, court records, sex offender status, marital status, lawsuits, and personal reviews. In fact, the strengthening of users' '**safety'** has at the same time increased the discussion about a 'complete surveillance' of people. Obviously and consequently, the suggestion for complete traceability of everybody's movements on mobile tracing applications instigated a discussion about the advantages and disadvantages of total surveillance and controllability. Therefore, scholars Yuval Noah Harari (2011, 2015, 2018, 2020) and Luciano Floridi (2011, 2014, 2019, 2020) discuss the risks and opportunities, and the chances and problems of ICT, before the pandemic. Additionally, the ICT discussion does not only include topics like safety, surveillance, and controllability, but also communication, and more specifically 'digital communications,' calling for more professional entrepreneurial education (Papageorgiou et al, 2021).

A PROPOSITION

New technologies and computer applications have made the use of such dating and other social and business platforms more acceptable in general, and for Smart Cities in particular. Thus, they are used as a means for improvement of Smart Cities, for the quality of life, where diverse competences are required to improve the quality of life of the citizens. They allow for creativity, imagination, change, and innovation, essentially becoming acceptable means of meeting new people, in private or in business. Hence, the author formulates the following proposition: *a fourth pillar is added to the traditional three pillars of sustainability: 1) social life, 2) economic, 3) ecological and 4) online life. Due to the pandemic, new ways of in-person or online dating platforms encounters stimulate and facilitate life in Smart Cities and their development, by enhancing imagination and creativity not only in private life but also in the workplace.*

METHODS

For the purpose of this research, the author interviewed a total of 15 respondents in semi-structured interviews from January until April 2024, asking them mainly: "How do Online Dating Platforms

contribute to Smart Cities?" Interviews were conducted in several languages, English, French, German, Luxembourgish, Italian, Spanish, Portuguese, and translated to English.

In several previous studies, the author had already performed other similar and different research about 'online dating 'platforms', namely, from 2020 to 2022, and in the heat of the coronavirus pandemic, the author investigated 'Love and lies on online dating platforms' (Schinzel, 2021, 2022b) by combining the result of previous studies about 'Responsible Leadership' and 'Uncertainty Avoidance.' Additionally, and to double-check the validity of the proposition, 32 semi-structured interviews were performed in 2022 for the purpose of another previous study.

For the purpose of another study (2021) a total of 242 people were contacted in writing, by telephone or in person via an online dating platform. Out of the 242 participants, first communication contact was in written on the platform, while with 179 this written communication ended then on the platform, 63 were contacted by phone and meetings in person were organized with 18 respondents once, 5 twice, 2 three times and 5 several times. Mainly, the research questions were: Did the coronavirus situation change dating habits? Can you trust people on online dating platforms? Can one really find love there, or is it only lies? Followed by an in-depth literature review on 'Uncertainty Avoidance and coronavirus' and "How to avoid the uncertainty in new encounters on online dating platforms, and not only there?" Replies, in English, German, French, Dutch, Italian, Luxembourgish, and Spanish, were translated into English and back translated to check for consistency.

Another previous study from 2022, consisted of 32 semi-structured interviews and was performed with the objective of validating the findings from the 2021 study, what indeed had been confirmed. The author contacted online acquaintances through face-to-face, WhatsApp and dating platforms, therefore using a convenience sampling. For confidentiality and anonymity reasons, notably not to reveal the true purpose of being on the platform, interviews were chosen over questionnaires.

RESULTS

The results from this current research show mainly that 15 out of the 15 respondents believe in the increase in 'happiness in general' through online dating platforms in smart cities. It is believed that happy couples make happy citizens.

Table 1 How can Online Dating Platforms contribute to Smart Cities?

	Table 1 How can Online Dating Platforms contribute to Smart Cities?	N = 15
1	Increase of 'Happiness in general' of the citizens	15
2	They help the development of the multi-disciplinary Smart City Phenomena	13
3	They represent the development of smart cities intellectual minds	13
4	They improve 'the quality of life in general'	14
5	Citizens embark on an intensive change process	12
6	Citizens unlearn ingrained behavioural patterns	13
7	Citizens internalise an 'Innovative competence set'	13
8	They represent an increase in digital and transferrable skills	12
9	They require more strategic roles of the Smart City Planner / City Chief Digital Officer / City IT Officer / Smart City Administrator	10
10	They represent an intensive change process to determine the gap of competences needed for Smart Cities	12
11	New digital technologies facilitate the Smart City development	15
12	These new digital technologies and especially Online Dating Platforms provide/require newly emerging job profiles	15
13	A specialised software needs to be developed for Smart Cities, such as DevOps.	15
14	This specialised software could include 'online dating'	15

How can 'Online Dating Platforms' contribute to 'Smart Cities', was answered mainly by the points mentioned in the above table, by 1) an Increase of 'Happiness in general' of the citizens; 2) They help the development of the multi-disciplinary Smart City Phenomena; 3) They represent the development of smart cities intellectual minds; 4) They improve 'the quality of life in general'; 5) Citizens embark on an intensive change process; 6) Citizens unlearn ingrained behavioural patterns; 7) Citizens internalise an 'Innovative competence set'; 8) They represent an increase in digital and transferrable skills; 9) They require more strategic roles of the Smart City Planner / City Chief Digital Officer / City IT Officer / Smart City Administrator; 10) They represent an intensive change process to determine the gap of competences needed for Smart Cities; 11) New digital technologies facilitate the Smart City development; 12) These new digital technologies and especially Online Dating Platforms provide/require newly emerging job profiles; 13) A specialised software needs to be developed for Smart Cities, such as DevOps; and as a consequence of this: 14) This specialised software could include 'online dating'.

"Working towards a common goal that enables the fast flow of planned work into production while achieving world-class stability, reliability, availability, and security" is the definition of DevOps by the DevOps Institute (2019, p.15).

Quotes:

One of the respondents said: "The easiest way to achieve this is if the City Planners include a section 'online dating' into the specialised software for Smart Cities. Directly on the government website, there could be a link to the online dating platform, or the government could develop themselves their own dating platform, free of charge. This would be really innovative. Like the initiative in Luxembourg City to have a 'Sports Pour Tous' – 'Sports for All', that allows everybody to exercise or for free or at a very low price, the Luxembourg City could also have an 'Online Dating' on their https://www.vdl.lu/fr website. That would be really innovative, new, and people would have a look!"

Another respondent said: "Please have a look at the following websites, we use them in our company for innovation: https://www.dworldvr.com/ This is 'The world's first ever Virtual Economy DWorld, where you experience real life in the METAVERSE. The different worlds are 1) Retail, 2) Tourism, 3) Real Estate, 4) Yachting, 5) Events, 6) Hospitality.

DWorld: "DWorld has recreated the first virtual twin of a country within the metaverse in the world starting from the Principality of Monaco. We recreate smarter and greener virtual twins of cities worldwide, integrating all the main economic sectors in one single virtual reality platform to start the era of the V-Economy.Live breathtaking experiences within a dynamic, immersive and interactive environment representing the more sustainable world of tomorrow."

Respondent Nr 3 said: The future of work has these following challenges: 1) Real Estate, 2) Technologies, 3) Transportation, 4) Taxation, 5) Sustainability. You can check this on the website https://www.linkedin.com/company/hrcommunitylu/

Respondent 4 said: "We could call the direct link on the government's website to a dating platform: 'Couples Heureux pour Tous' in English: 'Happy Couples for All'   -   in accordance with 'Sports pour Tous' or in English 'Sports for All'

Respondent 5 said: "We could have a direct link on the website of 'Sports pour Tous' to online dating, this would be good as participants would already be sporty. There is a 'Cycling Dating' in Luxembourg, but Luxembourg is too small to have enough participants on that online dating platform, we would need to go to Bruxelles Online Cycling Dating" to allow for more people to be there."

The results from the previous studies from the years 2021 and 2022 revealed that respondents lied mainly about the following items (Schinzel, 2021a, 2021b, 2022b): their name, their profile photos (using photos 10 or more years younger), their gender (women who pretend to be men and vice versa), their age, their 'availability', their salary, other characteristics (such as their true motive for being there, alcohol consumption, smoking, sexual preferences, abuse (these traumatizing events in the past often represent a hindrance for future new relationships. Although, in the first place, they would NOT talk about having been abused in the past at all, only later mention it in a second or third encounter), deaths

(like abuse, fatalities represent a traumatizing event in the past with often negative impacts on future relationships. If a loving partner has recently passed away, it is difficult to replace him or her entirely), or the loss of one of their children, the loss of their spouse/partner, an injury suffered by one of their children or their spouse/partner, a difficult divorce process from a former spouse, or sexual abuse by a family member.

Here is the representative quote of one of the respondents: "In my opinion, it is NOT about lies. On the contrary, online dating platforms allow for the participants to live some kind of 'second life', where they are living a kind of 'dream', being a different person, a person they would have always liked to be in real life. However, reality is not what they wish it to be. Here they can live their creativity, their fantasies, like a child exploring an unknown world, allowing for new experiences, to live under cover, with a different name, a different photo/image, or a different gender. Their creativity and fantasy are limitless, permitting borderless imagination, where streets are interconnected with secret passages, leading to unknown labyrinths, new people, funny encounters, great discussions, bringing excitement in their otherwise boring lives."

The 2022 study yielded the flowing results:

Out of 32 respondents, 29 confirmed the author's proposition. They stated that with new methods of working, namely working remotely, from home or from elsewhere, the employer can no longer exactly control what employees do during their working hours, and allow for the use of social media, including online dating platforms. These platforms then enable new methods of new encounters, not only romantic relationships, but also friending, networking, and recruiting. However, the main concern is the security of these social media and platforms, requiring firewalls, protection, including the prevention of perversity and crime. There are unknown possibilities of new encounters that remain to be explored paving new ways of creativity (Papaleontiou, 2014) and imagination.

However, the answer options depend on the age and/or on the gender of the respondents. The younger the respondents get, the more they are open about new forms of working, including 'online dating platforms' and requiring the 'responsible leader' to include them in the work environment, making them 'acceptable' for 'talent management' strategies in 'human resource management' strategy (Schinzel, 2022a).

Here are representative quotes from five respondents in the 2022 study.

Respondent 1: (female, age 30-40, working in a bank)

"The Coronavirus pandemic has changed the behavior of many people. I think that 'Leadership' and 'Online Dating' are linked nowadays, during and after the pandemic. While, before the outbreak of the pandemic, in the office, it was mainly forbidden to use private Facebook or private other social media. Now everything has changed. Everything is linked, intertwined, we work from home, where we use all

our social media channels in parallel. There is no boss to forbid our Facebook or LinkedIn or any other social media attendance, so that 'Online Dating Platforms' see a boom, because we use them during our official 'office' times and not only do we date online during working hours, but we use these online dating platforms not only for romantic dating, but also for friending and for networking.

Nobody wants to go back to the 'old normal', people want to remain in the 'new normal,' continuing to have online contacts all day long, during work hours. The wise leader is aware of these changes and doesn't forbid these contacts during working hours.

People do many things in parallel on their computers, working mainly on several screens in parallel, having several windows open, and chatting in parallel with several people on several channels, all from their kitchen table, or office, or wherever they are. The responsible leader allows these new behaviors and doesn't forbid them. The new generation of young people will be multitasking, they will be 'all-online,' using all their social media channels in parallel with work / school / conferences / etc. The young people will mix all these media to use them for their advantages, for friending, networking, romantic relations, business relations, there will be no more limits or restrictions in their use."

Respondent 2 (female, age 25-35, working in education)

"Nowadays people are digitally connected more than ever. Either for business or private reasons, the usage of dating digital platforms became the normality: every day the first action is to turn on your laptop and meet your colleagues, have meetings; or simply meet your friends, loved ones who are living far away. About love, having a remote relationship with the partner is common. Video calls are received every moment of the day: while cooking, eating. Why not have a virtual lunch/dinner/coffee break together? Psychologists are also telling us that virtual sex is today a normal legitimized practice."

"But, despite humanity's virtual connection increase, people everywhere are experiencing loneliness and uncertainty: they often feel isolated. Social relationships can never be substituted by full digitalization. I think that the feeling of uncertainty could be overcome via high attention and listening while the speaker is talking. Following simple rules either during business or love meetings: put others' devices far away; use the eyes/look to communicate an emotion/feeling; ask the right question and be always curious, open minded creating space for the others to whole express themselves."

Respondent 3: (female, age 30-40, working in a bank)

"Big job changes are to be foreseen. Why is this so? For several reasons. People are working remotely – from far and realize several things. They don't like their jobs, and it is easy to search for a new one, online. So, they quit and find a new one. Or they are close to retirement and prefer to benefit from their free time. Or they have a partner who earns enough money for two. Or they are just fed up with the job. It is important in life to find something that makes you happy.

The next and last subject I want to talk about is the web shopping, where supermarkets have a leading role while designing new concepts for the future, not only to avoid the spread of coronavirus, but also to facilitate shopping while working, remotely or in the office with a large, refrigerated storage places for overnight orders."

Respondent 4: (male, age 50-60, working in education)

"Even though I haven't used online dating platforms for years, being happily married, my opinion referring mainly to my experience with the new online working habits, and meeting platforms such as ZOOM is: Using new technologies and online platform to communicate becomes a new standard in our day to day lives: at work, to enable and expand work from home; in our private life, to communicate safely with our relatives and keep a social link, whatever the context. All this was made possible with the growing security to join the platforms but also to secure the data. Habits evolved, nevertheless it seems important to me not to forget that behind an avatar or a profile, there is a real person. Why? Because it is easier to create a fake or our "ideal profile of ourselves" in the virtual world. Let's keep reality alive!

If I make a link between the role of a "responsible leader" and "online platforms" the following points are essentials: The need to create or maintain a "community feeling." Team- building exercise, regular meeting, information sharing (not only forwarding a mail). The definition of rules related to the use of online platform or meeting tool: video, document sharing, size of attachments… to limit the "ecological impact." Economically, I would highlight the management of building, infrastructure costs: building location, equipment, such as laptop, headset, and consideration of an indemnity for people who work from home such as an Internet connection, desk, chair, additional screen, and others."

Respondent 5: (male, age 20-30, student)

"I believe that each person needs to be responsible in both. Not all new encounters in business result in deals signed and not all new encounters in online dating platforms would result in a wedding. Artificial Intelligence that can manipulate our choices, in the end the ability to avoid uncertainty in this kind of platform is a kind of manipulation.

Technically speaking, Artificial Intelligence can run a set of tests in order to check if the profile belongs to someone real and the information is accurate, but after that it will always depend on free will of each human if they go ahead or not."

DISCUSSION: ONLINE DATING PLATFORMS AND SMART CITIES: THE FOURTH PILLAR OF SUSTAINABILITY: ONLINE LIFE - STRATEGIES FOR SUSTAINABILITY FOR ONLINE DATING PLATFORMS

Over the last ten years research of Smart Cities and sustainability has mainly focused on three pillars (Purvis, Mao and Robinson, 2019): a) social life, b) economy and c) environment (Thompson, 2017). This current research, however, adds a fourth pillar to the above mentioned three: d) Online life. On the one hand, this research follows on research conducted by Izang et al. (2016) on 'sustainable marriage' and focuses on 'Sustainability on Online Dating Platforms'. On the other hand, it generalizes the investigation to include 'creativity and imagination' (Papaleontiou et al. (2014) and 'digital communication' (Papageorgiou et al., 2021). Especially the 'community effect', generated by online dating platforms, is of interest for the community sustainability and the profitability of the online dating platforms (Jung et al., 2017). Notably, and this is the conclusion of Mouratidis & Papagiannakis (2021), virtual mobility increases ecological sustainability by reducing traffic, especially by reducing and changing transportation, leading to more sustainable cities and society in general. The strategy for the future is to become more sustainable by being online, the fourth pillar of sustainability – social life, economy, ecology, online life.

CONCLUSION

The contribution of this study to practice could be the following: Online dating platforms could be an integral part of Smart City's Software. Already by now, Online dating platforms are not only used for romantic relationships, but also for friending and networking, for collaborating and working together, negotiating, and even recruiting new staff, as shown by the BBC (2021). This has a great potential to progress and develop in the future in Smart Cities by enhancing stability, reliability, availability and security. Parallel online activities, such as networking, friending, collaborating, negotiation, communication, working, and relaxing stimulate imagination and creativity. Unlimited use of online services, in all aspects of life, may create new concepts that may lead to a completely new concept of Smart Cities without boundaries. It may establish new ways of human activities such as shopping, working, transport – street, rail, air, sea, - friending, contacting, recruiting, negotiation, collaborating (Mouratidis and Papagiannakis, 2021). Future research may investigate the relationships among Online Dating Platforms, Artificial Intelligence and information communication technologies, and develop new domains, such as negotiation (Stefanidis et al. (2016).

Despite some lies on online dating platforms, creativity, argue Papaleontiou et al (2014), increases the possibility to create new knowledge and ideas, where everybody and everything is connected, while using all social media in parallel for all kinds of purposes. Artificial Intelligence and ICT are used

thanks to ever growing creativity and imagination, outside-of-the-box-thinking, while Geert Hofstede's (Hofstede insights, 2024) cultural dimension 'Uncertainty Avoidance' was propagated in the 1960s, other ways of thinking are acceptable in the early 2020s. A fourth pillar is added to sustainability: social life, economy, environment, and online life, with user friendly connected infrastructure (Albino et al., 2015).

The combination of 'Online Dating Platforms' with 'Smart Cities' is innovative. The creation of a direct link on the website of the government to an online dating platform would be a 'nice to have' solution for the future of smart cities. Or the direct link from a sports association to an online dating platform.

FUTURE RESEARCH

Future research could focus on the implementation of this direct link on the government website to an online dating platform and evaluate the results. Using more statistical methods by using big data and a bigger number of respondents would help to come up with better statistics and correlations.

Future research could also be a cultural comparison among different nations in Smart Cities – in Digital Nations - following Geert Hofstede.

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INNOVATION ACROSS CULTURES: EXPLORING THE INTERSECTION OF INTERNATIONAL ENTREPRENEURSHIP, TECHNOLOGIES, AND INTERCULTURAL DYNAMICS

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ABSTRACT

Purpose - This study explores the impact of globalisation on international entrepreneurship, examining how emerging technologies such as artificial intelligence and blockchain have changed the global entrepreneurial landscape.

Design/Methodology/Approach—Data was collected using the Scopus database, focusing on keywords related to emerging technologies and entrepreneurship. A textual analysis was then carried out using Leximancer, this study takes into consideration 131 articles in order to identify and analyze the links between the various factors under study.

Findings - The study identified key interconnections among digitalisation, multiculturalism, changes in business models, and international entrepreneurship. Digitalisation has transformed the entrepreneurial landscape, creating new opportunities and challenges.

Research Limitations/Implications - The research offers a foundational understanding of contemporary international entrepreneurship but is limited by the scope of data from the Scopus database and specific keywords. Future research should expand the range of data sources and keywords for a more comprehensive analysis. Further empirical research is necessary to validate and expand upon these findings.

Originality - The study emphasises integrating digitalisation and emerging technologies into entrepreneurial strategies to seize global opportunities. It underscores the transformative impact of technologies like AI on market interactions and the need to adapt business models to the digital age. Additionally, it highlights the critical role of cultural diversity in international entrepreneurship, suggesting that a multicultural approach can enhance global business success.

Keywords - Entrepreneurship, Marketing, Innovation, Value creation, Systematic literature review, International Entrepreneurship, Interculturality

1. INTRODUCTION

In recent years, the concept of international entrepreneurship (IE) has seen substantial development and has garnered growing attention from both academic and business communities. Beginning in 1988, the IE has been defined as the development of international new ventures or start-ups that, from their inception, engage in international business, thus viewing their operating domain as international from the initial stages of the firm's operation (McDougall, 1989).The present research aims to explore in depth the intersection of IE, new technologies, and cross-cultural dynamics within the increasingly dominant field of digitalization. Through a detailed analysis, a comprehensive framework for opportunities and challenges arising from this complex interaction will be defined. The aim is to understand how these interactions influence business strategies, technological innovation, and the management of cross-cultural relationships in an increasingly globalized and digitally connected context. In the last ten years, interest in information technology research has increased significantly and rapidly, mainly due to the globalisation of the world economy (Chae & Goh, 2020). According to Vinogradov E. et al. (2021), the number of emerging businesses and the opportunities they have to network and grow through partnerships, acquisitions, and mergers are clear indicators of the impact of globalisation. The opportunities and advances provided by new access to the global economy are making it easier for companies to develop and expand worldwide. The term "globalisation" can describe a spatially valuable process that enables a business to expand its operations beyond national borders to other continents (Liu et al., 2020).

Especially, this issue is spreading in nations such as the US and the UK, where it was unthinkable only a few years ago (Berman et al., 2023). Thus, some businesses are reconsidering their location plans by decreasing international trade, people-to-people interactions, and knowledge transfer in response to the growing threat of economic nationalism (Hoda, 2019). Digital technologies are changing entrepreneurship as a practice (Si et al., 2023). They enable the digital transformation of the entire traditional entrepreneurial process and facilitate new entrepreneurial opportunities (Berman et al., 2024). New technologies, rather than nationalism, are the enabling factors for IE. Examples include the Internet, communication technologies (ICT), Industry 4.0, additive manufacturing, artificial intelligence, blockchain, and the metaverse (Elia et al., 2020). As reported by Giuggioli & Pellegrini (2023) AI techniques can significantly improve the decision-making systems employed by entrepreneurs, leading to higher quality decisions that are both more effective and efficient, thereby enhancing overall operational performance. Business processes are changing due to new technologies, opening up many options for global entrepreneurs and start-ups (Liu et al., 2020). For instance, by altering how services are provided to clients, blockchain technology in the service trade decreases the significance of middlemen (Chalmers et al., 2021). Technology has enabled the trade of commodities

and services across national borders that were previously considered untradeable, even if the COVID-19 epidemic has made the expansion of IE more difficult (Chae & Goh, 2020). New technologies are thus facilitating global interaction and communication creating opportunities that were unimaginable a few years ago (Zahra, 2021). In fact, technologies in entrepreneurial ecosystems enable entrepreneurs to find new ways to create, deliver, and capture value, allowing them to pursue entrepreneurial opportunities (Marinelli et al., 2023). Nowadays, even the physical IE is permeated by multicultural dynamics due to effortless connectivity and linkage (Pidduck & Zhang, 2022). Added to this is the phenomenon of digitalization, which can create new barriers and reduce geographical distances by reducing information asymmetries. Due to this duality, a comprehensive study of the dynamics of emerging technologies in global entrepreneurship is necessary (Lesinskis et al., 2023). Due to the limited prospects of cultural synergies caused by these transformations, some tensions require the development of new socio-intercultural entrepreneurial skills and competencies to effectively manage organizations. One of the main barriers to digitalization is related to organizational culture. An aversion to change, characterizing both owners and employees (Cardinali et al., 2022). Zahra (2021) stated that, in the context of international entrepreneurship, it is essential to study how entrepreneurs tackle new issues brought about by nationalism globalization and the increasing use of new technologies. In this sense, the research questions are: *RQ1.* What are the implications of emerging technologies on entrepreneurship, particularly in the context of digitalization? *RQ2.* How have the changes brought about by digitalization transformed the entrepreneurial landscape? *RQ3.* What impact do cultural differences have on the entrepreneurial world, and how do they relate to technological developments? In addition to making a significant contribution to the body of literature by filling in current gaps and paving the way for future research in the field of IE and digitalization, this study aims to present a comprehensive framework that highlights the opportunities and challenges that arise from the dynamic interaction between entrepreneurship, technology, and cross-cultural dynamics (Elia et al., 2020). The uniqueness of our paper stems from its updated and comprehensive perspective on international entrepreneurship in the modern world. Our methodological approach involves using the Scopus database and specific search criteria to retrieve relevant data for analysis (Massaro et al., 2021). The research focused on keywords that encompass various technological developments and entrepreneurial topics, as described in the literature (Candeias Fernandes & Franco, 2021). In this study 131 articles were considered, and subsequently the collected texts were analysed using the text analysis programme Leximancer (Fossen F. M. & Sorgner A. 2021), which proved to be useful for the investigation and analysis of key concepts. This study adopts an exploratory approach to examine the relationships between digitalization, multiculturalism, changes in business models, and international entrepreneurship. Our aim is to explore the complex

dynamics that characterise the interaction between these factors and their impact on the global entrepreneurial landscape. The introduction to the synthesis of methodology and results in the introduction is an excellent way to provide an overview of our approach and conclusions. Digitalization, multiculturalism, changing business models and international entrepreneurship are fundamental elements in the global entrepreneurial landscape that significantly impact business strategies and growth opportunities (Wilk V. et al., 2021). The widespread adoption of digital technologies has revolutionised business processes and offers new possibilities for innovation, communication, and global market penetration. In this context, artificial intelligence and digital platforms foster businesses international growth by enabling them to swiftly adapt to market demands and provide personalised solutions to customers (Fossen F. M. & Sorgner A. 2021). Correlations have emerged between the adoption of digital technologies and entrepreneurs, with the implementation of tools such as AI directly influencing companies' decision-making and operational processes. In the following section, the methodology adopted to conduct the study will be analysed. Subsequently, in Section 3, the principal findings are comprehensively interpreted. In section 4, the findings are discussed and interpreted considering the implications and criticism found. The article is finally concluded in section 5.

2. METHODOLOGY

The current study adopts an exploratory approach to examine the correlations among digitisation multiculturalism, changes in business models, and international entrepreneurship (Rayna & Striukova, 2021). This methodological approach is chosen to delve more deeply into the complex dynamics that characterise the interaction between these factors and their impact on the global entrepreneurial environment (Elia et al., 2020). In particular, the aim is to understand the role of digitisation in overcoming multicultural challenges, a relevant aspect for companies operating on a global scale as it directly influences their communication strategies, human resource management, and market penetration (Kraus K. et al., 2022). The authors employed the Scopus database, and specific search criteria were used to retrieve relevant data for analysis (Oppioli et al., 2023).The research focussed on a series of relevant keywords:

TITLE-ABS-KEY ("Blockchain" OR "Artificial Intelligence" OR "Big Data" OR "Metaverse" OR "Industry 4.0" OR "Additive manufacturing" OR "Cloud manufacturing" OR "Internet of Things" OR "IOT" AND "International entrepreneurship" OR "Intercultural entrepreneurship" OR "Digitalization and entrepreneurship" OR "Entrepreneurial internationalization" OR "Cross-cultural" OR "Digital entrepreneurship" OR "Interculturality and Digitalization").

Subsequently, the collected texts were analysed using the text analysis programme Leximancer (Frank M., 2021), which proved to be a valuable tool for identifying and analysing key concepts in the texts. Leximancer operates in two phases: initially, it identifies the meaning of words, and subsequently, it analyses their interconnections. This approach allows for a deeper understanding of the conceptual relationships within the texts (Hristov et al., 2021). Using Leximancer, significant relationships between concepts have been identified, such as the relationship between digitisation and management (Smith & Humphreys, 2006). Correlations have emerged between the adoption of digital technologies and entrepreneurs, with the implementation of tools such as AI that directly influence companies' decision-making and operational processes. Additionally, the paper will examine the impact of cultural differences on the entrepreneurial landscape and their convergence with technological advancements. China is recognized as a global leader in utilizing data to stimulate innovation and guide business decisions. The study involves analysing 131 articles. Table 1 summarises the number of scientific documents extracted for our analysis.

Table 1. Number of scientific and practitioner documents

Year	Articles	Year	Articles	Year	Articles	Year	Articles
1988	1	1997	0	2006	0	2015	1
1989	0	1998	1	2007	0	2016	2
1990	0	1999	1	2008	0	2017	3
1991	0	2000	1	2009	0	2018	5
1992	0	2001	0	2010	1	2019	5
1993	0	2002	0	2011	1	2020	13
1994	0	2003	0	2012	0	2021	26
1995	0	2004	0	2013	0	2022	22
1996	1	2005	0	2014	6	2023	41

Source: Author's elaboration

3. RESULTS

Due to technological advancements and the global spread of internet connectivity, new forms of collective intelligence have emerged, using digital infrastructures to communicate, exchange resources, and coordinate activities. This social phenomenon, stemming from radical changes in information sharing, is redefining markets and offering new possibilities to enhance individual freedom and promote cultural diversity (Yam et al., 2023). Digitalization, Industry 4.0, Big Data, and blockchain technologies have profoundly transformed the entrepreneurial landscape, introducing new global perspectives and challenges for companies (Ali, 2023). As highlighted in figure 1, these technological innovations have profoundly influenced how companies manage their operations. The relationship between digitalisation and business management plays an important role in this rapidly

evolving context, as digitalization provides companies with new tools and methodologies to optimise their operations (Shadiev et al., 2023). Digital technologies are the outcome and environment of business creation and operational processes. Thus, it is possible to identify two integrated interpretations of the digital entrepreneurial ecosystem: the digital output ecosystem, which involves entrepreneurial actors in the conception, development, and provision of innovative digital products and services, and the digital environment ecosystem, which uses digital technologies as a tool to aggregate a broad network of stakeholders, facilitating the design and development process of startups and micro-enterprises (Truong, 2023).

Figure 1. Key themes and their relationship results of the analysis
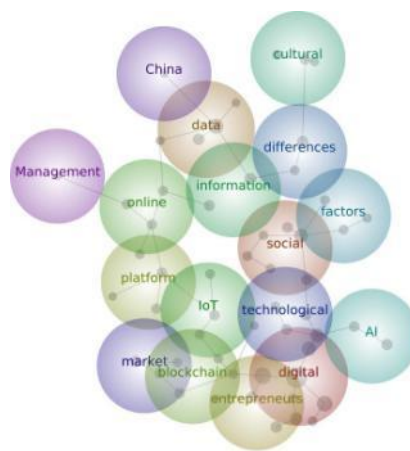
Source: Author's elaboration using Leximancer

3.1 Artificial intelligence and entrepreneurs

Artificial intelligence (AI) is transforming the digital business system by introducing advanced tools that significantly influence business operations. To answer research question RQ1, the role of artificial intelligence (AI) in the digital entrepreneurial context will be analysed in this section. The figure below highlights how artificial intelligence (AI) influences the digital business environment, taking into consideration the competitive environment in which companies operate (Mondal S. et al. 2023). AI becomes important for companies looking to distinguish themselves from the competition, capable of anticipating market trends and adapting their strategies accordingly (Vinogradov E. et al., 2021). A fundamental aspect of AI usage is its ability to analyse large amounts of data in real-time and extract meaningful information to support strategic decision-making. Knowing customers allows companies to customise their products and services more effectively, adapting them to the market's specific needs and creating a competitive advantage (Gongmin B. et al. 2011). AI can also optimise business processes, identify inefficiencies, and suggest solutions to improve operational efficiency. For example, companies can reduce operating costs and increase overall productivity by automating repetitive tasks and creating intelligent decision support systems. In the entrepreneurial context, the

adoption of emerging technologies such as Artificial Intelligence (AI) has become essential to ensure competitiveness and innovation. This aspect is particularly relevant considering that resources are often limited, and operational efficiency can make the difference between the success and failure of a business (Abeba et al., 2020).

3.2 Digital platforms and management

In addressing research question RQ2, the study examine how changes resulting from digitalization have transformed the entrepreneurial landscape. Digitalization has revolutionized the very nature of businesses, influencing business models, marketing strategies, and interactions with customers. This study aims to explore how the advent of digital technologies has redefined the very concept of entrepreneurship. Digitization has brought about a radical transformation in the entrepreneurial landscape. Digital platforms based on software have revolutionised the way demand and supply interact in real-time. The impact of digital technologies on entrepreneurship takes various forms (Kraus K. et al. 2022). An emerging concept in this context is digital entrepreneurship, also known as cyber-entrepreneurship, which involves the use of the Internet and technological platforms to conduct business operations and offer digital products and services (Swartz et al., 2022). This phenomenon represents a significant evolution of traditional entrepreneurship, as it enables access to global markets and the creation of new business opportunities through innovative use of digital resources (Chae & Goh, 2020). Digitalization provides companies with new tools and methodologies to optimise their operations. For example, implementing digital management systems allows for better process tracking and more efficient resource allocation, enabling companies to quickly adapt to changing market demands. Online platforms are playing an increasingly significant role in e-commerce and corporate communication. They act as business distribution channels, allowing them to reach a broad audience of consumers quickly and efficiently. In addition, these platforms offer an interactive environment that promotes customer engagement and feedback collection, enabling businesses to adapt and improve their products and services based on market needs (Slingerland et al., 2020). The digital market offers unprecedented data analysis opportunities and artificial intelligence (AI) applications to drive business decisions. Data analysis allows companies to identify market trends, consumer behaviour patterns, and growth opportunities, thus providing a solid foundation for targeted marketing strategies and informed operational decisions (Berman et al., 2023). At the same time, AI can automate complex processes, improve operational efficiency, and deliver personalised customer experiences.

3.3 Impact of cultural differences on global entrepreneurial strategies

Responding to RQ3, the focus will be on the impact of cultural differences on the entrepreneurial world and their intersection with technological developments. In the analysis of the documents

considered, China stands out as a global leader in the use of data to drive innovation and support strategic business decisions. In fact, the Chinese digital ecosystem is characterised by technological platforms that dominate sectors such as e-commerce, digital payments, and social media (Liu X. et al., 2020). These platforms collect vast data on user behaviours, ranging from online purchasing habits and navigation patterns to social interactions and interests. This data is then used to personalise user experiences, enhance the accuracy of targeted advertising, and steer the development of new products and services. One sector where data utilisation has had a significant impact is cross-border e-commerce (CBEC). CBEC involves the online purchase of goods from retailers located in other countries or jurisdictions (Wang A. et al., 2023). Owing to the ever-growing process of globalisation and the ease of access to international markets via the Internet, CBEC has become a channel that fosters international trade. These platforms offer a wide selection of products worldwide and provide buyers with detailed information about products, user reviews, and international payment options (Xi et al., 2022). However, it is important to note that various cultural, social, and economic factors influence purchasing decisions in the CBEC. Individuals from different cultural backgrounds exhibit distinct cognitive processes and evaluate products based on different criteria (Erdogan G. et al., 2023). As a result, companies participating in CBEC must adapt their marketing and sales strategies to accommodate these cultural differences and ensure an optimal experience for their international customers (Yi, 2023).

4. DISCUSSION AND IMPLICATIONS

The evolution of IE has been significantly influenced by digitalization. The integration of emerging technologies such as AI, blockchain, and Industry 4.0 into IE not only facilitates the creation of innovative products and services but also enables a more dynamic approach to cross-border entrepreneurial activities (Elia et al., 2020). Digital platforms have facilitated significant transformations in the entrepreneurial sector by promoting an environment conducive to the rapid exchange of goods, services, and cultural values. This environment, heavily influenced by the pervasive nature of the Internet and globalization, has allowed for a form of collective intelligence that encourages cultural diversity while simultaneously improving business operations (Yam et al., 2023). Content analysis was performed using Leximancer software (Massaro et al., 2021). The resulting thematic map, depicted in figure 1, highlights key themes such as AI, digital platforms, and cultural differences. These themes are further explored in the subsequent sections, which provide details on their relevance.

4.1. Implications #1. Impact of Artificial Intelligence

The study showed how artificial intelligence is changing the business landscape worldwide, offering companies the opportunity to stand out from the competition. Artificial intelligence enables companies to completely change how they operate and position themselves in the market (Elia et al., 2020). This approach goes beyond simply adopting advanced technologies; it also requires developing skills and knowledge in AI. Through AI, companies can analyse vast amounts of data in real-time, leveraging cutting-edge technologies such as machine learning (Fossen & Sorgner, 2021). This ability to process data in real-time allows companies to obtain detailed insights into customer behaviours, preferences, and needs. By using this information, companies can customise their products and services in a targeted manner, thereby increasing customer satisfaction and loyalty (Liu X. et al. 2020). Globalization and access to international networks offer entrepreneurs opportunities for expansion and growth. These developments partially eliminate traditional barriers to business internationalisation, allowing them to overcome geographic boundaries and access new markets worldwide (Truong, 2023).

4.2. Implications #2. Online Platforms for International Business Growth

Digital entrepreneurship, also known as cyber-entrepreneurship, involves the use of the Internet and technological platforms to conduct business operations and offer digital products and services. This phenomenon represents a significant evolution of traditional entrepreneurship (Swartz et al., 2022). Online platforms enable companies to expand their global presence quickly and efficiently. Digital platforms offer new opportunities for companies to grow and diversify. Moreover, such tools enable them to market their products and services globally faster and more efficiently. Companies can leverage various digital channels and tools, including e-commerce, social media, and digital marketing, to connect with customers from all over the world. This can lead to increased profitability and competitiveness for businesses, allowing them to expand their customer base and diversify their revenue sources. Online platforms thus foster a more dynamic and competitive market environment in which companies can compete to meet consumer needs (Larios Hernández, 2019).

4.3. Implications #3. Cultural Differences in e-Commerce

The continuous evolution of internet technology and the advent of the big data era have positioned social media as an integral component of daily life. As economic globalization progresses, these technologies facilitate increased exposure to foreign cultures. Cross-cultural communication, an emerging form of interaction, leverages advertising as a vehicle for cultural and economic exchange, promoting the dissemination of national cultures and images. (Huang et al., 2022). The advertising industry in Thailand, renowned for its creativity on the international stage, effectively integrates

cultural and commercial values, serving as a potential model for China. China has demonstrated how data use can fuel innovation and drive business decisions. This underscores the importance of companies investing in data analytics capabilities to remain competitive in an increasingly digital market. Cross-border e-commerce (CBEC) offers significant opportunities for international trade, but it requires a thorough understanding of the cultural and social differences that influence purchasing decisions (Wang A et al., 2023).

5. CONTRIBUTION

In addition to making a significant contribution to the body of literature by filling in current gaps and paving the way for future research in the field of IE and digitisation this study aims to present a comprehensive framework that highlights the opportunities and challenges that arise from the dynamic interaction between entrepreneurship, technology, and intercultural dynamics (Elia et al., 2020). Our paper's uniqueness comes from its updated and comprehensive viewpoint on international entrepreneurship in the modern world. Technological innovation provides businesses with tools and opportunities to improve their operations, expand their market, and create value for customers (Karakas, 2023). Emerging technologies such as artificial intelligence, blockchain, big data, and the Internet of Things are revolutionising traditional business models, allowing companies to optimise processes, personalise products and services, anticipate market trends, and enhance customer experience (Hamburg et al., 2019). This study adopts an exploratory approach to analysing the interaction of these factors and their impact on the entrepreneurial environment. Adopting technologies such as AI and Big Data has opened up new opportunities for entrepreneurial innovation (Zhai Y. 2023). These technologies allow for the optimisation of operational processes, customisation of customer experience, and better anticipation of market trends (RQ1). Digitization has revolutionised business operations, enabling access to global markets and facilitating new business opportunities (RQ2). Cultural differences influence business strategies, especially when expanding internationally (RQ3). This study makes a significant contribution to international entrepreneurship (IE). Like other studies, this study has certain limitations. The first limitation concerns the database used for sample selection. Using only the Scopus database could be limiting from the viewpoint of selecting articles dealing with this research topic. Second, using keywords limited the search to studies already published in the literature. Additionally, because the authors employed an objective method for reviewing scientific production within the analysis, further developments and deepening of the topic could be beneficial.

6. CONCLUSION

The study analyses the intersection between international entrepreneurship, emerging technologies, and intercultural dynamics, highlighting how these components influence business strategies, technological innovation, and the management of intercultural relationships in an increasingly globalized and digitally interconnected context. Technologies such as artificial intelligence and blockchain are essential for transforming the entrepreneurial system, facilitating the digitalization of business processes, and improving management and communication across cultural and geographical boundaries, as highlighted by Elia et al., 2020. Despite progress, significant challenges persist, such as resistance to organizational change and linguistic and cultural barriers to technology acceptance, as evidenced by Cardinali et al., 2022. Future research could investigate how emerging technologies can be adapted to better respond to these diverse cultural contexts. Examining the effect of digitalization on small and medium-sized enterprises across various geographical regions and deepening the role of transcultural leadership in promoting technological innovation in multicultural companies. These research efforts can provide strategic directions for making the most of the potential of technologies in global and diverse contexts, focusing on more effective exploitation of the opportunities presented by globalization and digitalization in the entrepreneurial sphere.

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ACCRUAL ACCOUNTING IN ITALIAN MUNICIPALITIES.
OPPORTUNITIES AND PROBLEMS

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ABSTRACT

The National Recovery and Resilience Plan (PNRR) is the plan approved in 2021 by Italy to relaunch its economy after the COVID-19 pandemic, focusing on ecological transition, digitalization, competitiveness, education, and social, territorial, and gender inclusion.

The NRRP's lines of action come with a strategy of reforms designed to boost the country's equity, efficiency and competitiveness. These reforms are an integral part of the plan as they are crucial for the implementation of the proposed actions. Three types of reforms are envisaged: horizontal reforms, enabling reforms, and sectoral reforms.

Among the enabling reforms, point 1.15 foresees "Equipping public administrations with a single accrual accounting system" in line with the path outlined at the international and European levels and in implementation of European Union Directive 2011/85. The goal of the reform is to achieve a single accounting system for the entire public sector, based on the accrual principle, which reduces inconsistencies between the different accounting systems of the administrations.

The current public accounting system, as defined by the accounting harmonization process initiated with Legislative Decree No. 118/2011, is based on financial accounting with the registration of management facts according to the simple entry accounting methodology, alongside economic-patrimonial accounting for informational purposes only.

This article aims to analyze the differences between the two accounting systems and the stages of this process by analyzing the opportunities and problems that Italian municipalities will face in introducing it.

Keywords: Accrual Accounting System, Public Administrations, Pnrr, Accounting Standards

INTRODUCTION

The National Recovery and Resilience Plan (PNRR) envisages an integrated set of investments and reforms aimed at improving the equity, efficiency, and competitiveness of the country, fostering investment attraction, and enhancing the trust of citizens and businesses.

The Plan also includes some fundamental complementary reforms in the approved document, so that the public resources allocated in the program can quickly produce effects on the implementation of works and the procurement of goods and services, encountering as few regulatory, administrative, and bureaucratic barriers as possible. Focusing specifically on these, from reading the plan it is possible to distinguish between (National Recovery and Resilience Plan, Italy tomorrow, 2021):

- Horizontal reforms or "contextual" reforms of cross-cutting interest to all the Missions of the Plan, which should, according to the drafters of the plan, lead to improving equity, efficiency, and competitiveness and, with them, the country's economic climate: among these, the PNRR identifies the reform of Public Administration and the reform of justice;

- "Enabling" reforms that are functional to ensure the implementation of the plan and generally to remove administrative, regulatory, and procedural obstacles that condition economic activities and the quality of services provided, allowing to break down barriers to public and private investments,

- Sectoral reforms, consisting of regulatory innovations related to specific areas of intervention or economic activities and contained within the individual Missions.

Among the enabling reforms, Reform 1.15 envisages "providing public administrations with a single system of accrual economic and asset accounting", in line with the path outlined at international and European level for the definition of accounting principles and standards in public administrations (IPSAS/EPSAS), and in implementation of Council Directive 2011/85/EU of the European Union.

This directive is part of the so-called six pack, namely the package of legislative proposals for the reform of European economic governance presented by the European Commission on 29 September 2010 and approved, finally, by the Council of the European Union on 8 November 2011.

In particular, Article 3 of the aforementioned European Directive 2011/85/EU requires Member States to establish accounting systems useful for generating data based on the accrual principle (economic competence) in order to prepare national accounting aggregates according to the rules of the SEC (System of Integrated European Accounts), verifying for this purpose the adequacy of the already codified international accounting standards for the public sector (IPSAS) and Article 12 emphasizes the importance for Member States to ensure uniformity of accounting rules and procedures, as well as the integrity of data collection and processing systems.

The planning of the implementing phases of Reform 1.15, summarized in Table 1, provides for:

• by the second quarter of 2024, the final approval of the conceptual framework, standards, general guidelines, and multidimensional chart of accounts, with a resolution of the Steering Committee (milestone 1);

• by the first quarter of 2026, completion of the first phase of training of personnel belonging to at least 90% of the identified public administrations (target);

• by the second quarter of the same year, the production of financial statements, compliant with the new accounting regulatory framework, for at least 90% of the identified public administrations (milestone 2).

Table 1: Milestones and Targets for Mission 1.15 "Reform of the Public Accounting System"

Milestone & Target			
Typology	Sequential Number	Timeline (Quarter/year)	Description
Milestone	M1C1-108	T2-2024	Approval of the conceptual framework, the set of accrual accounting principles, and the multidimensional chart of accounts.
Target	M1C1-117	T1-2026	Training for public entities for the transition to the new accrual accounting system. Specifically, completion of the first training cycle for representatives of 18,000 public entities.
Milestone	M1C1-118	T2-2026	Implementation of the accrual accounting reform for at least 90 percent of the entire public sector.

Source: "Implementation of the PNRR", Ministry of Economy and Finance, December 2021.

1. THE PATH TOWARDS ACCRUAL ACCOUNTING

The Italian legislator implemented the obligation to harmonize the accounting systems of the PA already with Legislative Decree 118/2011.

Having homogeneous, aggregable, and comparable budget data, as processed with the same methodologies and criteria, is an essential need to address the pressing information requirements related to the planning, management, and reporting of public finance. More generally, it is a necessary condition to ensure access and clarity to anyone who wants to independently inform and understand how public finance is planned, managed, and controlled (https://openbdap.rgs.mef.gov.it).

With this decree, the Legislator aimed to redesign the structure and functioning of the accounting systems and budget schemes of the Regions, local authorities, and their bodies, implementing a reform process to achieve effective uniformity of budgets and financial statements and extend asset

accounting to all entities, thereby improving the overall quality of public accounts and positively contributing to the path of financial recovery at the local level.

The current accounting system in local authorities is based on a traditionally defined "financial" structure, which involves recording management events according to the simple-entry accounting methodology.

Financial accounting is a system for recording the financial values expressed by the revenues and expenses of a public entity. This system has the characteristic of recording these values both in their forecast determination and in their dynamics, and consequently in their final determination.

Financial (authoritative) accounting has the characteristic of being an accounting system that records the authorization aspects of management and the financial flows analyzed in the various components.

It is a tool for the predetermined allocation of resources, which is expressed through the approval of the budget by the deliberative body, a tool for authorizing the use of resources through the commitments/assessments mechanism. The public budget, prepared according to the criteria of financial accounting, expresses the values of revenues and expenses that are expected to occur during the following year, values that represent a legal-administrative constraint for the realization of revenues and expenses, both for the political body that approves the budget and for the administrative body responsible for managing it.

The limit of financial accounting is, therefore, that it does not record management events but only the use in financial terms of resources and therefore the entity's ability to meet the financial needs necessary to provide services. The simple recording does not allow judgments to be made about the substantive nature of operations, to evaluate therefore stocks, income depreciation, provisions for future expenses, and any temporal interdependence of processes (Borgonovi, 1996).

The aforementioned Legislative Decree 118/2011 provided in art. 2, for entities in financial accounting, the adoption of an integrated accounting system that guarantees the unitary recording of management events in their financial and economic-asset profiles. This system provides for economic-asset accounting to complement financial accounting, which constitutes the main and fundamental accounting system for authorizing and reporting the results of financial management with the aim of increasing the information content of their accounting documents, referring both to the income dynamics of management and to the evolution of the value of the assets (Grandis, Mattei, 2014; Grandis, Mattei, 2023).

2. OBJECTIVES AND PRINCIPLES OF ACCRUAL ACCOUNTING

The reform envisaged by the PNRR seeks to address the limitations of financial accounting and make the introduction of a single economic-asset accounting system throughout the PA effective, which provides for a unique set of general principles, in turn inspired by IPSAS (International Public Sector Accounting Standards) and EPSAS. (Manes Rossi and Caperchione, 2018).

Economic-asset accounting allows for the determination of the entity's assets and the measurement of changes that occur during the administrative period, determining the operating result, in addition to the financial measurement of recorded events.

It enables transparent communication to citizens about the resources acquired and their use in meeting public needs (Pezzani, 2005). Moreover, if the concept of expenditure (from financial accounting) is replaced by the concept of cost (from economic accounting), it has the advantage of quantifying the resources absorbed by various activities and thus knowing the real destination of the energies used (Fici, 2001).

The management of local authorities must have a substantial economic dimension, which concerns the level of technical productivity, cost-effectiveness, efficiency, and effectiveness of operations; which also considers the adequacy and consistency of the resources available to achieve the program objectives and institutional purposes of the entity (Mulazzani, 2002).

Full accrual accounting represents an accounting approach that records all revenues and expenses in the period in which they occur, regardless of the date of actual receipt or payment, allowing costs/expenses and revenues/income to be attributed to each period using the double-entry method.

3. IMPLEMENTATION OF THE REFORM

The Decree-Law of November 6, 2021, no. 152, "Urgent provisions for the implementation of the National Recovery and Resilience Plan and for the prevention of mafia infiltrations", converted with amendments by Law no. 233 of December 29, 2021, article 9, paragraph 14, provided that the activities related to the implementation of the accrual reform are carried out by the Governance Structure established at the Department of the General Accounting Office of the State with determination of the General Accountant of the State no. 35518 of March 5, 2020.

The governance structure is articulated in the following bodies: the Steering Committee with guiding and decision-making functions; the Standard Setter Board with a propositional function; the Internal Consultation Group of the General Accounting Office with an advisory function, and the Technical Secretariat with coordination and support functions.

Fig. 1: the Governance Model

PHASE	GOVERNANCE STRUCTURE		EXTERNAL STAKEHOLDERS
Programming	Steering Committee		
	Technical Secretariat		
Propositional	Standard Setter Board		
	Technical Secretariat		
Internal consultation	Gruppo di Consultazione		
	Technical Secretariat	Standard Setter Board	
Public consultation	Steering Committee		Arconet Commisssion and Stakehoder
	Technical Secretariat	Standard Setter Board	
Decision-making	Steering Committee		

Source: Nota SeSD 116 del 2023_La Struttura di governance. https://accrual.rgs.mef.gov.it/

The objectives and tasks of the Governance Structure are:

a) Define a conceptual framework for the accounting system based on the accrual principle, according to the qualitative characteristics of accounting information defined within the Eurostat EPSAS Working Group;

b) Define accrual accounting standards based on existing IPSAS and draft EPSAS, as well as new standards in matters relevant to national regulations not yet addressed at the European or international levels;

c) Prepare general guidelines for the development of operational manuals functional to the application of the standards;

d) Define a multidimensional chart of accounts, structured in levels, identifying only those that are necessary for the preparation of reporting useful for the consolidation of public accounts;

e) Develop training programs for the transition to the new accrual accounting system, whose recipients will be identified by the Steering Committee;

f) Define a gradual implementation process of the accrual-based accounting system for the public sector, according to the indications of the Steering Committee and in line with the path outlined at the European level;

g) Monitor the adaptation of the support information system to the new accrual-based accounting model;

h) Propose legislative measures for the adoption of all rules related to the new accrual-based accounting system.

With a view to future implementation of IPSAS in the public administrations of the European Union Member States, Eurostat commissioned a study to analyze the gap between the current accounting structure of public administrations and an accounting system based on European standards, in terms of accounting maturity. The following three tiers have been identified:

High accounting maturity: greater than or equal to 70%;

Medium accounting maturity: between 40% and 70%;

Low accounting maturity: less than 40%.

Fig. 2:"maturity" in the application of the IPSAS based accrual accounting

Accounting maturity (AM)	Central	State	Local	Social Funds
HIGH AM ≥ 70%	Austria, Czech Republic, Denmark, Estonia, Finland, France, Latvia, Slovak Republic, Spain, Sweden, UK		Belgium, Cyprus, Czech Republic, Estonia, Finland, France, Ireland, Latvia, Lithuania, Malta, Portugal, Slovak Republic, Sweden, UK	Czech Republic, Estonia, Finland, France, Lithuania, Netherlands, Portugal, Sweden
MEDIUM 70% > AM ≥ 40%	Belgium, Bulgaria, Hungary, Ireland, Poland, Portugal, Romania, Slovenia	Belgium, Spain	Bulgaria, Denmark, Germany, Hungary, Netherlands, Poland, Romania, Slovenia, Spain	Austria, Belgium, Bulgaria, Croatia, Denmark, Hungary, Ireland, Latvia, Poland, Spain
LOW AM < 40%	Croatia, Cyprus, Germany, Greece, Italy, Luxembourg, Malta, Netherlands	Austria, Germany	Austria, Croatia, Greece, Italy, Luxembourg	Cyprus, Germany, Greece, Italy, Luxembourg, Romania, Slovak Republic, Slovenia

Source: MEF Ragioneria Generale dello Stato, "IPSAS/EPSAS Stato dell'arte" https://www.rgs.mef.gov.it/

Italy falls into the last tier, low accounting maturity. Therefore, the most suitable initiatives have been implemented to improve the level of accounting maturity and to adopt a unified accrual accounting system in Italian public administrations.

The process begins with the adoption of a first fundamental document (October 10, 2022) of the Conceptual Framework, which defines the principles of economic, asset, and financial reporting for

general informational purposes of public administrations. It represents the theoretical framework, or the conceptual reference structure, for the functionality of an economic-asset accounting system based on the accrual principle.

Table 2: Conceptual Framework

Preface	Object and functions of the conceptual framework
1. General purpose financial reporting	Financial statements for general purpose financial reporting The financial statement The objectives of financial reporting for general purpose financial reporting Users of financial statements for general purpose financial reporting Information needs of the primary users of financial statements for general purpose financial reporting Information presented in financial statements for general purpose financial reporting Public administrations preparing financial statements for general purpose financial reporting
2. The postulates and constraints of information	The postulates: definition and scope of application
3. The elements of the financial statement	Definition of an element Liabilities Equity Income and revenues Expenses and charges Operating result Recognition of elements in the financial statement Removal of elements from the financial statement Uncertainty in the measurability of an element
4. The valuation of assets and liabilities	The historical cost criterion applied to the valuation of assets The valuation criteria of assets at current values The historical cost criterion applied to the valuation of liabilities The valuation criteria of liabilities at current values
5. The presentation of information in financial statements	Subject of presentation Selection of information Placement of information Organization of information Publicity of financial statements for general purpose financial reporting

Source: Conceptual Framework - MEF - 10 october 2022

Following this, there are the ITAS accounting standards, which are the applied accounting principles where the "applied accounting rules" are defined to which all entities must adhere in managing and representing business events. They are set in a perspective of consistency with the IPSAS international accounting standards and the European EPSAS ones.

The ITAS will be accompanied by general guidelines for the development of operational manuals with concise instructions for the application of the standards in the context of financial statement preparation, supplemented by illustrative examples for specific accounting entries.

The due process for the establishment of the Conceptual Framework and Standards (ITAS), as contained in the Regulation of the Governance Structure, stipulates that the proposals for establishment developed by the Standard Setter Board are subject, before final approval by the Steering Committee, to a phase of public consultation addressed to all stakeholders interested in the future implementation of the accounting reform, in order to gather any opinions and contributions.

The status of the approved ITAS is summarized in the following table.

Table 3: ITAS Standards

1. ITAS 1	Composition and formats of the financial statement	Approved
ITAS 2	Accounting policies, changes in accounting estimates, correction of errors, and events occurring after the end of the reporting period	Approved
ITAS 3	2. Foreign currency transactions, assets, and liabilities	3. Under consultation
ITAS 4	4. Tangible assets	Approved
ITAS 5	5. Intangible assets	Approved
ITAS 6	6. Service concession arrangements: grantor	Under consultation
ITAS 10	7. Inventory	Approved
ITAS 13	8. Funds, potential liabilities and potential assets	Approved
ITAS 15	9. Employee benefits	Approved
ITAS 16	10. Cash social benefits	Approved
ITAS 17	11. Accruals and deferred items	Approved

Fonte: https://accrual.rgs.mef.gov.it/ (consultato febbraio 2024)

Among the other elements planned for the implementation of the reform is the multidimensional chart of accounts, unified for all public administrations targeted by Measure 1.15 of the PNRR, approved on November 30, 2023, and will come into effect on January 1, 2025.

It is a hierarchical list of all accounting items used by the entity to record accounting transactions, allowing for a clear, complete, and consistent view across all PA structures and enabling detailed economic, asset, and financial analyses. It consists of a common base for all sectors of the PA and a different part among the various sectors, concerning levels of greater detail, aimed at better specifying their management needs.

It will not be a static document, but it will be constantly updated based on subsequent evaluations and revisions, aimed at improving its structure and functionality.

For the realization of such a design, there is also the implementation of a new information system to support public accounting processes, based on an ERP (Enterprise Resource Planning) architecture and structured in modules interconnected and integrated. This system will capture, through a single entry, the financial, economic, and asset analytical profile of the same managerial event.

The new system, called InIt, will be provided to Public Administrations by the Department of the General State Accounting Office (RGS) as a single integrated computer system to support accounting processes, replacing the numerous applications currently in use in central administrations. Additionally, the platform will be able to manage all processes of an organization (administrative, productive, and financial), enabling the integration of all functions of the organization and making information simultaneously available to all processes and actors involved.

4. OPPORTUNITIES AND CHALLENGES

The introduction of the accrual-based economic and asset accounting system will serve as the foundation for implementing an analytical system for accounting and performance evaluation, aiming to enhance the reliability of data available to operational center managers. This initiative contributes to improving process management and control, reporting, and evaluation phases, with consequent positive impacts on optimizing the organizational structure.

Moreover, its introduction will lead to the creation of a more comprehensive and precise information base, aimed at optimizing data production for national accounting, increasing effectiveness in meeting the transparency and accountability needs of public administrations, strengthening asset-oriented perspectives, and improving internal management processes, with particular attention to cost and efficiency profiles.

In its practical application, considering the complexity and repercussions of the change, it is important to emphasize that there will be numerous organizational, IT, and training-related challenges associated with its implementation in local authorities.

The real challenge for local authorities will be to prepare for the upcoming experimentation phase starting in the fourth quarter of 2024, involving a representative sample of public administrations.

A cultural shift will be necessary, involving not only employees but also administrators. It would be a mistake to assume that only accounting sector employees should undergo training; it should be extended to employees in all sectors due to the necessary implications.

Therefore, institutional training available on the website of the General State Accounting Office (https://accrual.rgs.mef.gov.it/it) will certainly not be sufficient, and each entity will need an effective training plan.

In addition to being considered an obligation, the transition to accrual accounting should represent an opportunity for operators and budget data users to have better quality economic, financial, and asset data that truly support analytical accounting and management control.

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INTEGRATED PLAN OF ACTIVITIES AND ORGANIZATION (PIAO) AND PUBLIC VALUE, A SYNERGY WITH DIFFERENT INTERPRETATIONS

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ABSTRACT

Italy is undergoing a series of reforms, aimed at improving the country's economic and social situation. These reforms are being encouraged by the National Recovery and Resilience Plan (NRRP), which is part of the Next Generation EU program. By implementing the NRRP, Italy hopes to create a more sustainable and resilient economy that will benefit both its citizens and the wider European community. As part of the NRRP, the Integrated Plan of Activities and Organization (PIAO) has been introduced as a key reform. This planning tool aims to replace the function-specific planning documents that were introduced gradually through previous reforms over the last few decades. The PIAO is a futuristic development that is designed to guide the government's administrative actions towards creating public value. By adopting a holistic approach that considers all of the relevant dimensions, organizations can ensure that they are delivering value in a way that is both effective and sustainable. The purpose of this paper is to explore the concept of public value and how it is promoted by public administrations. The study will use a content analysis approach to examine the different sections across the Italian state that discuss the definition of public value and the methods for maximizing it. By analyzing these strategies, the study will identify similarities and differences in the understanding of public value across the various regions of Italy. The findings of this analysis will provide valuable insights for developing new planning tools in the future.

Keywords: PIAO, Integrated Plan of Activities and Organization, Public value, Integrated planning

INTRODUCTION

Over the last two decades, research on Public Value (PV) in Public Administration and Management has gained immense attention and now plays a crucial role in academic and managerial debates concerning the production of public services (Van Der Wal et al., 2015; Osborne et al., 2016; Alford et al., 2017), becoming an essential construct in the present research on public administration (Esposito & Ricci, 2015). Those studies examined how public value is created and achieved in the

public sphere, focusing more broadly on its relationship to value creation and public values (Williams & Shearer, 2011; Van der Wal et al., 2015). PV theory has emerged as a distinct paradigm from new public management (NPM) and public governance (PG), redefining the role of public managers (Bryson et al., 2014; O'Flynn, 2007; Stoker, 2006). While traditional public administration prioritized efficiency and new public management focused on efficiency and effectiveness, the emerging approach pursues, debates, challenges, and evaluates values beyond these two (Bryson et al., 2015). Due to increased interest from various fields, the concept of PV (public value) has evolved into different interpretations. These include PV as an approach for public managers known as the "Strategic Triangle" (Moore, 1995), which is focused on actors as a means of contributing to the public sphere (Benington, 2009) and, more recently, as an addition to societal outcomes (Alford & Yates, 2014; Hartley et al., 2017). Despite the numerous efforts to understand PV and its theories, the subject still needs to be clarified. The current predicament could be attributed to the need for more thorough and meticulous empirical research that delves deeper into comprehending the PV phenomenon. Such research is necessary for progress towards gaining valuable insights, essential for developing new theories and fostering a better understanding of the subject matter (Guthrie et al., 2014; Hartley et al., 2017). At the same time, there is an ongoing discussion about the importance of public services that are efficient, effective, and able to meet the diverse social needs of the population (Fosti et al., 2019). In order to effectively evaluate the value of an administration, it is essential to consider various factors that contribute to users' overall satisfaction with the service. These factors include the impact of the service on users' well-being and the extent to which it meets their specific social, health, or economic needs. By taking into account these important considerations, it becomes possible to assess the effectiveness of a given administration more accurately in meeting the needs of its users (Osborne et al., 2016). Defining and redefining public value is dynamic and constructive, involving a continuous exchange of ideas and perspectives between politicians, government officials, and community members. This interaction occurs within a social and political context and helps shape the values and priorities that guide government decision-making and public policy. Through this ongoing dialogue, public value is constantly evolving and refined to better serve society's needs and aspirations (Smith, 2004). Exploring the concept of value can aid public managers, government officials, and individuals involved in all areas to contemplate the type of society they aspire to create (Bozeman, 2007). By prioritizing public value, communities, service providers, and political leaders can gain valuable insights and perspectives to explore a broader range of questions and build on recent experiences. While the concept of public value can be complex and debated, embracing it enables governments and citizens to re-examine government actions that are meaningful to them and move forward with new agendas that reflect their needs and aspirations. In essence, focusing on public value is a powerful

way to foster greater collaboration, innovation, and engagement among stakeholders and to ensure that government actions are aligned with the needs and priorities of the public (Smith, 2004).

The recent COVID-19 pandemic has highlighted the significance of having reliable and trustworthy institutions and public services that are equipped with sufficient resources to address the needs of the people as the crisis rapidly evolved from a health emergency to an economic and social one (Gagliardo & Saporito, 2021). As a result, the concept of Public Value is still under debate, which presents an opportunity for further exploration and refinement that could lead to a better understanding of its practical implications and enhance its application in the public field.

THE INTEGRATED PLAN OF ACTIVITIES AND ORGANIZATION (PIAO)

The Italian government has recently initiated a fresh wave of reforms to revive the economy and build a stronger future. Under the Next Generation EU program, the National Recovery and Resilience Plan (NRRP) has incentivized and supported these reforms. The NRRP aims to provide Italy with the financial resources to overcome the economic challenges posed by the COVID-19 pandemic and make strategic investments in various sectors to drive growth and sustainability. The Plan is based on a vision advocated in various doctrines (Costantino, 2016; Marzano & Ciabatti, 2020; Siccardi, 2022) and by international organizations such as the Intergovernmental Working Group (IRG) of the United Nations and the Working Group on Bribery (WGB) of the OECD. According to this vision, simplifying regulatory and administrative processes is crucial to preventing corruption arising from the system's complexities. One of the main reforms introduced in the early stages of the NRRP is the Integrated Plan of Activities and Organization (PIAO), Legislative Decree n. 80/2021. At the strategic level, the PIAO has to be interpreted as a recap of change' that will enable constant and accurate monitoring of the administrative transition process initiated with the NRRP. Public administrations must prepare this document with more than 50 employees. This single organizational document will last for three years and be updated annually. It incorporates the contents of various plans currently required for administrations.

This new planning tool is designed to replace a list of function-specific planning documents introduced gradually through previous reforms over the last few decades to combine multiple plans and fulfillments into one document. Therefore, the PIAO's aim is "*filling the structural strategy deficit typical of the plethora of planning instruments, trying to give an organic and integrated sense of direction"* (Saporito, 2022). The great innovation for Italy brought about by the Integrated Plan is precisely its projection towards creating public value, and each section that constitutes it is oriented towards it becoming the ultimate goal of an administration. Indeed, it integrates and qualifies the planning tools by orienting them toward the creation of Public Value (Gagliardo & Saporito, 2021)

from the perspective of equitable well-being and sustainable development (Gherardi et al., 2021; Gagliardo, 2021).   It has a solid communicative purpose, through which the public body communicates to the community the objectives and actions through which public functions are exercised, and the results to be achieved concerning the public value must be satisfied. This approach aims to enhance the public's benefits from the government's actions and decisions. It can be considered as a planning tool mainly aimed at integrating and qualifying instruments and orienting them towards creating public value as a response to the values emerging from the analysis of the context and stakeholders (Gagliardo & Saporito, 2021). In particular, integration "*should be sought horizontally between organizational units accustomed to planning in silos and vertically between objectives of operational performance, risk management and organizational improvement and the strengthening of professional skills, directed towards creating public value*" (Gagliardo & Cepiku, 2023). In fact, the Integrated Plan of Activities and Organization includes a specific section discussing Public Value, Performance, and Anti-Corruption. The subsection Public Value defines the objectives of Public Value deriving from administrative action and, more specifically, the increase in economic, social, educational, welfare, and environmental well-being in favor of citizens and businesses (reference is made to the Sustainable Development Goals of the UN 2030 Agenda and the Equitable and Sustainable Well-being indicators developed by ISTAT and CNEL).

With the PIAO, performance becomes the lever for creating public value, and the corruption prevention discipline is the lever for protecting it. The novelty of the themes introduced, the Plan's focus on public value, and the limited number of accounting papers have led to the desire to investigate analogies and differences in the interpretation and conception of public value through the following research, with a focus on the work of the Italian regions. The work aims to answer the following research question: How do Italian regions interpret the public value mission described in the PIAO by choosing to prioritize some goals over others to generate it, and what issues do they neglect in value creation?

PUBLIC VALUE: THEORETICAL OUTLINES

To better understand the implications of the instrument and the novelty of introducing public value as a goal for the government to achieve, it is important to survey its interpretive evolutions over time to its dimension within the PIAO. Mark Moore's book Creating Public Value in 1995 gave birth to Public Value Management and Measurement (PVMM). The document includes the most widely recognized Public Value paradigm, the Strategic Triangle. This framework suggests that a strategy must accomplish three things: create Public Value, receive legitimacy from politicians and stakeholders, and be achievable through internal and external resources. According to Moore, value creation passes

through five levels: improved quality and quantity of services, reduced legitimization and financial costs, better comprehension of needs, increased equity in the public sector, and enhanced innovation capabilities (Moore, 1995, p. 211). Moore introduces the essential elements of "*Creating public value*". According to the author, the strategy of value pursuit should be followed, which involves creating something valuable, gaining political legitimacy from the authoritative environment, and putting it into practice (Moore, 1995, p. 71). The concept of public value is complex and has many dimensions, making it appear like a constantly changing pattern when viewed from different angles. The PV concept appears multidimensional and kaleidoscopic (Deidda Gagliardo, 2002). For this reason, various definitions have been proposed in the literature over time. PV has been considered to be the value created by services, rules, laws, and other government actions (Kelly et al., 2002). A long-term perspective has to be taken into account while defining PV. If the current and prospective requirements of the target community can be satisfied, PV will be established (Deidda Gagliardo, 2002, p.185). Creating public value is achieved by satisfying citizens' needs without compromising the financial balances of public administrations, ensuring the creation of PVs in the future. PV is also considered regarding citizens' preferences expressed in direct deliberations or political representation processes (Alford, 2002, pp. 338-339). Smith points out that PV continuously evolves through socio-political interactions (Smith, 2004, p. 68) between citizen representatives and key stakeholders, defining what constitutes PV (Stoker, 2006, p. 42). According to O'Flynn, PV is a multidimensional construct reflecting citizens' collectively expressed and politically mediated preferences. It consists of the outcome and guaranteeing justice and fairness (O'Flynn, 2007, p. 358). Confirming this thought, Talbot states that PV is simultaneously formed by individual, collective, and procedural interests (Talbot, 2011, p. 30). Spano identifies the production of value as that process capable of determining the generation of benefits in favor of the community, compensated by the corresponding sustaining of sacrifices: PV is obtained when the former exceeds the latter (Spano, 2009). Horner and Hutton (2011) propose what can be called an evolution of Moore's triangle, the Public Value Dynamic (Horner & Hutton, 2011). The paradigm consists of three dimensions: Authorisation, which contains the concept of PV, the methods of consultation and feedback to stakeholders, the processes of accountability and legitimization of the 'vision of value at the authorizing environment (Deidda Gagliardo, 2015, p.56). In particular, Public Value Creation defines the ways through which public value can be created; Measurement defines the standards and methods of measurement for "achieving an absolute summary measure of PV" and the adequacy of "managerial performance measurement frameworks" (Deidda Gagliardo, 2015, p.56), verifying whether the latter can capture the needs of the citizenry and whether and how the latter has been an integral part of the consultation processes (Horner & Hutton, 2011). Based on these contributions, several interpretations of the concept of Public Value and how it

manifests within public administration were developed. These will be reported below and will help as a theoretical basis for the concept of Public Value as it is understood in the paper's framework. The creation of Public Value is the institutional mission of the PA (Guidelines 1/2017; Deidda Gagliardo, 2015; Deidda Gagliardo & Saporito, 2021). By public value, in a strict sense, the DFP Guidelines 1/2017 refers to the overall economic, social, environmental, and/or health well-being of citizens created by an entity for its public, compared to a baseline. *Public value* can be defined as the overall economic, social, environmental, and health well-being of stakeholders created by public administrations. Benington and Moore define PV as the sum of individual values and the long-term public interest, including the needs of generations to come (Benington & Moore, 2011). Therefore, the role of PAs is fundamental in supporting and creating PV. Conversely, Talbot defines PV as one extensive system in which public, private, and procedural interests coexist (Talbot, 2011). The private interest concerns the demand of each citizen about the satisfaction of needs with the help of public services at a balanced price; the public interest is manifested instead in the attention to the social results of public services; the procedural interest is delineated in need for fairness, correctness, and transparency of decision-making processes, including active citizen participation in the evaluation of PA decisions. These definitions can be considered "limited" in that they do not include a global vision of the concept but concern a sporadic PV production that cannot be reproduced over time; community expectations and the needs of all categories of potential stakeholders are not considered (Deidda Gagliardo, 2002). The community, specifically the central role of the citizen, must play a fundamental role in the definition and creation of Public Value. Deidda Gagliardo (2015, p. IX) would later define public value as "the balanced and balancing satisfaction of the final needs of the community of reference and the functional needs" of public administrations. Politics, in particular, is the social medium through which citizens express and define what Public Value means by manifesting their preferences (Alford, 2002; Stocker, 2006; O'Flynn, 2007). Collective decisions align with outcomes from political interactions in which citizens and representatives negotiate to fulfill needs (Deidda Gagliardo, 2015, p.59). In summary, PV refers to enhancing a governed society's social welfare, pursued by an entity capable of economic development by utilizing the rediscovery of its genuine heritage, that is, its intangible values. For instance, the factors that contribute to the success of an organization are its capacity to organize, the skills of its employees, the network of internal and external relations, the ability to understand the surroundings and take appropriate actions, the constant pursuit of innovation, the consideration of environmental sustainability in decision-making, and the mitigation of the risk of losing value proposition due to opaque or corrupt practices (Gobbo et al., 2016). In recent years, the concept of public value has been increasingly debated in the academic literature on public policy, administration, and management (O'Flynn, 2021). An entity creates public value by caring for the

health of resources by involving and motivating managers and employees. It functionally improves efficiency and effectiveness performance to improve impacts, which can also be measured through BES and SDGs. From this point of view, creating public value involves planning specific operational goals with quantitative and qualitative performance indicators related to effectiveness, economic-financial, managerial, productive, and time efficiency. In addition, operational objectives that cut across various areas, such as simplification, digitalization, full accessibility, equal opportunities, and gender balance, are crucial for the strategies aimed at creating public value (Deidda Gagliardo & Saporito, 2021). Under the new vision presented by the PIAO, each administration needs to consider what its Public Value is and what strategies it could employ to create it (Deidda Gagliardo & Saporito, 2021).

METHODS

Document analysis is a systematic procedure used for reviewing or evaluating both printed and electronic documents. Like other analytical methods in qualitative research, document analysis requires the examination and interpretation of data to elicit meaning, gain understanding, and develop empirical knowledge (Corbin & Strauss, 2008). The government website' Civil Service Department' and, in particular, the specific section 'PIAO Portal' were used for the analysis. The name of each Italian region was then entered in the search criteria section 'select an administration.' This entry allowed the portal to link the indicated region to the relevant IPA code. For the Italian regions (except for Umbria), the PIAO 2022-2024 and the PIAO 2023-2025 and its annexes were available. All regional PIAOs for 2023-2025 were downloaded for this research. Any attachments were not taken into account. From the section entitled 'Public value, performance, and anti-corruption,' the paragraphs on public value and its measurement were isolated. The texts were in Italian. To discern the varying levels of specificity with which public value had been addressed across different PIAOs, the lead researcher undertook a meticulous reading of the relevant pages. During this process, the researcher carefully read through each page, highlighting and identifying significant keywords and phrases relating to "*public value*". The highlighted responses were reread to identify any repetitions, similarities, and differences. Then, a manual content analysis was used to organize information into significant themes (Torelli et al., 2020). The analysis was carried out individually by the two authors and cross-checked at the end. Each theme identified was correlated with the number of objectives related to it in each regional plan. For practical reasons, the primary impact category was chosen. In this way, it was possible to see how a region: (1) interprets public value; (2) chooses to prefer some objectives over others to generate public value, and (3) what issues it overlooks in the creation of value. All the activities were carried out with the agreement of both authors.

RESULTS

The analysis of the public value sections of the documents allowed the selection of the following recurring themes connected to public value. "Institutional and political well-being" refers to administrative processes' improvement and increased efficiency. This theme includes simplification and digitalization of interactions with stakeholders. Stimulating citizen participation in decision-making processes and implementing policies for better budget management are also important. The goal is to improve the quality of relations between the governing entity and its stakeholders. "Social welfare" refers to policies that aim to improve social and healthcare services for individuals, especially those with disabilities and pathological dependencies. Such policies include but are not limited to extending social and educational services for children, improving emergency social intervention services, fighting poverty through social protection policies, and reducing discrimination, inequality, and illegality. Additionally, policies are being developed to help individuals reconcile lifetimes and extend their lives. "Health welfare": Policies aimed at improving health services by increasing digitalization, participation in prevention activities, improving response times to health needs, and treating chronically ill patients. "Educational well-being": policies to support education and the right to study. "Economic well-being": policies aimed at strengthening economic growth, increasing employment, regional tourism, and competitiveness while supporting the green economy and sustainable development. "Cultural well-being": policies to support the valorization and management of cultural heritage by guaranteeing and increasing use and improving the quality of performances and services (such as museums and libraries). Additionally, policies that encourage participation in sports, particularly among young people. "Environmental well-being" refers to policies that improve waste management, air and soil quality, and promote renewable energy sources. It also includes efforts to remediate contaminated areas, improve public transportation services and infrastructure, combat housing hardship, and provide reconstruction guarantees for areas affected by natural disasters. Additionally, these policies aim to reduce marginalization in certain areas, preserve biodiversity, and minimize hydrogeological instability. Where well-being can be associated with multiple impact dimensions, Public Value should be measured in terms of overall well-being or balance between impacts, a dynamic that is still complex. It is important to note that the well-being type linked with the strategic goals identified follows the most significant impact, even though the same goal may have more than one effect. We analyzed each region's strategic objectives and the objectives associated with the identified themes for the 2022-2024 interval, respectively. Upon evaluating the data that shows the total number of strategic objectives, it is evident that each region has distinct numbers. For instance, the Friuli Venezia-Giulia region has 98 strategic objectives, while the Calabria region has only eight strategic objectives. The strategic objectives outline a course of

action that guides the implementation of operational objectives. However, some projects may focus on improving areas of well-being that are outside the strategic objectives, as seen in the case of the regions of Tuscany or Veneto. This trend does not imply the insignificance of the object of analysis. However, it does imply awareness of the influence of other variables in defining what it means to create Public Value. Abruzzo, Calabria, Friuli Venezia-Giulia, Lazio, and Trentino Alto-Adige are the regions that prioritize institutional well-being. Umbria has the most strategic objectives aimed at creating educational well-being. Marche, Piedmont, and Valle d'Aosta are ranked highest for Economic Well-being, while Basilicata, Campania, Liguria, Lombardy, Puglia, Sardinia, Sicily, Tuscany, and Veneto are ranked highest for Environmental Well-being. It has been noted that health, cultural, and social welfare are not the primary strategic priorities for any region. However, the Friuli Venezia-Giulia Region stands out as being more homogeneous in its distribution of strategic objectives among these areas. This peculiarity makes it the region with the most significant social, environmental, economic, institutional, educational, and cultural impact. In other words, the region has balanced priorities, contributing to its overall well-being. Promoting health and well-being has not been a primary focus for any region, especially after experiencing a pandemic that greatly affected the organization and management of general healthcare systems. The same can be said of social welfare, the creation or improvement of which is indispensable, especially about immigration, greater inclusion, and assistance for people with disabilities. Finally, let us identify which Regions reported the most objectives based on the type of well-being created. Lombardy and Friuli Venezia-Giulia have the same number of objectives for Institutional well-being. Liguria has the highest number of social and welfare well-being objectives, while Sicily has the highest objectives for health and well-being. Umbria has the highest number of objectives for Educational well-being, and Sardinia has the highest number for Economic well-being. Friuli Venezia-Giulia has the highest number of objectives for Cultural well-being, and Lombardy has the highest objectives for Environmental well-being. The operations were repeated for all plans for the period 2023-2025 to complete the analysis. Unlike the other regions, Valle d'Aosta has oriented almost all its objectives towards improving the region's environmental conditions by investing in dams and reclamation. Basilicata also has a solid environmental orientation with numerous interventions aimed at redevelopment. Unlike Valle d'Aosta, however, this region has also oriented most of its interventions towards other objectives that can be included in the themes of economy and cultural well-being. Together with Basilicata, the only region that refers to objectives that cover all the topics considered in the updated PIAO is Friuli Venezia Giulia, which has also decided to employ the most resources in interventions to implement the regional economy and safeguard the environment. Tuscana (the region with the least space dedicated within the PIAO to the definition of public value) sets out in a very detailed manner the

objectives to be achieved, which are evenly distributed across the various sectors of interest. This region also has dedicated the most space within its objectives to socio-welfare interventions aimed at the protection of civil and social rights and to the enhancement of issues related to research and the university. Similarly, Lombardia, in addition to focusing on economics and institutional purposes, devotes ample space to training young people and promoting the university system. However, like almost all Italian regions, this region completely neglects health and welfare. As seen from the tables above, this topic is addressed by several regions but with few objectives. Only Sicilia, Lombardia, and Lazio have dedicated a conspicuous part of their regional objectives to strengthening hospital services. The theme of promoting culture is also outlined in a few objectives, except in two regions: Veneto and Sicilia. Like the Liguria region, the Sicilia region seems to maintain the national trend, also devoting special attention to the circular economy, economic transition, and economic development. In addition to maintaining the focus on economic, environmental, and cultural aspects, the Sardegna region is the one that devotes the most attention, along with Latium, Lombardy, Campania, and Veneto, to the institutional/political theme, with a series of policies aimed at simplifying processes and accessibility. In contrast to these regions, Piedmont has no objectives falling under the institutional theme since the region orients almost all its objectives to pursuing sustainable development. Puglia, on the other hand, concerning the guiding policies of regional action described in the piao (focusing mainly on inclusion, sustainability, and health improvement), has focused its updated plan on institutional/political and economic themes. The Calabria region shows a renewed interest in operations to improve employability and improve environmental, energy, and operational standards. Abruzzo and Emiglia devote little space within the PIAOs to the issue of public value, analyzing the issues residually. Significant changes from one plan to the next may be due to more than the complete achievement of the set objectives. It may also depend on organizational and management changes. All the above considerations should be read from a different perspective than merely numerical results since the data reported undoubtedly derives from the regional context and must, therefore, be considered in order to be correctly interpreted.

DISCUSSION

The PIAO has introduced a groundbreaking and futuristic approach to ensuring that the government's administrative actions are directed toward creating public value. An element of discontinuity with the past is highlighted for Italy: the need to "direct change to public value", that is, to the concrete realization of objectives that improve the quality of life of citizens or users who are recipients of the activities of the Public Administration. Given the differences and disparities between regions, applying this new programming uniformly at a national level looks complex. It seems clear

that one of the main drivers for reading the dissimilarity of the submitted plans and their different characteristics may lie in the different interpretations each region has given to the concept of public value. This can be seen both from the space devoted to it in the plans and from the different structuring of individual goals. This inhomogeneity underlines the importance of presenting the concept of public value clearly and consistently, eliminating shades of abstractness (Wirtz et al., 2023). Moreover, in the profound restructuring of the political, economic, and social context, various stakeholders may express divergent values, interests, and ideologies. To achieve tangible progress, it is paramount to collectively agree on the essential actions to prioritize to archive public value (Benington & Hartley, 2019) at a national level. The data collected showed that the northern regions performed commendably, developing more objectives than the rest of the peninsula. The comparison can help confirm the widespread disadvantage of the South in socio-economic areas. Apart from a few isolated exceptions, most regions distribute their objectives evenly across the highlighted topics. In the literature, it has been concluded that the best perspective, as a more significant amount of public value is created about the quality of the trade-off between different impacts when strategies are put in place that can produce improved impacts on the dimensions of community well-being, is a weighted balance or trade-off between different impacts (impact of impacts) of the socio-occupational, economic, environmental and health dimensions (Deidda Gagliardo & Saporito, 2021). The data show that the goals of the Italian regions primarily revolve around economic, environmental, and institutional issues. These three dimensions seem to be the fields through which Italian regions believe they can generate the most public value. The 'big absentees' remain the objectives dedicated to improving public health. In particular, in the first version of the PIAO, issues related to health and well-being appear among the main objectives for only three regions: Marche, Piedmont, and Trentino Alto Adige. In the second attempt of the document, it was noted that promoting health and well-being has not been a primary focus for any region. These dynamics were not expected after experiencing a pandemic that greatly affected the organization and management of general healthcare systems. Even though the World Health Organisation (WHO) has declared the end of COVID-19 as a public health emergency, other factors related to the aging population and the consequent increase in chronic diseases persist and worsen, requiring a more focused orientation towards improving national healthcare and related investments (19th Health Report of the Centre for Applied Economic Research in Health C.R.E.A.). The same can be said of social welfare, the improvement of which is indispensable in the Italian contest, especially regarding gender equality, childcare, and care of the frail elderly, as well as the management of continuous migration flows (Naldini & Saraceno, 2008)

In this sense, it is evident that in early versions of the PIAO, regions were not able to balance impact perspectives as should instead be done by recalibrating actions dynamically according to

different contexts and periods to maximize public value (Deidda Gagliardo & Saporito, 2021). Despite significant challenges, the Italian regions have first attempted to create a 'culture of public value' that effectively drives change and improvement. This culture emphasizes the importance of public services and their impact on the well-being of individuals and communities, which should significantly improve our country over time. The comparative evaluation of the ministries' PIAO development processes in the 2022-2024 and 2023-2025 cycles attests to most administrations' ongoing learning process. However, further studies are to be pursued to investigate the developments of the impacts generated by the objectives chosen by each region in the actual implementation of PV.

CONCLUSION

This study aims to conduct an in-depth analysis of the various dimensions of public value encompassed in the Plans of Activities and Organization for each Italian region except Molise. The study identifies the key factors contributing to creating and delivering public value by examining each region's strategic plans. An in-depth analysis of the Italian regions discovered that public value can be observed and experienced through various dimensions. The dimensions identified include institutional, political, economic, socio-welfare, health, educational, cultural, and environmental themes. Each theme represents a different aspect of public value that contributes to the overall well-being and prosperity of the region's inhabitants. By carefully considering and implementing strategies that address these themes, the regions can ensure the delivery of high-quality public services and create an environment that fosters growth and development. By associating the number of objectives for value creation with the identified themes, it was possible to see how a region interprets public value through the dimensions of well-being, chooses to prefer some objectives over others to generate public value, and what issues it overlooks in creating value. Upon conducting a thorough analysis, we have discovered significant variations in how different regions address the Public Value subsection. By analyzing the multi-dimensional aspects of public value, the study provided insights into the areas where each region focuses and can improve its policies and practices to serve its citizens better. This regional dynamics outline may help understand specific needs and guide future national interventions. The study's limitations concern the fact that it is mainly based on documentary analysis and analyzes very dissimilar plans. In the future, it might be helpful to strengthen these results through interviews with some of the actors involved and to compare the analysis with future PIAOs to be published to chart new developments.

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THE SIGNIFICANCE OF B2C LOCAL, SMALL OWNER-MANAGED STORES IN THE AGE OF DIGITALIZATION IN GERMANY.

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ABSTRACT

Online sales are treated as the prevalent sales method, leading to an overwhelming plethora of research on online sales, with physical sales addressed as ROBO. However, online sales are declining in volume and Euro in Germany compared to pre-corona levels. Though respecting internet shopping and the dominance of retail chains, only 15 % of the German total non-food sales volume is generated online, and 75 % of Germans appreciate shopping in local, owner-managed stores. Evoking the significance of owner-managed stores to German customers and embracing local B2C enterprises, explorative interviews focused on the motivation, customer attitudes, and circumstances beyond the economic and communal factors addressed in previous research. The content analysis according to Mayring revealed the customer's perceptions of convenience, trustworthiness, involvement, exposure to the assortment, and sensory evaluations in local stores. This research contributes to the understanding of consumer behavior in small businesses. It challenges some established notions, particularly around convenience and variety-seeking behavior, suggesting a need for theories that better accommodate the unique dynamics of local owner-managed stores. It further correlated the level of personal involvement with the expressed desire to visit owner-managed businesses. Similarly, the need for sensory input significantly correlates with the desire to visit local stores. Trust is a significant factor contributing to the frequency of customers visiting owner-managed enterprises. Thematic analysis according to Kuckartz uncovered, that while owner-managed stores are favored for their reliability and personal touch, in-store customer interactions can lead to feelings of pressure or discomfort.

Keywords: Local Business, Owner-Managed Enterprises, In-Sales, Shopping Channel Choice, Consumer Behavior, Consumer Trust, Shopping Convenience, Outlet Exploration

INTRODUCTION

This paper empirically verifies selected predictors determining the meaningfulness local, small, and smallest owner-managed stores without subsidiaries (SOMB) provide to B2C customers in Germany.

While there is no limitation on the type, concept, or idea of the products and services, it excludes the food sector, healthcare facilities, pharmacies, gasoline stations, car businesses, and restaurants. The impact of multi-channel purchases is ignored but assumed. Previous research focused on social-environmental motives, such as ethical orientation and locavorism, suggesting that the shopping channel is picked based on the customer's relationships to shopping, while stores (or shopping orientation) are chosen based on the customers' desires (Young, 2022; Wilson and Hudges, 2022; Bellinger et al., 1977). However, the underlying assumptions upon which recent offline shopping behavior was undertaken differs from the assumptions under which recent e- and m-commerce research was conducted, indicating an evidence research gap. Further, the evaluation of German SOMB-oriented literature and research yielded a classical/(practical) research gap (Miles, 2017).

As customers are oversaturated with offers but lack time, SOMB's value proposition encompasses unique structures, interdependent processes, and activities that create customer utility beyond financial returns to offset the limited market reach and customer recruitment possibilities (Zott and Amit, 2010; Litz and Stewart, 2000). Indeed, 82% of (mostly 45-year-olds and younger) German residents (GR) shopped online weekly, but generated below 15% (72.8bn Euro) of total retail sales online (Rothe, 2021; Lohmeier, 2023; Oberlo, 2023). Also, 75% of German customers testified to prefer shopping in SOMB independent of price differences to chains or online warehouses (DeNardin et al., 2015; IFH Köln und Der Mittelstandsverbund, 2015). Therefore, this research examined whether end-customers value physical stores and tried to detect the reasons from the customers' perspective. It addresses specific factors and attributes that induce shopping in SOMB, aiming to identify and elaborate customer attitudes and circumstances affecting customers' motivations and perceptions. Hence the research is relevant to marketers and owners to leverage SOMB strategies.

LITERATURE REVIEW

The parameters investigated in this research are a combination of interlinked parameters influencing shopping-channel choices. This study focused on the emotional parameters only.

Convenience

According to the law of least effort (LoLE) "effort" is the expenditure of average work applied to achieve a desired goal (Zipf, 1949). Subsequently, customer journeys causing (in)convenience (de)motivate customers to engage, whereas customers consider the time required to complete all steps of the purchasing and delivery process as nonmonetary costs (Roy et al., 2020; Rohm and Swaminathan, 2004). Respectively, customers optimize the investment of money and time spent vs the

effort to obtain the optimal outcome, making personal factors more influential than environmental ones, attractive offers, or compelling assortment (Aw et al., 2021; Salehi et al., 2012). Here, the particular advantage of traditional stores is the ability to leave the store with the intended product (Mission and Mission, 2023). Contrastingly, Xi et al. (2020) proved, that same-day-delivery substitutes for seemingly time-consuming offline shopping, which contradicted Nasution et al. (2019) by finding, that urgency enforces offline shopping. Sit et al. (2003) specified, that only apathetic customers are prone to switching to offline channels. According to Salehi et al. (2012), customer convenience depends strongest on speed and ease of information assessment and – in correlation – the facilitation of the decision process and less on customer desire or transaction service. Lee and Cranage (2010) correlate the means of information search with the customers' knowledgeability. Subsequently, customers rely on the information platform most convenient to their knowledge base. Further, Shackelton and Prins (1992) proved, that consumers accept inconvenience to attain the optimal output. This questions whether SOMB are perceived as more convenient than other options:

H1: Consumers' assessment of convenience influences B2C shopping in SOMB.

Personal Involvement

The Consumer involvement theory implies that the decision process depends on the level of importance the purchase imposes and can subsequently be classified in need to evaluate (NTE) profiles from low to high involvement (Assael 1981; Kapferer and Laurant, 1985). Whereas the degree of involvement depends on the strength of desire or a perceived gap (Mittal, 1989; George and Edward, 2009). The more important the solution to the customers self-concept, the greater her involvement, as staying in congruence with the self-concept gives customers a reassuring perception of self-control (Pires et al., 2006). Accordingly, the consumers' self-concept, needs, and values are inherited in the solution/product (Lastovicka and Gardner, 1979). Hence, the greater the emotional pressure or desire to attain an anticipated situation, the higher the involvement (Hanzaee and Taghipourian, 2012). Characteristics of high involvement are deep (physical) comprehension, cognitive elaboration, and emotional arousal, which impact the purchase decision (Conlin and Labban, 2019, Chen et al., 2022). These are also strongly impacted by environmental factors, such as social features, design, and ambiance (Cao and Duong, 2021). However, Zaichkowski (1985) categorized involvement into physical (effort applied), cognitive (contribution to the anticipated vision), and emotional (interpersonal relations). In contrast, Chocarro et al. (2013) predict shopping channel involvement via geographical proximity as a form of convenience, which is why H2 evaluates:

H2: The customer's perception of her problem's magnitude predicts SOMB shopping.

Sensory Evaluation

The theory of "Need for Sensory Input" (NfSI) links consumers to products via physical and psychological haptically, visional, olfactory, auditory, and ageusia interactions (Hultén, 2015). Particularly the "Need for Touch" (NfT) stimulates emotions rather than rationale (Vieira, 2012). Peck and Childers (2003a) found that barriers to touch decrease confidence in all customers and increase frustration in customers with a high need for touch or insecurities, as Neisser (1976) reasons that sensory input serves as an orientation and supports judgment. Congruently, Wilfing et al. (2023) proved the importance of the physical evaluation of incremental product features. Congruently, a well-designed sensory environment enhances customer satisfaction and encourages purchasing (Verhoef et al., 2009). In contrast, Lynch and Barnes (2020) highlighted the influence of cognitive processes on shopping channel choices. However, Brasel and Gips (2014) provided that tactile input triggers emotions leading to a perception of emotional connectedness to the product. Furthermore, consumers' willingness to be exposed to novel or complex experiences is linked to their perception of the strength of that exposure (Park and Stangl, 2020). Overstimulation in contrast leads to inefficiencies and uncertainty (van Deursen and Van Dijk, 2009). Questioning the effects of sensory input, H3 evaluates whether:

H3: Sensory orientation persuades end-customers to revise and buy products in SOMB.

Product Exposure

Hamilton et al. (2019) chronicled the resilience customers develop during the experience of constraints under the empowerment theory. For self-protection, Malinen et al., (2018) found that selective-avoiding behavior inhibits individuals to selectively seek confirmation to an extent at which individuals avoid situations of conflict. However, (commercial) online opinion hubs constrain or disrupt (information) consumption causing stress to consumers, leading to rejection of offers (Guthrie et al., 2021). Resulting, Hjalager et al. (2001) established empowerment as the force, that ascertains personal preferences by enabling customers to make informed, yet intellectually effortless decisions, which describes the optimal level of stimulation. This motivation was linked to curiosity and variety-seeking behavior (Raju, 1980). Encompassing the various stimulating offline experiences, H4 reflects:

H4: Offline shopping in SOMB overcomes the filtered exposure of online product suggestions in Germany.

Trust

Trust as a validated predictor of reputation is empirically addressed as a theory that constitutes antecedents of trust and a concept that addresses whom to trust (Hill and O'Hara O'Connor, 2006; deVries, 2011). Wood et al. (2008) validated the trust factors customers assess a retailer with as credibility, expertise, and compatibility of values and attitudes between staff and clients, to which You et al. (2022) added retailers' commitment. A customer's belief or expectation of the retailer's fairness, reliability, knowledgeability, and concern about the customer's well-being enables trust. However, Budi et al. (2021) found that customer trust depends on a brand's characteristics more than on the brand's producer. Contrarily, Sirdeshmukh et al., (2002) validated the principle of help-seeking behavior based on the process of information-seeking by confirming competency, benevolence, and solution-orientation of the retailer as essential antecedents. Subsequently, Qistina et al. (2022) pins consumer trust on hedonistic and utilitarian values on the one hand and purchase risks on the other. Conformingly, Waldman (2014) identified reliable overlapping networks, identity sharing, and expertness as determinates for trust. Additionally, F2F interactions offer the richest communication and hence are validated as the most effective for decision-making (Sun and Cheng, 2007). Interestingly, Kim and Gambino (2016) and proved, that authority cues (expert information) had a stronger impact on perceived credibility than social proof cues. Viola et al. (2016) counter, by validating certificates, recommendations, and testimonials as easily understood references to the approval of authoritative figures that offer guidance to customers. However, research under the selective avoidance theory found information contradicting the consumers' notions, stances, attitudes, and beliefs – even if provided by experts – encountered resistance (Sherif and Hovland, 1961; Cotton, 2013). Further, Prendergast et al. (2014) studies found, that seemingly trustworthy and attractive salesforces are also perceived as experts. In offline retail, interhuman trust correlates to faith in a retailer and the likeability of its staff (Radu et al., 2023). Sethuraman et al. (2022) add, that small stores often know their customers and their preferences, leading to a more personalized and trusted shopping experience. Contrastingly, Morgan and Hunt (1994) proved that familiarity (especially with SOMB) fosters personal connection, to which Bauerová and Braciníková (2021) add that small stores are usually known for displaying unique and local products not found in chains. Here, trust as an emotional and psychological factor (in contrast to rational, calculated dimensions) significantly influences consumers to prefer physical stores despite the rational convenience of online shopping (Jebarajakirthy et al., 2021). In this sense, trust (as a prejudice) is particularly important when the store is unknown and the consumer perceive potential risk (Zhang et al., 2023). Conformingly, El Hedhli (2021) added on the perceived risk, that source credibility is an important factor in facilitating interaction, while Hermes et al. (2022) correlated a positive social climate and the salesperson's

characteristics of "Extraversion, Agreeableness, and Conscientiousness" with trust and information-sharing. This is particularly important, as self-disclosure in a supportive environment provenly overcomes uncertainties and fosters customer engagement (Guo et al., 2021). H5 therefore asks:

H5: Interpersonal trust influences purchases from SOMB in Germany.

METHODOLOGY

Conducted in Germany the research includes consumers aged 18 and older in rural and urban areas. On limitations, this study did not explore causations or interrelations between factors and excludes ROBO and related phenomena. The study utilized explorative qualitative deductive research, conducting semi-structured interviews with 105 consenting German residents in December 2023, lasting between 10 minutes and 2 hours. Common ethical standards and German legal requirements were followed, presenting volunteers with 10 open-ended questions about their shopping feelings, attitudes, and habits. The research focused on owner-managed B2C enterprises without subsidiaries, excluding certain trades like car and grocery stores. Participants aged 18 or older, of any gender, living in Germany for a substantial period, were included, although the statistical balance was not achieved. The study did not measure socioeconomic, psychological, societal, political, or technical aspects. Personal interviews via video calls and live sessions were documented, noting nonverbal cues to uncover emotional stances and motivations toward small and medium-sized brick-and-mortar (SOMB) stores. Quality criteria adapted for qualitative research were followed to ensure reliability, validity, objectivity, and meaningful insights. Content and thematic analysis were employed to systematically collect, analyze, and interpret non-numerical data. The study aimed for a value-free perspective by incorporating structured methods and statistical analysis, making the findings more reliable, generalizable, and objective. Face-to-face dialogs allowed for direct human interaction, and the observation of nonverbal cues, and ensured accurate conclusions, reducing biases.

FINDINGS

The first hypothesis evaluated customers' perceived convenience of SOMB shopping and tested its predictability for channel choices following the LoLE. Despite the high incidence (93% PR) this awareness does not result in frequent purchases (p=0.223). Though insignificant, 71% of participants perceive SOMB as the least painful or troublesome shopping alternative (p=0.152), but only 46% think information search in SOMB is quicker, easier, and more reliable (p=0.814) (proving Mission and Mission, 2023). Disproving Rohm and Swaminathan, 2004, as individuals' perceptions of

inconvenience varied widely, participants didn't perceive themselves as performing better when addressing their problems/needs with SOMB. Also disproving Xi et al. (2020) Participants' expressions of their dislike of returns make same-day deliveries unlikely to replace offline shopping (12%PR). Conformingly, urgency is no parameter in shopping behavior (14% PR, p=0.718) (disproving Nasution et al., 2019). Still, the extent of perceived convenience provided by special and unique offers in SOMB leads some consumers to accept inconvenience to attain the optimal output, though visits do not result in sales (54% PR, p=0.569) (Shackelton and Prins, 1992). Though this study's sample was too small to evaluate the impact of the consumers' level of empowerment on consumer engagement with SOMB (p=0.096), variety-seeking has been identified (via thematic analysis) with those participants who had particular interests (i.e. rabbit rabbit-keeping, model railway, but also unique clothes) (Raju, 1980). Only avoiding distress of filtered information correlated to convenience (p_{H4}=0.005). Further, the thematic analysis correlated convenience to trust (p_{H5}=0.016) particularly when faced with uncertainty (p_{H3}=0.026), which inter alia depends on the likeability of the staff (Radu et al., 2023)as a factor promoting faith (H5: p=0.037) (van Deursen and Van Dijk, 2009). It also implies that the suitability of the store location, familiarity with the product/solution, and trust affect the (multi-) shopping channel choice, not the consumer's social and emotional needs (Morgan and Hunt, 1994, Guo et al., 2021). The SOMB's knowledgeability is perceived as a time-saving factor (57% PR, p=0.005), SOMB were less frequently seen as partners (28% PR, p_{H5}=0.001), particularly for under 35-year-old (17% PR) (Sethuraman et al., 2022). Supporting the findings of the thematic analysis, none of the items mentioned in this paragraph correlates to the credibility (Wood et al., 2008) of the channel or product and F2F Contact (H5: p=0.056; p=0.699 disproving Sun and Cheng, 2007).

Hypothesis two probes how personal involvement dimensions modulate engagement with SOMBs. The low overall incidents of 63% suggest involvement plays a minor, though a significant role, in SOMB shopping (p=0.005). Particularly self-identity – irrespective of consumption/purchasing circumstances and level of involvement (16% PR, p=0.301), and pressure to overcome a problem (14% PR of which 75% female, p=0.718) play a role in shopping channel choices, but not as prevalent as the Consumer Involvement Theory posits, as it does not result in purchases. Though situations vary, the consumers' self-concept does not influence their shopping behavior (disproving Lastovicka and Gardner, 1979). Confirming Pires et al. (2006), shopping in SOMB is perceived as an expression of considerably higher commitment for nearly one-fifth of the participants (21% PR, p=0.625). Further, SOMB shopping is an experience 22% of interviewees described as emotionally arousing and comprehending (p=0745). The field was led by women (64% PR) and 36 to 49-year-olds (48% PR). Interestingly, the main articles arousing SOMB shoppers are trivia and clothes. Finally, proving Zaichkowski (1985) 35 participants (33% PR) value the physical, emotional, and cognitive involvement

in SOMB with a slightly stronger tendency among younger age groups (p=0.04). As described by the consumer involvement profile, the degree of involvement depends inter alia on the extent to which the customer cares about the product and the product's potential results, whereas the customer's intuitive expectations highly influence her perception of the outcome (Kapferer and Laurent, 1985). Further, neither brand credibility, prestige, nor information costs correlate to involvement, indicating that SOMB do not enhance utility to GR (p=0.905) (disproving Chen et al., 2022; Wood et al., 2008). The thematic analysis revealed three reasons describing the level of involvement: consumers' indifference to problems, customers' immediately trusted partner (i.e. SOMB), or online help-seeking behavior.

Hypothesis three explored the influence customers' NfSI have in choosing SOMB. NfSI, a frequent SOMB shopping reason, was the second most common reason to prefer SOMB (86% PR, p=0.001). However, only 45% of the participants validated incremental product features in SOMB (p=0.688), and 26% evaluated unique features (p=0.429, disproving Wilfing et al., 2023). One-fifth of the participants said, that shopping in SOMB is an emotional choice (22% PR, p=0.625 disproving Brasel and Gips, 2014). Notably, the credibility of the product and channel (62% PR, p=0.582, disproving Wood et al., 2008) does not correlate to unknown or complex products (22% PR, p=0.582, disproving Park and Stangl, 2020). Further, disproving Bettman's et al. (1998), cognitive processes, like memory and expectations, are not more decisive than sensory evaluations (11% PR, p=0.67), nor is consumers' perception of time efficiency and value for money or the mediating role of social presence (F2F contact: 12% PR, values: 7% PR, p=0.321 disproving Sethuraman et al., 2022; van Deursen and Van Dijk, 2009). Still, a physical evaluation assessing the product's usefulness and enjoyment factor essentially influences the purchase decision but is no behavior consumers purposefully exhibit (9% PR, p=0.033), neither are the perceived importance of the product to the consumer, the extent of previous experience, and the brand's reputation (p=0.019; p=0.751 disproving Chen et al., 2022; Park and Stangl, 2022). Accordingly, the importance of sensory information did not correlate to the importance of the transduced information, nor did NfSI during acquisition correlate with incremental features. Additionally, there is no correlation between the desire for unique copies and the need to evaluate these (p=0.066 disproving Bauerová and Bracinίková, 2021). Similarly, the inability to touch cannot be compensated by an appropriate level of convenience, but sensory evaluation is linked to the consumer's confidence in her judgment (p=0.243 disproving Peck and Childers, 2003). Also, avoiding overstimulation, but not seeking optimal stimulation is a valid reason for SOMB shopping (45% PR, p=0.001; 9% PR, p=0.241 disproving Verhoef et al., 2009).

Hypothesis four, though insignificant, examined how SOMBs facilitate product exposure under the empowerment theory (82% PR, p=0.723). However, there was little support for the customers' feeling

of empowerment by intellectually engaging with the SOMB's unique insights and diverse knowledge (9% PR, p=0.096 disproving Bauerová and Bracíníková, 2021). In contrast, 39 participants (37% incidence) explained that they avoid the distress of information constraints by visiting SOMB, and 32 (30% incidence) of the participants described the satisfaction of exploratory needs in SOMB. Both segments experienced the greatest support from the middle age groups (proving Malinen et al., 2018). Overall, variety-seeking does not correlate to optimal stimulation (p=0.735, disproving Raju, 1980). Additionally, the level of sensation sought predicts the consumers' need/willingness to explore (p=0.003 proving Park and Stangl, 2020).

Hypothesis five assesses the influence of interhuman trust on consumer purchases in SOMBs likewise via the concept of trust and the theory of trust (p=0.001). The theory of trust as a foundation for business correlated to frequency and NfSI (p=0.001), but not with convenience (p_{H1}=0,205) (Jebarajakirthy et al., 2021). Aligning with the concept of trust, the reassuring nature of SOMB (22% PR) and its great reputation (61% PR, p=0.211 disproving Bauerová et al., 2021) caused participants to seek reinforcement of their values in SOMB. However, the reinforcing effort of sales forces was insignificant to sales (p=0.266 disproving Sethuraman et al., 2022). In contrast, customers did not rely on the SOMB's staff credibility (57% PR, p=0.468 disproving El Hedhli et al., 2021 and Prendergast et al., 2014), the credibility of the products (12%PR, p=0.887), or channel (50% PR, p=0.562 disproving Zhang et al., 2023), or the staff's support (52% PR, p=0.24 disproving Guo et al., 2021). Neither to customers seek reassurance when confronted with unknown products (22% PR, p=0.619 disproving Kim and Gambino, 2016). Consumers displayed a strong belief in SOMB's altruistic motives, and the supportive nature of the salesforce (overall 82% PR, 36-to 49-year-old 32% PR and 50 to 64-year-old 17% PR; p=0.001 proving Radu et al., 2023 and Qistina, 2022). However, the little incidence was noted for the personal relationship consumers establish with the SOMB (10% PR) and the need for F2F contact (12% PR, p=0.490 both disproving Sethuraman et al., 2022), though both significantly impacted purchases (p=0.001 proving Hermes et al., 2022; p=0.016 proving Sun and Cheng, 2007). Still, 29 participants (28% PR) perceive SOMB as partners for private matters (17% PR with up to 35 years old; p=0.001 proving Vialo et al., 2016) or mentioned personal relationships (10% PR, p=0.02 proving You et al., 2022). Finally, 65 (62% PR) participants relied on the SOMB's products' credibility (p=0.001 proving Budi et al., 2021). The incidence was slightly higher with women (61% PR). However, consumers do not seek conflict (19% PR, p_{H4}=0.152 proving Sherif and Hovland, 1961 and Cotton, 2013), but help (p=0.001) including benevolence and solution-orientation (p=0.001 both proving Sirdeshmukh et al., 2002). Thus, the theory of trust and the concept of trust support the fifth hypothesis.

DISCUSSION

Contribution to Theory

This study addresses the gap in recent research on offline shopping in German SOMB, emphasizing their significance as the sales channel. Understanding shopping motivations is crucial for marketers, owners, and city councils to capitalize on SOMB despite various channel options. The research challenges assumptions regarding the transferability of findings from online sales to offline channels and highlights the specificity of SOMB compared to larger retail chains. It identifies underexplored areas such as convenience and reveals a consumer tendency towards inflexibility in channel choices, particularly regarding convenience, where habitual responses do not necessarily lead to sales. Trust and convenience emerge as the most significant motivators for shopping behavior, with trust being the primary driver of sales.

Contribution to Practice

This research suggests SOMB foster long-term patronage by enhancing their image as a trusted partner, emphasizing transparency, communication, and expertise, and highlighting the importance of credibility. Additional marketing efforts by industry organizations or city councils could also be beneficial. SOMBs have the flexibility to personalize services and to bridge the gap between online and offline shopping experiences, particularly concerning return policies. Notably, SOMB clients are predominantly frequent clothing shoppers, indicating a specific market niche. Leveraging this insight, SOMBs can solidify their image as reliable partners through transparency and effective communication. Building personal relationships with customers can foster long-term patronage, while non-intrusive customer service techniques can enhance the overall shopping experience.

Limitations

The study's explanatory power is limited due to a small sample size and a lack of evaluation of various personal, situational, economic, and social factors influencing shopping choices. Financial aspects like price comparisons and risks are suggested but not definitively established. The study's geographical scope is confined to specific regions, limiting broader applicability, and lacks depth in any single sector despite including various industries. The survey design, aiming for brevity, may compromise reliability. It focused on concurrent criterion validity without assessing predictive aspects or exploring participants' readiness to engage with different shopping channels. Interviews were narrow-focused, overlooking varied shopping patterns, and satisfaction with channels was assumed

but not tested. Comparisons across different periods and establishing customer-SOMB relationships were not explored, limiting the study's depth and relevance.

Future Research

To enhance the study's context and validity, periodic assessments, and the consideration of cultural differences within Germany (East vs. West) are recommended. Indicating a need for validation, participants in certain regions noted limited physical shopping options, leading to involuntary choices, particularly in low-income areas with sparse SOMB density. Future research should address various behavioral responses such as repurchase intention, loyalty, price elasticity, and switching intentions, considering income levels across regions, customer perceptions of equivalence between SOMBs and other retail channels, and exploring the intensity and longevity of customer-SOMB relationships.

Implications

The table below summarizes several recommendations Paramount among these is the prioritization of trust-building strategies, a cornerstone revealed as fundamentally influential in shaping consumer decisions. Equally critical is an ongoing commitment to researching consumer behavior changes, ensuring that SOMBs remain agile and responsive in an evolving market.

Cluster/ Motivator	Recommendation
Convenience	- Balance between convenience, and unique product offerings, while focusing on interpersonal relationships - Develop strategies for how to provide reassurance, particularly for complex products - Focus on special content - Build up reputation/trustworthiness and be reliable - Ensure likeable staff and personalized service - Streamline processes and interactions
Personal Involvement	- Build a sense of community and foster relationships - Participate in local events, collaborations, and community initiatives to strengthen their presence in the local market - Ensure high product and service quality standards - Be an expert in your field - Encourage personal involvement by fostering a sense of ownership
Sensory Input	- Enhance in-store experiences - Optimize a sensory-rich environment - Offering products that require a physical examination or personal fitting - Reinforce tactile interactions to lower customers' frustration
Product Exploration	- Optimize exposure (store layout, visual merchandising) - Avoid information disruptions or constraints

	-	Provide a unique and memorable experience
Interpersonal Trust	-	Create trust through personalized interactions
	-	Demonstrate fairness
	-	Demonstrate reliability
	-	Demonstrate knowledgeability
	-	Show concern for the client's well-being
	-	Train staff on trust-building strategies
	-	Emphasize ethical practices
	-	Ensure transparency in transactions

CONCLUSION

This paper aimed to verify the influence of convenience, personal involvement, sensory input, product exposure, and trust on shopping in SOMB. in contrast to prior research (from the US and Asian markets), it focuses on Germany. Investigating the why, not the what, the findings suggest that despite convenience being highly prevalent and hence customers are well aware of SOMB's convenience factor, it does not impact SOMB shopping. Further, the NfSI emerges as a key predictor of product exploration despite its moderate occurrence. Explorative behavior is neither prevalent nor correlating to SOMB shopping. Personal involvement correlates but is less influential due to its low incidents. Trust and empowerment notably influence shopping channel choices. Reasons for SOMB shopping vary, from avoiding overstimulation to consumer confidence and involvement levels, indicating SOMB as more of a shopping channel choice than a store-specific preference. The research suggests a complex interplay of factors influencing consumer behavior in SOMBs, that may go beyond the covered sub-hypotheses. The study challenges the conventional theories in the SOMB context, indicating that consumer motivations in such settings are influenced by a combination of seeking authenticity, sensory balance, and supportive and reasonable relationships, on the background of limitations and the filtered nature of online shopping. The specific factors and consumer attitudes and circumstances gathered in this study are relevant to marketers and owners to leverage SOMB strategies.

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PAST TRENDS AND FUTURE DIRECTIONS IN GREEN HUMAN RESOURCE MANAGEMENT RESEARCH: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

This research offers a comprehensive overview of green human resources management literature highlighting the major themes in the current developments along with the new trends and patterns for future research observed in this field. For conducting a systematic literature review and bibliometric analysis, following the PRISMA 2020 Protocol, 684 published articles from 2010 to 2024 from the Scopus database were included for final analysis. VOSviewer software was used for extracted data analysis and visualization. Performance analysis and science mapping (citation, co-citation, bibliographical coupling, and keyword co-occurrence analysis) were performed. The study reveals the current status in GHRM publications and citations, identifying key contributors such as influential countries, journals, and authors and outlines theories, keywords, and thematic areas. Lastly, this study identifies research gaps and emerging trends in GHRM, offering valuable insights for scholars and practitioners seeking to advance understanding and implementation of green HR practices.

Keywords: Green Human Resources Management; Systematic Literature Review; Bibliometric Analysis; Science Mapping; Performance Analysis; Scopus.

INTRODUCTION

With increasing societal pressures on organisations to adopt environmental responsibility and manage their environmental footprint, and with the need for organisations to remain competitive (Tang *et al.*, 2018), there is a growing need to integrate environmental sustainability into organisational and human resource management (Jabbour and de Sousa Jabbour, 2016; Deshwal, 2015). Green human resources management (GHRM) is becoming a strategic function of the organisation that can contribute to the successful design and implementation of environmental management and ensures the implementation of environmental practices in the organisation (Jabbour and de Sousa Jabbour, 2016), to achieve environmental sustainability (Ramasamy, 2017; Ansari *et al.*, 2021; Marrucci *et al.*, 2023). GHRM enables organisations to attract, select, recruit environmentally conscious employees, train and develop employees' environmental knowledge and competencies, change environmentally unfriendly behaviours, implement environmental performance in the organisation and reward employees for it

(Deshwal, 2015; Jabbour and de Sousa Jabbour, 2016). GHRM provides greater efficiency, reduces costs and helps the organisation to operate in an environmentally friendly and sustainable manner (Hosain *et al.*, 2016).

The significance of green human resources management en is increasingly recognized and has received growing attention from scholars, however, a need to systematically review and synthesize the literature in this field remains.

This research offers a comprehensive overview of green human resources management literature highlighting the major themes in the current developments along with the new trends and patterns for future research observed in this field.

This study aims to examine GHRM knowledge has been constructed, disseminated, and shaped over time and make suggestions for future research. The following **research questions** were raised:

RQ 1: What are the current status and trends of publications and citations in the GHRM literature?

RQ 2: Which countries, journals and authors have contributed the most to the GHRM literature?

RQ 3: What are the most frequently used theories, keywords and thematic areas in the literature?

RQ4: What are emerging trends and research gaps that will shape the future GHRM research?

THEORETICAL BACKGROUND

Green human resource management helps to understand the links between organisational activities that impact the natural environment and the design, implementation, and impact of human resources management (HRM) systems (Renwick *et al.*, 2013). In this view, GHRM supports an organisation's sustainability strategy by adapting HRM strategies and practices to achieve financial, social, and environmental objectives, impacting both internally and externally in the long term while mitigating unintended side-effects and negative feedbacks (Wikhamn, 2019).

Arulrajah and Opatha (2016) define GHRM as all activities related to the design, implementation, and management of systems aimed at „greening" employees. This transformation in employees' attitudes and behaviours is crucial for achieving the organisation's environmental goals, contributing to environmental sustainability, and creating benefits for individuals, society, the natural environment, and businesses (Opatha, 2013; Arulrajah *et al.*, 2015). Similarly, Kim *et al.* (2019) emphasize the role of top managers in communicating the organisation's environmental policy and plan, training and empowering employees to engage in environmental activities, and providing specific rewards for their efforts.

To improve sustainable environmental performance, organisations are implementing a range of GHRM practices. These practices are the actual programs, processes, and methods employed to reduce negative environmental impacts or increase positive ones (Arulrajah *et al.*, 2015). Various

classifications of green HR practices exist in academic literature. Some authors agree on the importance of employee recruitment, performance-based appraisal systems, training programs to raise environmental awareness, labor relations regulation, and reward systems to foster environmental innovation (Mandip, 2012; Renwick *et al.*, 2013; Deshwal, 2015; Hosain *et al.*, 2016). Others identify additional practices such as human resource planning (Mandip, 2012; Deshwal, 2015), online recruitment and application (Hosain *et al.*, 2016), the selection process, and orientation of new employees (Hosain *et al.*, 2016; Deshwal, 2015), human resource administration, talent management, career planning (Deshwal, 2015), green employee discipline, health and safety, and leadership management (Hosain *et al.*, 2016), green organisational culture management (Ramasamy, 2017), and exit management (Mandip, 2012; Renwick *et al.*, 2013).

Implementing GHRM practices and initiatives requires a high level of technical and managerial skills to develop innovation-driven environmental initiatives and programs, which significantly impact the sustainable competitive advantage of companies (Hosain *et al.*, 2016).

METHODOLOGY

To answer questions of the study, bibliometric research methods, that utilize quantitative techniques to map the structure and evolution of scientific fields and disciplines, are used. These methods quantitatively describe, evaluate, and monitor published research, offering a systematic, transparent, and reproducible review process without subjective bias (Zupic and Cater, 2015; Donthu *et al.,* 2021).

While numerous databases report scientific research, the authors of this study focused on the Scopus database due to its extensive collection of papers from peer-reviewed indexed journals (Singh *et al.,* 2021). Moreover, Scopus offers broader journal coverage compared to the Web of Science and is widely used for conducting bibliometric analysis in the field of management (Zupic and Cater, 2015; Donthu *et al.,* 2021).

The records corresponding to this study's results were obtained in April 2024. This study employed several search procedures following the PRISMA 2020 Protocol, to make sure all publications about GHRM were covered.

The following search query was given within the Scopus database to obtain their initial research sample (figure 1):

TITLE-ABS-KEY ("green human resource management" OR "GHRM" OR "green HRM" OR "Green Human Resource* Management" OR "Green HRM" OR "Green HR management" OR "green human resource" OR "green hr" OR "green human resource practices" OR "GHRMP" OR "green HR practices" OR "green HRM practices" OR "green human resource* management practice*" OR "Environmental human resource management").

Figure 1. *Search query*

Global Business Transformation in a Turbulent Era

The initial search led to the identification of 959 documents from 2008 to 2024 (identification stage). Then, the search was restricted to article document type and English language which resulted in the identification of 753 articles from 2010 to 2024 (screening stage).

In the third step, titles, abstracts, and keywords from all 753 publications were thoroughly examined to make sure that all the articles that were extracted during our search were related to GHRM (eligibility stage). After eliminating papers that were not or less relevant and duplicates, we obtained a final collection of 684 articles from 2010 to 2024. Within figure 2 the authors graphically summarize the research process.

Identification of studies via databases and registers

Identification

Records identified from Scopus Databases: (n = 959) → Records removed *before screening* (n = 0)

Screening

Records screened (n = 959) → Records excluded if not articles and not in English language (n = 216)

Eligibility

Reports assessed for eligibility (n = 753) → Reports excluded after reading title and abstracts (n = 69)

Included

Studies included in the study (n = 684)

Figure 2. *Research process workflow*

The final step prior to data analysis involved cleaning and standardizing the keywords. This process required homogenizing keywords that referred to the same topic but were named differently.

VOS viewer software was used for extracted data analysis and visualization. Performance analysis and science mapping (citation, co-citation, bibliographical coupling, and keyword co-occurrence analysis) were performed (Van Eck and Waltman, 2010).

RESULTS

Descriptive Bibliometric Analysis

The analysis revealed a significant increase in the number of publications in the field of GHRM. There is a slow increase between 2010 and 2018 (from 1 to 18 publications per year), but from 2019 onwards, the number of publications has risen sharply, with the highest number of publications in 2023 (216 published articles). The citation trend also illustrates the increasing popularity of the topic over a decade. Starting with 327 citations in 2010, the numbers saw a significant rise, particularly peaking at 5555 in 2019 and 3467 in 2022.
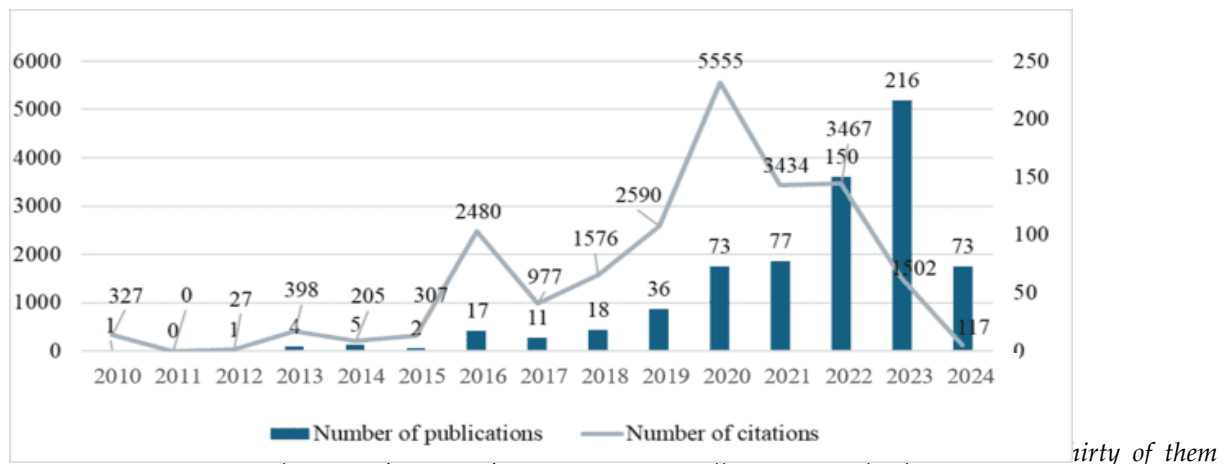
...ity... publications... gy... by... irty of them published at least five studies in the field of GHRM. Sustainability (Switzerland) (58 articles), Journal of Cleaner Production (36 articles), International Journal of Manpower (27 articles), Business Strategy and the Environment (21 articles), Corporate Social Responsibility and Environmental Management (20 articles), are among the top five journals that have published the maximum number of articles. In addition, the most cited article with 1017 citations, Renwick, et al., (2013) is published in International Journal of Management Reviews, the second most cited article with 846 citations, Singh et al., (2020), is published in Technological Forecasting and Social Change. The overview of the ten most active journals is stated in Table 1.

Journal	Publications	Citations
Sustainability (Switzerland)	58	1417
Journal Of Cleaner Production	36	4026
International Journal Of Manpower	27	1132
Business Strategy And The Environment	21	1254
Corporate Social Responsibility And Environmental Management	20	1342
Environmental Science And Pollution Research	20	216
International Journal Of Human Resource Management	14	1501
Frontiers In Psychology	13	101
International Journal Of Sustainable Development And Planning	13	43
Benchmarking	12	530

Table 1. *Most active journals*

Researchers from 78 countries are investigating the field of GHRM. The highest contributions come from 10 countries, each with more than 30 publications. The top six most productive countries are all from Asia: China (165 publications), Pakistan (148 publications), Malaysia (116 publications), India (90 publications), and Saudi Arabia (53 publications). Following these are the United Kingdom (53), Australia (46), Indonesia (40), France (36), and the United States of America (32) (figure 4).
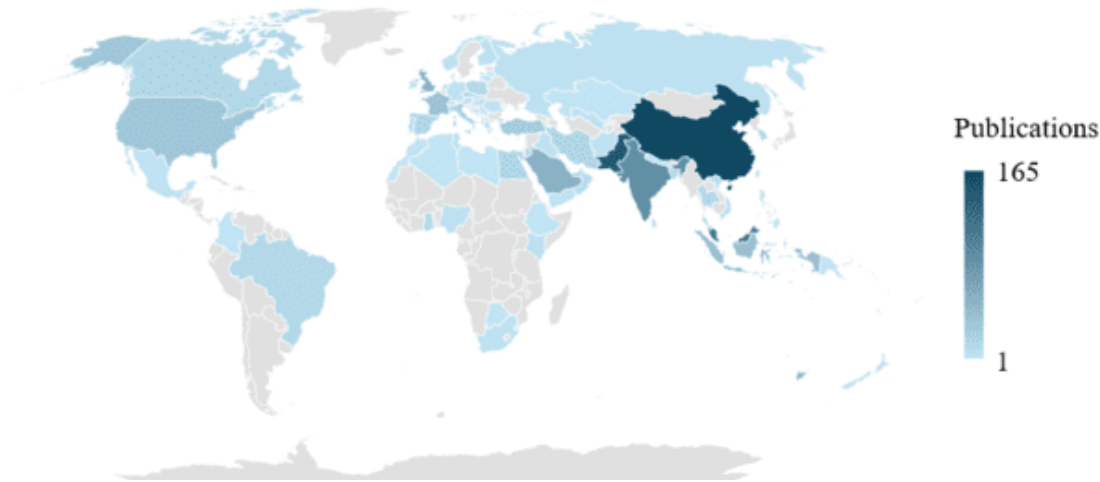
Figure 4. *Authors' country of provenance*

An analysis at the author level was performed, revealing that 892 out of 1843 authors met the threshold after keeping the criteria as the minimum number of documents per author (n = 1) and number of citations per author (n = 10). Authors who have made major contributions to GHRM research: M. Y. Yusliza (20 articles, 1355 cit.); C. J. C. Jabbour (12 articles, 1321 cit.), T. Ramayah (12 articles, 1157 cit.), D.W.S. Renwick (6 articles, 1387 cit.). TOP 10 researchers are shown in the Table 2.

Author	Articles	Citations	H-index
Yusliza, Mohd Yusoff	20	1355	40
Jabbour, Charbel Jose Chiappetta	12	1321	91
Ramayah, Thurasamy	12	1157	119
Nisar, Qasim Ali	11	261	27
Fawehinmi, Olawole	8	620	14
Raza, Syed Ali	8	469	60
Tang, Guiyao	7	905	19
Yong, Jing Yi	7	735	9
Ren, Shuang	7	511	31
Chaudhary, Richa	7	442	31

Table 2. *Most active researchers*

Bibliometric Analysis

During the keyword co-occurrence network analysis, a minimum threshold of 10 occurrences per keyword was set. This analysis resulted in a network of 83 keywords that met the criteria. The most frequently occurring keywords were: green human resource management (437), human resource

(191), sustainability (118), environmental performance (117), environmental management (95), resource management (94), human resource management (85), green human resource management practices (84), sustainable development (71), and green innovation (50) (figure 5).
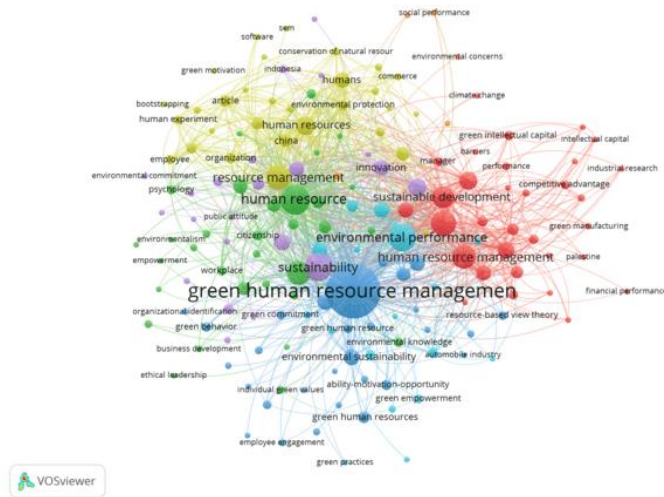
Figure 5. *Keyword co-occurrence network analysis*

Incorporating temporal analysis, the results revealed that the most recent research focuses on green innovation, green commitment, commerce, climate change, green intellectual capital, responsible leadership, green creativity, green organizational culture, organizational citizenship behavior, and green knowledge (figure 6).
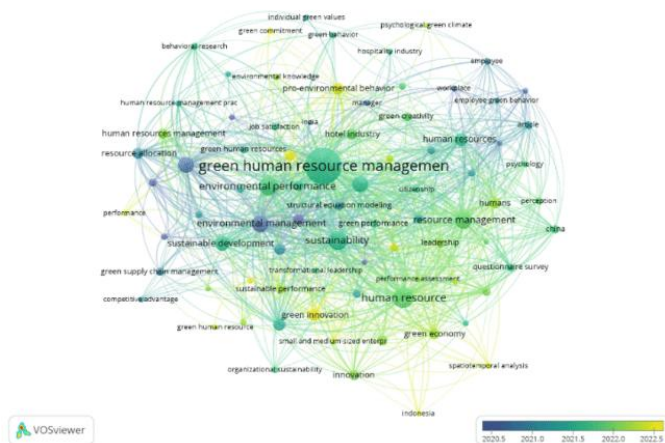
Figure 6. *Keyword co-occurrence network with temporal analysis*

As a result of the analysis, a 5-cluster structure of field research is determined in the table 3:

The first (red) cluster emphasizes the intersection of green human resource management (GHRM) practices and pro-environmental behaviors within organizations. It explores how GHRM initiatives foster an environmentally conscious workplace culture, where employees are knowledgeable, motivated, and empowered to engage in pro-environmental actions.

The second (green) cluster focuses on the importance of integrating environmental management into core business strategies to drive sustainable performance and gain a competitive advantage. It emphasizes the need for efficient resource allocation and green supply chain management to support sustainable development and organizational sustainability.

The third (blue) cluster delves into the evolving research methods and directions within the field of green human resources management. This cluster emphasizes applying diverse theoretical frameworks and empirical methods to enhance our understanding and improvement of GHRM practices. For instance, the AMO theory is commonly used to investigate how perceptions of environmental responsibility influence workplace behavior and decision-making. Additionally, questionnaire surveys are typically employed to study the impact of various HR practices on employee behavior and organizational outcomes.

The fourth (purple) cluster explores the link between green transformational leadership and green innovation, highlighting how leadership can drive creation and implementation of eco-friendly products, services, and processes. By leveraging the power of innovation and leadership, businesses, especially SMEs, can achieve sustainable growth while fulfilling their corporate social responsibility.

The fifth (yellow) cluster investigates the relationship between organizational citizenship behavior and the green economy, emphasizing how employee and stakeholder engagement drive sustainable economic practices. By fostering voluntary and proactive behaviors that exceed formal requirements and aligning them with environmental values and economic activities, organizations can enhance their green performance and contribute to the broader goals of the green economy.

Cluster	Title of cluster	Main keywords
Red Cluster	Green Human Resource Management and Pro-environmental Behavior	green human resource management, pro-environmental behavior, environmental knowledge, individual green values, green commitment, psychological green climate, job satisfaction, green empowerment, green training
Green Cluster	Environmental Management and Organizational Sustainability	environmental management, environmental performance, sustainable development, green supply chain management, competitive advantage, sustainable performance, resource allocation, organizational sustainability
Blue Cluster	Research Directions and Practices	human resources, resources management, perception, human experiment, manager, questionnaire survey, ability-motivation-opportunity theory, article, employee green behavior, workplace
Purple Cluster	Green Transformational Leadership and Green Innovation	green innovation, green transformational leadership, corporate social responsibility, small and medium-sized enterprises (SMEs), innovation
Yellow Cluster	Organisational Citizenship Behaviour and Green economy	green economy, environmental economics, organisational citizenship behaviour, stakeholder, environmental values, green performance, performance assessment

Table 3. *Thematic clusters*

GHRM studies use 33 different theoretical approaches, the most common of which are ability–motivation–opportunity theory, resource-based view, theory of planned behaviour, natural resource-based view, social exchange theory, social identity theory, and stakeholder theory (table 4).

Theory	Times mentioned
Ability–Motivation–Opportunity Theory	24
Resource-Based View Theory	21
Natural Resource–Based View Theory	8
Theory Of Planned Behaviour	8
Social Exchange Theory	6
Social Identity Theory	4
Stakeholder Theory	4
Grounded Theory	3
Conservation Of Resources Theory Intellectual Capital View Based Theory Self-Determination Theory Signaling Theory Social Cognitive Theory Social Theory Systems Theory	2
Affective Events Theory, Cognitive Consistency Theory, Complexity Theory, Componential Theory Of Creativity, Contingency Theory, Fuzzy Theory, Institutional Theory, Management Theory, Optimal Distinctiveness Theory, Psychological Theory, Sensemaking Theory, Supplies-Values Fit Theory, Theory Of Ability, Value-Belief-Norm Theory	1

Table 4. *Most used theories*

CONCLUSIONS

Theoretical Implications and Future Research Avenues

This study of existing green human resource management literature reveals significant growth and interest in the field over the past decade. The number of publications and citations has increased sharply, particularly since 2019, indicating a rising recognition of GHRM's importance in academia.

Sustainability (Switzerland), Journal of Cleaner Production, and International Journal of Manpower, have emerged as leading journals for publishing GHRM research. Contributions from different continents (Europe, Asia, Australia, and North America) highlight the global relevance of GHRM; however, research is predominantly concentrated in Asian countries such as China, Pakistan, and Malaysia. The geographical distribution of GHRM research points to the importance of a global perspective. Comparative studies across different regions and industries can provide valuable insights into the contextual factors influencing GHRM practices and their effectiveness.

There is a need for further development and refinement of theories specific to GHRM. The frequent application of theories like Ability–Motivation–Opportunity Theory and Resource-Based View indicates their relevance, but new theoretical models that capture the unique aspects of GHRM should be explored. Moreover, the diverse theoretical frameworks employed in GHRM research highlight the need for a multidisciplinary approach to studying and understanding the field. Future research

should continue to integrate theories from various disciplines to provide a comprehensive understanding of GHRM practices and their impact.

Keyword co-occurrence and network analysis revealed five research clusters: green human resource management and pro-environmental behavior; environmental management and organizational sustainability; research directions and practices; green transformational leadership and green innovation; organisational citizenship behaviour and green economy. This study identified emerging research trends such as green innovation, green commitment, responsible leadership, green intellectual capital, green creativity, green organizational culture, organizational citizenship behavior, and green knowledge suggesting new directions for GHRM research. Scholars should investigate these areas further to understand their links to GHRM.

Research limitations

While the study provides valuable insights within the field of green human resource management, several limitations need to be acknowledged. Firsty, the study relies solely on the Scopus database, which, despite its extensive and recognized coverage, excludes some journals and publications. Consequently, relevant studies from other databases like Web of Science and Google Scholar may be missing, leading to potential incomplete coverage. Secondly, the analysis was restricted to articles published in English, which may result in the exclusion of significant research published in other languages or other types of documents. Lastly, while the study identified major clusters and themes, it may not delve deeply into specific subfields or emerging areas within GHRM that are less frequently studied but equally important.

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OPPORTUNITIES FOR DEVELOPMENT OF SLOW TOURISM

IN POĽANA BIOSPHERE RESERVE

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ABSTRACT

Biosphere reserves are a specific type of protected area found around the world. Unlike other protected areas, they allow for socio-economic activities to take place within their valuable and unique natural conditions. The philosophy of UNESCO states that biosphere reserves are places for sustainable development. This paper focuses on the slow development (slow city) in the Poľana biosphere reserve in the Slovak Republic as a suitable approach to strengthen its development while protecting the unique environment.

This paper aims to identify opportunities for the development of slow tourism in the Poľana biosphere reserve in the Slovak Republic through analysis of the territory, relevant sources, statistical data, and practices of foreign biosphere reserves. We believe that the gradual progress through slow tourism can help address not only the socio-economic issues of the area, but also facilitate the transition of the regional economy towards sustainable and resilient development. The primary research has identified that the Poľana biosphere reserve has a rich potential for the development of slow tourism. The region provides a wide range of exceptional products and experiences, but it requires assistance not only from local and regional stakeholders such as government officials, entrepreneurs, and citizens, but also from the central government. The paper presents partial results of the project APVV-20-0108 Implementation of Agenda 2030 through biosphere reserves in the Slovak Republic and VEGA 1/0343/23 Modern approaches to the development of cities and regions.

Keywords: slow tourism, biosphere reserve, nature protection, development, regional quality mark, local traditions

INTRODUCTION

Climate change and other current global as well as local challenges emphasize the need to use limited resources responsibly to ensure a healthy environment and sustainable development for future generations (Vaňová, 2021). Nature protection and conservation of biodiversity is one of the Sustainable Goals in Agenda 2030. To carry out the goals inducted in Agenda 2030 it is necessary to concentrate on those social, economic and environmental activities that are environmentally oriented,

sustainable, resilient and inclusive and based on participation of all important stakeholders from different sectors in the region. The biosphere reserve is a place that can help achieve these goals by allowing people to live in harmony with nature.

Biosphere reserves are one form of protected areas in the world. According to the philosophy of UNESCO, they are 'learning places for sustainable development'. They are sites for testing interdisciplinary approaches to understanding and managing changes and interactions between social and ecological systems, including conflict prevention and management of biodiversity. They are places that provide local solutions to global challenges (UNESCO, 2023).

In the paper we pay attention to the slow development (Tranter, Tolley, 2020; Yurtseven, Kayas, 2011) via slow tourism in Poľana biosphere reserve in the Slovak Republic as a suitable and resilient way how to strengthen its development in accordance with the protection of unique environment.

Slow tourism is one of the fastest-growing niche markets and is viewed as a form of sustainable tourism (Manthiou, Klaus, Luong, 2022; Le Busque, Mingoia, Litchfield, 2021; Serdane, Maccarrone-Eaglen, Sharifi, 2020; Husemann, Eckhardt, 2019; etc). Despite increasing popularity of slow tourism, no single or common definition of this approach can be found either in academic or practitioner literature. The concept of slow tourism is a conceptual framework drawing on ideas from the "slow food" movement, that comprises tourist, who travelled slower and nearer to home whereby they stay longer in target destinations. Tourists utilize sustainable and local forms of tourism, transport and prefer local food consumption specific for visited place or region. The slow tourism is a significant reaction to mass tourism, a modification of the travel concept, and the use of leisure time as well as a reflection of the crisis of modernity with its lack of time, offering more authentic experiences that take particular care of the environment (Manthiou, Klaus, Luong, 2022; Clancy, 2017; Dickinson, Lumsdon, 2010). Slow tourism can be seen as "time savouring" options, whereas fast tourism may be treated as "time saving" options. (Dickinson & Peeters, 2014, In: Klarin et al. 2023).

Some authors, for example Guyver, McGrath and Torkington (2016), argue that the ideas of slow tourism are nothing new, because millions of people spend annually their vacations camping, staying in caravans, rented accommodation, with friends and relations or perhaps in a second home, who immerse themselves in their holiday environment, eat local food, drink local wine and walk or cycle around the area (In: Et. al. 2020).

Černá (2016) states that slow tourism is focused on acquiring new experiences as a traveler, finding joy in staying in beautiful places, and feeling the thrill of immersing oneself in a different culture in a selected destination or region. The concept of slow tourism brings the ability to assure long term benefits to the local environment, community, and economy. According to Dall´Aglio et al. (2011) slow tourism is a kind of tourism that "sensitizes demand and supply of ethical values, allows to get

possession of time again, relieves anxiety and stress caused by hectic paces, allows the guests to be back in tune with themselves and whatever surrounds them, creates a new form of awareness thanks to a deeper and involving experience and thus emphasizes sustainability, responsibility and eco-friendliness" of all the stakeholders involved. (In: Et al. 2020).

The philosophy of deceleration offers way of providing tourism with specific guidelines, such as tourists taking the time to visit, reducing their carbon footprint, having an ecological and ethical vision, focusing on local contacts and nearby sights, consuming local products and discovering heritage, conserving the locals' quality of life, and ensuring a high-quality tourism experience (Manthiou, Klaus, Luong, 2022; Valls, Mota, Vieira, Santos, 2019; Yurtseven, Kayas, 2011).

However, Černá (2016) argues that slow tourism and ecotourism partially overlap, and stresses that slow tourism focuses on relaxation, knowing genius loci (picturesque places in nature, historic architecture etc.), extraordinary and unusual experience, while ecotourism is oriented mostly on protection of sensible and unique environmental conditions in biosphere reserves.

The object of our research is Poľana biosphere reserve. The paper aims to identify the potential for the development of slow tourism in the Poľana biosphere reserve through an analysis of its territory, statistical data, and best practices from foreign regions. It consists of introduction, three chapters and conclusions. The first chapter defines slow tourism as a suitable approach to contribute to sustainable development in biosphere reserves based on theoretical foundations. The second chapter outlines the methodology used. Thereafter, the third chapter presents the research findings in the form of a case study focusing on the Poľana biosphere reserve and its potential for slow tourism activities. It also includes recommendations for the development of the Poľana biosphere reserve based on the slow tourism approach and best practices from other relevant biosphere reserves.

1. BIOSPHERE RESERVE AS AN OBJECT OF SLOW TOURISM

Biosphere reserves are seen as an instrument how to achieve the well-being of human and nature. It is a place where nature and people should both benefit. A characteristic feature of a biosphere reserve is the involvement of local communities and all stakeholders in the planning and management of its development. At the territory of each biosphere reserves three main functions are integrated. Every biosphere reserve is oriented on conservation of biodiversity and cultural diversity, economic development that is socio-culturally and environmentally sustainable and logistic support, underpinning development through research, monitoring, education, and training (UNESCO, 2023, Sýkorová, 2023).

Each biosphere reserve contains 3 zones: core zone, buffer zone and transition zone. A typical characteristic of a core zone is the protection of unique natural values, including the conservation of

landscapes, ecosystems, species, and genetic variation. Buffer zone surrounds or adjoins the core area(s) and serves as a corridor between the core and transition area. Activities carried out in this zone are compatible with ecological practices, scientific research, monitoring, training, and education. The transition area, or the cooperation zone, is a place for communities to foster socio-economic development and environmentally friendly activities including slow tourism. They can contribute to effect of all functions of biosphere reserves, that means to conserve biodiversity and cultural heritage, sustainable development, and logistic support (UNESCO, 2024).

It is clear, that biosphere reserves are a very specific kind of protected area with valuable and unique conditions, fauna, and flora.   They offer specific products and mass tourism is not needed in these territories to protect and maintain this offer. From this point of view, slow tourism is a suitable way how to utilize and develop the territories of biosphere reserves. According to the opinion of Med Pearls (2020), for slow tourism is typical to create deeper relationship to local environment; to get used to traditions, values, culture, and history of local community; to slow spending time, that enables deeper experiencing of unexpected, surprises and simple pleasures and utilisation of traditional conveyance transports such as bike, walking, ship, local transportation etc. All these characteristics are consistent with the protection of unique environment and development of the biosphere reserves.

Other authors (Et al., 2020) allege that the philosophy of slow tourism is expressed by concrete activities within for different but interconnected areas. As seen in Table 1, those areas are transport, leisure, accommodation, and gastronomy and are transformed into activities and services according to philosophy of slow tourism that represent the supply side of slow tourism and could be applied in biosphere reserve.

Klarin et al. (2023) speak about outcomes connected with slow tourism that have become increasingly central to the slow tourism literature. To the identified slow tourism outcomes belong changed behavior, authentic and natural experiences, increased environmental consciousness, future revisit intentions and future referral intentions largely from a consumer behaviour perspective. For instance, in destinations, tourists can immerse themselves in the local culture, enjoy the natural and built heritage and interact more with the locals.

For slow tourism each zone of biosphere reserve represents different opportunities of development. The core area is a source of extraordinary experience as it represents the unique natural values, the buffer and transitions zones take advantage of it and complete the offer of the territory by others appropriate tourism services. The slow tourism activities in biosphere reserve require a high level of knowledge and preparation from both leaders and participants, that will give to the slow tourists enough time to establish a deeper relationship with the environment and enjoy the genius loci of the place so they will take henceforth an active personal responsibility towards the natural environment.

Area	Philosophy	Activities and services
Transport	Flexible and paces. Allow travelers to enjoy the landscape with all senses.	Walking, trekking, cycling, motorhome, sailing, canoeing ballooning
Leisure	Provide enough time for travelers to establish a deeper relationship with the environment, the different locations and the people they meet along the journey. Make room for introspection, reflection, and personal development	Nature watching, birdwatching. cultural tours, creativity experiences learning experiences wellness, introspection
Accommodation	Look for establishments where the traveler can stop time. Space and service should be carefully designed.	Small family hotels and B&B, rural accommodation, private homes and apartments, camping, eco-lodging
Gastronomy	Offer local, traditional food that makes use of local produce. Make travellers appreciate the fact that food has been prepared with love and care, and thus requires time to savour and experience. Menus should appeal to all senses	Fresh food, organic & local groceries, tasting of local products small traditional restaurants organic restaurant

Table 1. *Activities and services within slow tourism*

From the biosphere reserve point of view, the slow tourism promotes and fosters environmentally conscious behaviour of visitors. It does not interfere negatively with the environment. The unique selling point of the slow tourism product is based on the exceptional value of nature and culture within the territory. Additional services are a complementary part of the product. The experience of slow tourists is authentic, in the real environment, biocentric, which means that it accepts the environment without possibilities of modification. It assumes that the visitors will be educated, and their expectation will be associated with new knowledge or appreciation (Butler, 1990, In: Vitališová et al., 2023).

Slow tourism may contribute to the economic development of biosphere reserves in various aspects. As Gardner, 2009 (In Klarin et al. 2023) claimed, at the micro level, slow tourism may create additional values for local communities. The local economy may benefit from slow tourism, as slow travellers tend to choose ridesharing, apartment-sharing, guesthouses etc. to connect with locals in the biosphere reserves. Moreover, compared with conventional tourists, slow tourists may spend more time exploring the local culture and food (for example, visiting local festivals, restaurants, craft boutiques, learning handicrafts typical for biosphere reserve etc.) boosting the local economy. However, these economic consequences need further deeper research.

From a wider point of view, at the macro level, the slow tourism may have various social consequences, such as changes in social trends, social norms, and values. Specifically, new social trends and social norms will emerge when more people are engaged in slow tourism (not only in biosphere reserves). This topic might be a considerable research gap that should be addresses in further studies (Klarin et al. 2023).

The relationship between slow tourism and travel and macro-level outcomes can be indirect as it stimulates individuals' environmental awareness and subsequent practices (Dickinson, Lumsdon, 2010

In: Klarin, 2023). It is thus anticipated that when individuals form or strengthen their pro-environmental beliefs as a micro-level outcome during slow tourism and travel, in a broader context they tend to disseminate these environmental-friendly attitudes, values and practices to their social reference groups. Collective pro-environmental beliefs can be further developed, as an important part of macro-level outcomes.

Klarin et al. (2023) state that slow tourism and travel have a lingering effect on society, economy, and environment; in which it motivates individuals and wider societies to engage in greener and more sustainable behaviours which collectively through slow tourism and travel, can bring about more positive environmental changes and reduce negative environmental and societal impacts on us at a macro level.

2. METHODOLOGY

The primary source of data are statistical data on the tourism collected by the Slovak Statistical Office and the official information published on the websites of the Poľana biosphere reserves, municipalities belonging to its territory, State nature protection of the Slovak Republic and UNESCO. All data collected was utilized to evaluate the potential of the biosphere reserve area for the advancement of slow tourism activities. In order to enhance readability, we have presented the data in tables and figure. Another source of information is knowledge obtained through primary research in the territory of the Poľana biosphere reserve in the segment of tourists, residents and local government management (Vaňová et al., 2023; Sýkorová, 2023; Vitálišová, Vaňová, Rojíková, 2022; Rojíková, et al., 2021). We apply this knowledge through empiricism when evaluating statistical data and making proposals. Based on the results of our analysis, we formulate recommendations how to strengthen slow tourism in Poľana biosphere reserve. The examples of good practice information is derived from our secondary research or empirical evidence gathered during research trips to the destinations mentioned.

3. POTENTIAL FOR DEVELOPMENT OF SLOW TOURISM IN POĽANA BIOSPHERE RESERVE

The territory of Slovakia is rich in beautiful and protected areas. There are four biosphere reserves located in the Slovak Republic, namely: Poľana biosphere reserve in the central part, Tatra biosphere reserve in the north, Slovak karst biosphere reserve in the south-east and East Carpathians biosphere reserve in the north-east of Slovakia. The object of our research is Poľana biosphere reserve, which it is the oldest and the smallest biosphere reserve in the Slovak Republic and is characteristic by the lowest number inhabitants with permanent address.

The Poľana Biosphere Reserve is situated in the central part of Slovakia. It is one of the greatest former European volcanoes (approximately 2500 m above sea level) and it is the highest volcanic mountain range in Slovakia. The volcanic origin and the resulting geomorphological structure caused the creation of a unique wealth of surface shapes, e.g. rock walls, lava flows, boulders, rock places, stone seas, rock towers, waterfalls. The main attractions of the territory represent numerous rock formations such as Veporské skalky, Melichova skala, Kalamárka, Jánošíkova skala or a 15 metres tall waterfall in the valley Bystré (UNESCO, 2024)

Forest covers almost 85% of the Poľana with the slight majority being coniferous forests, the rest being deciduous one. Many of them have a character of primeval forest. The forest system is very diverse from oak forests to spruce forests growing on andesites.

There are about 1220 species of higher plants in the area, and it is also rich in lichens and mosses. Out of which 80 species are in categories of protection, threat and rareness. The variety and species-richness of the fauna in the Poľana reflect its environmental diversity. There are many biogeographically outstanding and biosociologically significant animal species, whose rare populations are often endangered and thus strictly protected. There are 174 species of birds in the area. In consideration of occurrence of endangered and rare bird species, the Poľana has been recognised as Important Birds Area of Slovakia. From the administrative point of view, the territory covers partially the districts of Banská Bystrica, Zvolen, Brezno and Detva. For the territory of BR is typical rare settlement and only very few people have their permanent address there.

The core zone of biosphere reserves consists of six scattered territories that are not regulated, just preserved, and aimed at research. The buffer zone is primarily focused on forest management and agriculture to preserve unique fauna and flora. In the transition zone, all economic activities are realized in line with the interests of nature protections (Vitališová et al., 2023). The zones of Poľana biosphere reserve are illustrated on Figure 1.
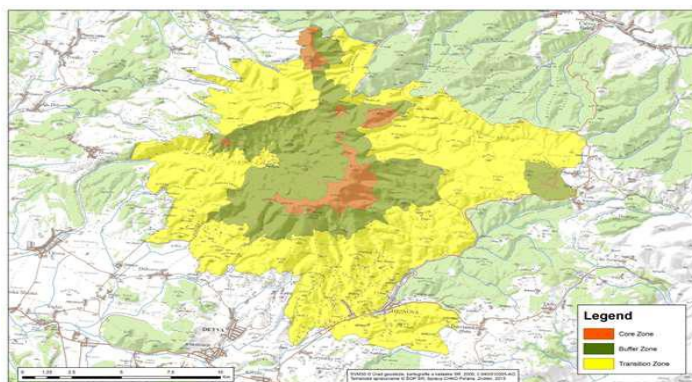
Figure 1 Zones of Poľana biosphere reserve

The landscape of the biosphere reserve is unique, exceptional, and perfect for slow tourism. There are mosaics of small-block strip plowing, alternating with meadows and pastures on former fields,

spanned by borders, in places overgrown with willows, brambles, and wild cherries. The area is typical of the agricultural activities realized by the traditional way (e. g. mowing with a hand scythe, sheep grazing). From the ethnological point of view, traditional settlements were made from wood and constructed in specific composition – house, haylofts, potato cellars, farm buildings. The unrepeatable character of the landscape is formed by the wooden painted crosses and preserved folk art traditions. It is closely connected with the specific folklore, traditions and habits of local community. This is also reflected in the characteristic form of settlements called "lazy", the scattered settlements alone or in small groups in rural zone with agricultural and animal production for their own purposes. At the territory of biosphere reserves there are only three settlements, one recreation centre, several farm and forest houses. (Beňušková, 2017, Vaňová et al., 2023).

Poľana biosphere belongs to the least urbanized territories in the Slovak Republic (less than 2 inhabitants pre km^2). The average age of inhabitants is quite high, the majority of them are retired. Lack of appropriate work possibilities causes that people commute to towns, mainly to district towns (Detva, Zvolen, Brezno). Nowadays, approximately 3900 inhabitants have their permanent address in the transition area. According to the primary research conducted through guided interviews with representatives of the local government, residents, and management of the biosphere reserve, the younger generation has been leaving the region due to a lack of appealing job opportunities. Most of them are moving to the western part of Slovakia or abroad (Vaňová et. al., 2023).

The territory of biosphere reserve is famous for unique and specific culture traditions represented by many folklore groups and beautiful local garb. Culture traditions are sources for unique experiences not only for many visitors, but for locals as well. The international festival called Folklore Festival Poľana has long tradition and has been organised since 1966. At festivals, people remember their historical roots and historic garbs express their adherence to home region. In the biosphere reserve there are several museums, located in different parts of the region, those remind the rich traditions and history. In Očová, there is a form of craft yard, Podpolianske museum in Detva, House of Arts Arteska in Detva, Forestry OpenAir Museum in Vydrovo etc. The biosphere offers wide range of cultural activities for tourists.

In this region, horses and traditional agricultural tools are still used for agricultural work. The specific architecture and culture of the territory is formed by the traditional wooden houses, haylofts, potato cellars, wooden painted crosses. The agriculture in Poľana is represented mainly by self-employed farmers, engaged in both plant and animal production. Most agricultural land is permanent grassland used for cattle breeding by self-employed farmers as well as agricultural cooperatives. However, the traditional agricultural practices disappeared due to inhabitants' withdrawal (Action plan of biosphere reserve Poľana, 2014; Fabirciusová et al., 2015). Because of this trend, the share of grass land in the

territory has decreased twice during the last 50 years which is reflected also in increasing number of endangered spaces in fauna and flora (Gallayová, 2008).

The territory of Poľana biosphere reserve is a hiking and cycling destination. There are more than 300 km of cycle round and many hiking destinations. There are a few places that are very popular for rock climbing e. g. Kalamárka. The biosphere reserve is rich in wild animals and offers wild animals watching and some hunting grounds for red deer and large beasts. For fans of fishing, local pure springs offer great opportunities to catch salmon-trout fishes (Vitališová et al., 2023).

For the future development of slow tourism in the biosphere reserve, it is crucial to discover innovative ways to showcase its unique and diverse natural and cultural features while also ensuring the continued conservation and sustainability of its specific natural conditions. In this region, the biosphere reserve management conducts numerous engaging and successful marketing initiatives (Vaňová et al., 2023; Rojíková, et al., 2021). The development of tourism, according to ideas of slow tourism, could contribute to solve the problem with insufficient and unattractive job offers for young generation, raising awareness of the local territory, agricultural land management, improve the offer of services for visitors as well as for local inhabitants, improve the skills of local people within offered services and finally raise the standard of living of local community.

The first step is to build or rebuild the tourism infrastructure. Since the borders of the biosphere reserve are natural and statistical data is only available for administrative units, we used data collected at the municipal level along with data collected at the district level. The data collected for districts only partially map the situation, as the biosphere reserve only covers a portion of four districts.

The accessibility of the territory, mainly cities, is relatively good by car, bus or even train. The problem is frequency of connections to the villages as well as to the starting points for tourists which should be fostered or strengthen at least during the seasons by shuttle busses or special tourist busses.

Table 2 provides statistical data from Statistical office of the Slovak Republic about number of available accommodation establishments that are located in the Poľana biosphere reserve. Generally, 37 accommodation establishments are deployed in Poľana biosphere reserve with the total capacity of 937 beds including camping grounds, although, accommodation facilities are not situated in each municipality. Most of the accommodation facilities are situated in district Brezno, but the biggest capacity of beds is deployed in district Detva. Besides officially published data, it is possible to identify many private owners of apartments and cottages that offer short-term renting with(out) official registration.

Indicator	Year						
	2023	2022	2021	2020	2019	2018	2017
District Banská Bystrica							
Number of available accommodation establishment	4	4	5	4	4	4	3
Capacity of accommodation establishments including camping grounds	125	121	131	121	123	123	113
District Brezno							
Number of available accommodation establishment	19	13	13	10	12	9	9
Capacity of accommodation establishments including camping grounds	370	235	184	146	221	250	141
District Detva							
Number of available accommodation establishment	14	13	12	15	13	11	8
Capacity of accommodation establishments including camping grounds	442	283	268	544	464	410	368
Total							
Number of available accommodation establishment	37	30	30	29	29	24	20
Capacity of accommodation establishments including camping grounds	937	639	583	811	808	783	622

Table 2. *Chosen indicators of tourism in Poľana biosphere reserve*

As our comparative research showed, the prices of accommodation facilities are highly acceptable compared to other competing territories. The highest average prices for accommodation are in district Banská Bystrica, and the lowest prices are in district Brezno (Table 3).

District	Year						
	2023	2022	2021	2020	2019	2018	2017
Banská Bystrica	41,1	35,2	31,1	31,4	28,6	27,7	24,1
Brezno	19,6	16,3	N/A	N/A	12,2	11,4	13,1
Detva	33,7	N/A	N/A	N/A	19,8	N/A	N/A
Zvolen	47,6	42,3	N/A	N/A	33,5	36,2	41,3

Table 3. *Average price for accommodation (in EUR) in the territory of Poľana biosphere reserve*

In accordance with the principles of slow tourism, the focus should be on types of accommodation that allow for an understanding of the local environment, traditions, and values. Attention should be given to promoting the development of camping sites, the rental of rural houses, or the utilization of unused cottages, which can create new sources of income for local communities. A great opportunity for residents is to offer accommodations to tourists. Poľana is characterized by scattered settlements made up of a few distant buildings. Due to the decline in agricultural production, many of them are no longer used. They could be reconstructed to the plain accommodation premises with some unique features or experience, such as sleeping on hay or sleeping "off" without electricity and mobile connections etc.

Similar tourism infrastructure is developed in Altai, in Russia in a form of camp consisting of small cottages with common toilets and bathrooms for hiking tourists (Vitališová et al.,2023)

The area of biosphere reserve is well known and rich in local handmade crafts products and food products made from honey, pork and beef meat, sheep and cow milk and bakery products. With the aim to support local producers of crafts, food and services, local action group established in 2011 regional quality mark "Podpoľanie" for products and services made within biosphere reserve. Nowadays the regional quality mark obtained 27 craftsmen, 8 food producers, 3 restaurants serving traditional meals in municipality of Kriváň and Detva and 3 providers of accommodation (Regionálny product Podpoľanie, 2024). The regional quality mark is a guarantee of originality and quality of provides services or products. Understanding and promoting the philosophy of regional products can help the region to develop according to the features of slow tourism, specifically it can help the visitors the understand the local culture, traditions and habits. According to Sýkorová (2023) regional quality mark could be source of competitive advantage of a region.

The development of slow tourism should contribute to support of local producers (farmers, craftsmen) and local providers of services (accommodation, gastronomy, guided tours etc.). In Poľana biosphere reserve there is sufficient area of agriculture land but insufficient number of skilled workers and lack of regional markets. One of solution could be cooperation between municipalities and local farmers. For example, in Bosnia and Herzegovina a project called the Herzog House located in Trebinje, helps farmers to produce, sell and earn more, without spending time on markets. The city sells the farmers' products through shops under the label of Herzeg House. Herzeg house has won 'Green Destinations top 100 sustainable stories' competition as the shortest supply chain from the farm to the customer (Scholz et al., 2024). Similar solution could be found in Switzerland in Entlebuch biosphere reserves, where local stakeholders established local company (Biosphere Markt AG) responsible for promotion of local product produced in the biosphere reserve under the regional quality mark called "Echt Entlebuch".

Moreover, close to the territory of Poľana, there are at least 2 high schools that deliver the study programmes in agriculture (Banská Bystrica, Rimavská Sobota) and based on the principles of dual education the students could be trained by self-employed farmers and agricultural cooperatives (UNESCO, 2023).

Despite the great natural potential, the Poľana biosphere reserve is not adequately promoted, few visitors spend there their vacations. The employees of the Protected Landscape Area Poľana perform promotional activities more or less as voluntary ones, which is reflected in the scope of activities. The educational promotion activities are also in the hands of the Protected Landscape Area Poľana in a

form of workshops, conferences, special lessons for children at very high professional level (Vaňová et al., 2023).

Information on the territory is available to visitors in several info centres – directly in the territory of biosphere reserve in municipality of Hriňová, others in the district cities of Zvolen, Detva, Banská Bystrica, Brezno. In smaller municipalities, the tasks of info centres are usually realized by the municipal office. The possibilities of tourism as well as their promotion are mainly supported by the employees of the Protected Landscape Area Poľana through many events for the public and educational events for children and young people. There is no specific portal geared towards the promotion of Poľana as a (slow) tourism destination and the recognition of the title "biosphere reserve" is relatively low by residents as well as by tourists (Vaňová et al., 2023; Vitálišová, Vaňová, Rojíková, 2023). Advances in social media allow tourists to share any information about their travel, personal experiences and opinions on social media. Social networks can thus be an excellent tool for promoting the offer of the territory and at the same time a tool through which the target audience can be educated (Rojíková et al., 2021).

A good example of raising awareness of the importance of nature conservation could be Geopark Karawanken (Austria/Slovenia): The Geopark strives to make its areas accessible to the general public by establishing and managing interpretational-informative infrastructure for visitors. Situated in front of protected areas of the park, the interpretation points not only inform the visitors, but also encourage them to connect with the outstanding geological, natural and cultural heritage of the area. Through gamifications and story-telling, the visitors can learn about the significance of nature conservation, geo- and biodiversity across the Austrian-Slovenian border. Over the past years, two main Geopark visitor centres have been established, namely the 'Podzemlje Pece' in Slovenia and the Geo.Dom on Petzen Mountain in Austria. Numerous interpretational points are strategically located throughout the Geopark Karawanken area. Examples include 'Smrekovec - an extinct volcano' and 'St. Hema Mountain - a 1,500-year-old pilgrimage site' (Scholz et al., 2024). Another example is Julian Alps biosphere reserve. The premises of the centres are used for various educational activities, workshops, local community activities. They include also a souvenir and gift shop with local products. During the summer, tourists can buy here a Bohinj Card that includes free transport by bus as well as free entrance tickets to various cultural attractions as churches, museums and other discounts. All discounts are provided with the aim to eliminate the carbon footprint and support public transport modes; to promote local producers and local cultural heritage (Vitališová, et al 2023). The promotion of the biosphere reserve as slow tourism destination should be done more systematically in cooperation and partnership with other local stakeholders, municipalities and Central Slovakia destination management organization.

Representatives from the Protected Landscape Area Poľana are very important coordinators of cooperation among local stakeholders. They implement the participative management approach in the development of biosphere reserve based on regular meetings and projects with representatives of local municipalities, entrepreneurs, NGOs and citizens (Vitališová et al, 2022).

CONCLUSIONS

This study investigates the potential of Poľana Biosphere Reserve in Slovakia in terms of slow tourism development. Based on academic and scientific literature as well as a survey carried out in the Biosphere Reserve Poľana, it investigates the potential of Biosphere Reserves for promoting slow tourism, given their emphasis on sustainable development and engagement with local communities.

The analysis, based on primary and secondary data sources, identifies numerous challenges facing the Poľana Biosphere Reserve. These challenges include a decreasing youth population due to limited job opportunities, waning interest in traditional agricultural practices, and a resulting decline in population. Despite these challenges, the research identifies a wealth of potential for slow tourism development within the reserve. Poľana Biosphere Reserve boasts exceptional natural beauty, rich cultural heritage, and unique products and experiences. However, as highlighted in previous studies (Vaňová et al., 2023; Vitálišová et al., 2022), the region suffers from a deficit in tourist infrastructure and integrated promotional efforts. Effective planning and development in Poľana Biosphere Reserve necessitate a participatory management approach, as evidenced by prior research. This collaborative strategy should encompass local and regional stakeholders, including government entities, entrepreneurs, and citizens, alongside national level actors.

The development of slow tourism in Poľana Biosphere Reserve should prioritize the protection of its unique natural resources while concurrently generating new employment and income opportunities for local residents. Integration of the slow tourism philosophy into the local development strategy hinges on broad community acceptance from all stakeholders. The study proposes that slow tourism development in Poľana Biosphere Reserve could yield a multitude of benefits. Potential outcomes include the creation of new job opportunities for younger generations, increased awareness of the local area, improved quality of life for residents, and the promotion of traditional crafts and agricultural products under a local brand.

Based on the research findings, the study recommends a multi-pronged approach to developing slow tourism in Poľana Biosphere Reserve. Firstly, it advocates for the construction, renovation, and promotion of tourism infrastructure, aiming to provide tourists with a unique experience steeped in the natural and historical character of the region. Secondly, the study underscores the importance of supporting local food and craft producers from an economic development perspective. To achieve

these goals, the study emphasizes the need for enhanced marketing and promotional efforts, particularly through social media platforms. Additionally, intensified collaboration among local stakeholders is deemed essential for the creation of a more cohesive tourism experience.

By implementing these recommendations, Poľana Biosphere Reserve has the potential to evolve into a more alluring destination for slow tourists seeking natural beauty, cultural immersion, and authentic experiences.

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EVALUATING DIGITAL SUSTAINABILITY IN EUROPE: ECONOMIC, SOCIAL, AND ENVIRONMENTAL DIMENSIONS

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ABSTRACT

This study examines the intersection between digitization and sustainability using the concept of digital sustainability as a theoretical lens, which emphasizes the need for responsible and sustainable use of digital technologies to contribute to the achievement of holistic sustainable development that can embrace within the economic, societal, and environmental dimensions. Despite the growing interest in digital sustainability, existing analyses in the literature are still fragmented and lack an all-encompassing view capable of exploring the multiple effects resulting from digital transformation from economic, social, and environmental perspectives. Therefore, this study aims to fill this research gap by examining the complex relationships between digital technologies and sustainability to understand the impact of digital transformation on the three dimensions aimed at achieving a more sustainable future for European countries. To meet this objective, the study proposes a composite index, the Digital Development Index (DDI), which can assess the three dimensions of digital sustainable development across the European Union. Specifically, based on 227 indicators from the Eurostat database, the DDI index reveals different degrees of digital development in the European context for the economic, societal, and environmental dimensions, showing advanced digital development in Western and Northern Europe and instead persistent disparities in Southern, Central, and Eastern European countries. Our study contributes to the state-of-the-art regarding digital sustainability by introducing a new composite index that quantifies the triple perspective of digital sustainability in the European context, shedding light on established trends and dynamics. In particular, the study provides managers and policymakers with an understanding of the areas of greatest gap, strategic actions to be implemented and priorities to be followed to be guided by the best practices of some benchmark countries in digital sustainable development.

Keywords: Digital Sustainability, Digital Technologies, Digital Transformation, DP2 Index, Europe, Sustainable Development.

INTRODUCTION

In recent years, significant transformations have unfolded due to the widespread adoption of digitization and information and communication technologies (ICTs) (Marolla, 2018). These changes have profoundly impacted the interconnectedness of individuals, societies, and countries. ICTs encompass devices, applications, and tools that influence various aspects of people's lives, work, access to goods and services, and interactions with the external environment (Dutton, 2004; European Commission, 2022).

Technological diffusion, exemplified by artificial intelligence (AI), machine learning (ML), blockchain, and the Internet of Things (IoT), has given rise to the digital imperative, introducing both opportunities and challenges (George *et al.,* 2020; Hammi *et al.,* 2018; Jarrahi, 2018). As with the most significant past technological revolutions, the ongoing digital transformation is expected to unleash multiple potential effects (OECD, 2017, 2020). Therefore, this paper aims to comprehensively observe the different effects of countries' digital transformation on their economic, social, and environmental dimensions.

Indeed, it has simultaneously emerged how the sustainable imperative also represents a critical and pressing concern that wealth creation should meet the basic needs of the current population without compromising the ability of future generations to meet their own needs (Bansal, 2019). Global challenges, ranging from climate change to resource scarcity, underscore the necessity for coordinated efforts across corporate, community, regional, and state levels (George *et al.,* 2016). In the contemporary era, success is not enshrined only from an economic perspective but also from an environmental and social perspective, recognizing how deeply interconnected these dimensions are (Kiron and Unruh, 2018).

From the intersection of the digital imperative and the sustainable imperative emerges the concept of digital sustainability (DS) (George *et al.,* 2020; Pan *et al.,* 2022). Despite the historical view of the conflict between digitization and sustainability, DS combines these strategic goals to achieve positive changes and synergies, emphasizing responsible and sustainable use of digital technologies (Markman et al., 2016). Digital sustainability is a theoretical lens to address current challenges and a catalyst for achieving various goals, including the Sustainable Development Goals (SDGs) (European Commission, 2010; Pan and Zhang, 2020).

The SDGs, devised by the United Nations, constitute 17 goals toward achieving global challenges by 2030, like promoting sustainable economic growth, inclusive societies, and responsible practices. Balancing economic, social, and environmental needs is essential, as reflected in the EU 2020 development strategy (European Commission, 2010). However, disparities in ICT adoption and development among countries result in diverse economic, social, and environmental impacts (Gao *et*

al., 2022). Therefore, it is crucial to redirect technological progress toward greater digital sustainability that can foster valuable opportunities (Del Río Castro *et al.,* 2021). However, to truly understand the scope and effects of digital disruption on the economic, social, and environmental development of European countries, this study aims to assess how digital development in the European context has affected these three dimensions. Despite the growing interest in digital sustainability in the literature, there is still a lack of studies that comprehensively and thoroughly observe the multifaceted effects of digital transformation in the European context. Existing studies often focus on single dimensions of sustainability, leaving a gap in understanding the comprehensive potential of digitization.

To address this gap, this study aims to evaluate and characterize the level of Digital Development in the European context, examining advancements across three essential dimensions—Digital Economy, Digital Society, and Digital Environment. Employing a quantitative aggregative approach and constructing the Digital Development Index (DDI) based on 227 indicators from the Eurostat database, this research seeks to provide insights into the current state of Digital Development in European countries. The findings aim to inform policymakers, researchers, and stakeholders involved in shaping strategies and initiatives for fostering digital progress in the European landscape.

LITERATURE REVIEW

Sustainable development is rooted in the interconnection between economic prosperity, social equity, and environmental integrity (Alaimo *et al.,* 2021; Bartiromo and Ivaldi, 2023; Elkington, 1994; Ivaldi *et al.,* 2023; Purvis *et al.,* 2019). Aspects that come together in the concept of digital sustainability which encapsulates the importance of triple economic, social, and environmental dimensions (George *et al.,* 2020; Pan *et al.,* 2022; Brenner and Hartl, 2021). While digitization is a key enabler of economic development, social inclusion, and environmental protection (OECD, 2017; United Nations, 2015), it poses new challenges that need to be managed to avoid or contain potential negative effects (Brenner and Hartl, 2021; George *et al.,* 2020; Paiola *et al.,* 2021). Therefore, from these considerations comes the need for an in-depth understanding of how digital transformation has affected the development of the digital economy, digital society, and digital environment of different countries.

Digital technologies drive economic growth, supporting inclusive development and job creation aligned with SDG 8 (United Nations, 2015). ICTs foster digital economic and financial development through the promotion of tools such as mobile banking and digital wallets (Pradhan *et al.,* 2021). A crucial aspect of the digital economy is e-commerce which enhances global access to goods and services, reducing costs and generating new employment (Criveanu, 2023). Governments play a pivotal role by investing in digital infrastructure to ensure market competitiveness (Raj *et al.,* 2020).

Within social development, digitization addresses SDG 9 and SDG 10, aiming at inclusive innovations and reducing inequalities. Access to technology and digital skills development has a strong impact on social participation and digital inclusion (Helsper, 2008; Fisk *et al.*, 2023). For example, technology influences citizen participation by fostering greater electronic governance (Yong *et al.*, 2020; Paiola *et al.*, 2021). However, these technological advancements also bring challenges related to the privacy and data protection of society members (Acquier *et al.*, 2017; Romansky and Noninska, 2020; Suherlan, 2023).

Environmental sustainability, embodied in SDGs 7, 12, 13, and 15, underscores the intricate link between digitization and environmental impact (Karlilar *et al.*, 2023). ICTs contribute to the creation of digital environmental development characterized by increased energy efficiency enabled by smart energy systems (Lange *et al.*, 2020; Liu and Lu, 2021). However, increased ICT use raises concerns about energy consumption and CO_2 emissions, necessitating management aimed at pursuing a balance between benefits and negative environmental effects (Gao *et al.*, 2022; Andersen *et al.*, 2021). Indeed, digitization leads to more efficient processes but, at the same time, fuels e-waste and potential environmental degradation (Criveanu, 2023; Aksin-Sivrikaya and Bhattacharya, 2017).

In conclusion, this literature review shows how digitization can create ambivalent outcomes for sustainable development in its triple economic, social, and environmental dimensions if not managed appropriately. Therefore, the complex relationship between digital technologies and sustainability necessitates continuous research and strategic interventions to fully exploit the positive potential of digitization for a more sustainable future.

METHODOLOGY

To pursue the research aim, we employed a quantitative aggregative methodology centered on index construction. Data for the comprehensive composite index comes from the Eurostat database. Eurostat's data covers a broad spectrum, including the economy, society, environment, and digital technologies.

We focused on indicators related to the Digital Economy, Digital Society, and Digital Environment within the "Digital Economy and Society" and "Environment and Energy" repositories. Indicators with missing data exceeding 50% of the sample's statistical units were excluded. Valid data for 227 indicators constituted our final dataset.

The scope of the country-level analysis was limited to the EU-27 due to incomplete data availability for non-EU units. For selected countries with missing indicator data, imputation was done using the horizontal mean calculated on standardized data.

Our investigation employed the DP2 Distance (Montero *et al.,* 2010; Pena, 1977; Somarriba and Pena, 2009), a non-compensatory parametric index relying on the linear regression model. This approach addressed challenges such as different units, arbitrary weights, and handling duplicate information (Bruzzi *et al.,* 2020; Ivaldi and Ciacci, 2021; Penco *et al.,* 2020). After adjusting polarity and imputing missing data, raw indicators were aggregated into sub-dimensions, each contributing to first-level dimensions like Digital Economy, Digital Society, and Digital Environment. These first-level dimensions were then aggregated into the composite concept of Digital Development.

The multi-stage statistical construction procedure for the overall Digital Development Index (DDI) involved collecting raw indicators (1), adjusting polarity (2), imputing missing data (3), aggregating into sub-dimensions (4), constructing first-level dimensions (5), and calculating the overall DDI by aggregating the three first-level dimensions (6). Higher DP2 scores signify positive Digital Development, while lower scores indicate less favorable conditions.

The DP2 indicator assesses each country's deviation from a reference baseline, representing the theoretical region with the lowest values for the examined indicators. For a given area j, the DP2 indicator is defined as follows:

$$DP_{2j} = \sum_{i=1}^{n}\left\{\left(\frac{d_{ij}}{\sigma_i}\right)\left(1 - R^2_{i,i-1,i-2,\ldots,1}\right)\right\}$$

where: i = 1, …, n; (areas) and j = 1, 2, …, m (indicators)

$d_{ij} = \left|x_{ij} - x^*_{ij}\right|$ represents the difference between the value of the i-th indicator in the j-th area and the minimum value of the indicator in the least desirable theoretical scenario, which is the reference value of the matrix X.

σ_i is the standard deviation of indicator i;

$R^2_{i,i-1,i-2,\ldots,1}$ is the coefficient of multiple linear correlation squared in the linear regression of X_i over X_{i-1}, X_{i-2}, …, X_1. It indicates the proportion of the variance of X_i. that is linearly explained by the indicators X_{i-1}, X_{i-2}, …, X_1. This coefficient is a dimensionless number and is independent of the measurement units of the different indicators.

Subsequently, a cluster analysis was conducted to classify countries based on their scores along the three sustainable development dimensions and the overall DDI. The hierarchical cluster method suggested a configuration of 5 clusters, aligning with the outcome obtained through k-means clustering with 5 clusters, offering insights into regional trends. Higher clusters indicate better results.

RESULTS

Digital Economy

In assessing Digital Economy levels across European countries, distinct stratification emerges clearly. Finland leads with a score of 6.34, showcasing a robust technological infrastructure supporting digital business performance and the ICT workforce. Sweden (5.58) and the Netherlands (5.61) follow closely, displaying formidable digital economies and innovative business structures, particularly in e-commerce. Denmark (5.47) also holds a robust Digital Economy, emphasizing its integration of technology into the economic fabric. Luxembourg (4.34) and Malta (4.56) emerge as highly digitalized countries in the economic sector. In the mid-range, Ireland (4.20), Austria (4.29), Belgium (4.02), and Germany (3.80) exhibit moderate digitalization. The less developed countries in terms of Digital Economy include Hungary, Slovenia, Greece, Poland, and Romania (0.75 to 1.76). Cyprus (1.41) and Latvia (1.16) fall below the average, while Italy (1.99) shows a moderate level of Digital Economy. Bulgaria has the lowest score (0.00), indicating minimal digitalization, primarily attributed to slow technology adoption within enterprises and lower individual propensity for online transactions.

In spatial analysis, Nordic and Northern European countries consistently lead in Digital Economy scores, showcasing regional dedication to advanced technology. Northern European nations outperform their counterparts in Southern and Eastern Europe, reflecting a regional trend. Western European countries generally exhibit moderate to high digitalization levels. Southern and Eastern Europe show varied digital landscapes. Baltic nations excel, influenced by proactive digital innovation, while Central Europe shows diverse digitalization levels.

Digital Society

In evaluating Digital Society across European countries (Table 3), distinct scores reveal varying degrees of technological advancement. The Netherlands leads with a score of 7.94, showcasing advanced digital infrastructure. Spain (5.28), Malta (6.30), and Denmark (6.42) also exhibit strong digital societies, featuring high technological integration. Germany, France, and Belgium fall mid-range (3.79 to 4.86), displaying moderate digitalization. Italy, Czechia, Portugal, and Estonia show balanced digitalization (3.03 to 4.54). Slovenia, Lithuania, Croatia (2.51 to 2.87), Latvia (2.54), and Greece (1.66) face challenges in certain aspects, indicating areas for improvement. Poland, Romania, and Bulgaria have lower scores, highlighting significant gaps in Digital Society that need strategic interventions.

In the regional context, Northern European nations and Western European counterparts lead in developing their Digital Society dimensions. Southern European nations generally show moderate development, leaving room for improvement. Eastern European and Baltic countries present a varied

landscape; some (Czechia, Hungary, Estonia) exhibit balanced development, while others (Slovakia, Slovenia, Lithuania, Croatia) face challenges. Southeastern European nations encounter significant hurdles in achieving advanced digital societies, emphasizing the need for substantial investments and strategic initiatives to spur digital growth.

Digital Environment

The Digital Environment levels in selected European countries offer insights into their technological landscapes, emphasizing the integration of digital technologies for environmental sustainability. Italy (7.00) and the Netherlands (6.75) lead, showcasing a robust digital infrastructure. Germany (6.15) and France (6.06) closely follow, demonstrating proficiency in leveraging digital technologies for environmental initiatives. Spain (5.79) exhibits a well-established digital presence with implications for environmental progress. Belgium and Austria, with scores around 4.70 and 4.31, signify a reasonably developed Digital Environment, contributing to sustainable practices. Top scorers excel in circularity, material reuse, and energy sustainability and efficiency. However, challenges persist in waste management for more developed economies, partly due to electrical waste. Moving towards the lower end of the ranking, Hungary, Slovenia, and Lithuania (below 3.00) are in an early stage of development, with environmental initiatives yet to be fully realized. Bulgaria (1.57) highlights a need for improvement in digital environmental sustainability, particularly regarding resource efficiency.

Analyzing broader regional trends in Digital Environment levels, Northern European countries consistently exhibit high scores. Southern European countries, like Spain and Italy, also perform well but at a slightly slower pace. This indicates a regional trend where Northern Europe leads in the Digital Environment sphere. Eastern European countries tend to have lower scores, suggesting a potential divide between Eastern and Western Europe.

Digital Development Index (DDI)

Assessing the overall Digital Development Index (DDI) of European countries reveals a clear hierarchy, with the Netherlands leading the landscape with a score of 7.90, affirming its frontrunner position in digital development. Spain (5.43) and Malta (5.42) secure the second and third positions, showcasing substantial digital presence in Europe. Denmark, Germany, and France (scores around 5) maintain a competitive edge, demonstrating strong digital economies, societies, and environments. Belgium, Sweden, and Luxembourg follow closely, contributing significantly to Europe's digital development. Ireland, Austria, Italy, and Finland (scores around 4.5) exhibit a solid commitment to digital development, reinforcing Europe's digital competitiveness. Moving to the middle range, Czechia, Portugal, and Estonia reflect moderate levels of digital development. Cyprus, Slovakia, Hungary, and Slovenia (scores between 2.63 and 2.51) show growing digital infrastructure. Lithuania and Croatia maintain a digital presence with scores around 2.1. At the lower end, Greece and Poland

face challenges, Romania shows potential for growth, and Bulgaria indicates minimal digital development, emphasizing the need for focused efforts in establishing digital infrastructure and mindset.

Analyzing the DDI scores across European countries reveals distinct regional patterns. Top-performing countries like the Netherlands, Spain, and Malta showcase advanced digital infrastructures, emphasizing a Western European concentration of digital prowess. Central and Northern European nations exhibit a collective commitment to robust digital landscapes. Their strong digital foundations signify a shared emphasis on technology for economic growth, business competitiveness, enhanced digital connectivity, literacy, and environmental sustainability. In Southern Europe, Italy aligns with the regional trend of solid digital presence, while Greece lags behind, suggesting potential disparities in digital development. Central and Eastern European countries show moderate digital development, indicating a gradual progression with room for growth. Southeastern European countries face challenges in robust digital development, indicating the need for targeted interventions. Outliers like Luxembourg and Ireland surpass regional expectations, emphasizing the impact of unique national strategies on digital standing.

Countries	DECO scores	DECO ranks	DECO clusters	DSOC scores	DSOC ranks	DSOC clusters	DENV scores	DENV ranks	DENV clusters	DDI scores	DDI ranks	DDI clusters
Austria	4,21	8	4	4,76	10	4	4,31	7	3	4,60	11	4
Belgium	4,02	9	4	4,86	9	4	4,71	6	3	4,83	7	4
Bulgaria	0,00	27	1	0,39	27	1	1,57	27	1	0,00	27	1
Croatia	2,04	17	2	2,51	22	2	2,63	18	2	2,09	22	2
Cyprus	1,41	24	2	3,91	16	3	2,31	20	1	2,63	17	2
Czechia	2,80	14	3	4,54	11	3	3,49	13	3	3,82	14	3
Denmark	5,47	4	5	6,42	2	5	3,23	15	2	5,22	4	4
Estonia	3,13	11	3	3,96	14	3	2,37	19	1	2,98	16	3
Finland	6,34	1	5	5,80	4	4	2,21	22	1	4,50	13	4
France	2,87	13	3	4,12	12	3	6,06	4	4	4,89	6	4
Germany	3,80	10	4	3,79	17	3	6,15	3	4	4,90	5	4
Greece	1,68	22	2	1,66	25	1	2,24	21	1	1,35	24	1
Hungary	1,66	23	2	4,11	13	3	1,80	26	1	2,54	19	2
Ireland	4,29	7	4	5,56	5	4	3,47	14	3	4,65	10	4
Italy	1,99	19	2	3,03	18	2	7,00	1	5	4,59	12	4
Latvia	1,16	25	2	2,54	21	2	2,78	17	2	2,04	23	2
Lithuania	1,80	20	2	3,02	19	2	2,17	24	1	2,12	21	2
Luxembourg	4,34	6	4	5,38	6	4	3,78	11	3	4,71	9	4
Malta	4,56	5	4	6,30	3	5	4,07	8	3	5,42	3	4
Netherlands	5,61	2	5	7,94	1	5	6,75	2	5	7,90	1	5

Poland	1,76	21	2	1,68	24	1	2,00	25	1	1,25	25	1
Portugal	2,04	18	2	3,92	15	3	3,94	9	3	3,56	15	3
Romania	0,75	26	1	1,15	26	1	2,19	23	1	0,87	26	1
Slovakia	2,68	16	3	2,16	23	2	3,71	12	3	2,54	18	2
Slovenia	2,68	15	3	2,87	20	2	2,83	16	2	2,51	20	2
Spain	2,94	12	3	5,28	7	4	5,79	5	4	5,43	2	4
Sweden	5,58	3	5	5,02	8	4	3,89	10	3	4,77	8	4

Table 1: DP2 scores, ranks, and clusters.

DECO=Digital Economy; DSOC=Digital Society; DENV=Digital Environment; DDI=Digital Development Index.

Higher scores indicate better results; lower ranks indicate a better positioning; higher clusters indicate better performance.

DISCUSSION

The analysis, driven by the construction of the Digital Development Index (DDI), delves into the tripartite dimensions of digital sustainability – economic, social, and environmental (Brenner and Hartl, 2021; George *et al.*, 2020; Pan *et al.*, 2022). The study reveals a distinct digital hierarchy in the European landscape, with the Netherlands leading in robust digital development across Digital Economy, Digital Society, and Digital Environment. Noteworthy achievements in digital development are attributed to national strategies, such as the Dutch Digitalisation Strategy 2.0 (European Union, 2022). Spain, Malta, Denmark, Germany, and France also emerge as competitive players, showcasing well-established digital economies, societies, and environments through strategic initiatives and national plans (European Union, 2021; European Union, 2023a). However, challenges persist in countries like Greece, Poland, Romania, and Bulgaria, emphasizing the need for concentrated efforts to enhance digital infrastructure and foster a digital mindset.

The spatial analysis also uncovers regional clusters in Western and Northern Europe, underscoring the necessity for nuanced approaches to address diverse challenges and opportunities.

Therefore, sustainability is imperative for digitization. Indeed, uncontrolled digitization could lead to a digital divide, posing new threats and increasing vulnerability. Preventing this occurrence emphasizes the importance of a responsible and sustainable approach to technology adoption, considering the potential consequences of technologies and approaching digitization in a manner that upholds sustainability and ethical principles. The study points out that while digitization is critical to accelerating social and sustainable transitions, achieving sustainable digitization is a complex task that depends on multiple aspects. The numerous tensions arising from interconnected goals necessitate a systemic perspective and effective governance to protect and maintain security and trust in the digital

landscape. The analysis acknowledges the challenges of achieving a sustainable net benefit due to these tensions.

IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH AREAS

The article aims to revive the debate around the concept of digital sustainability, highlighting the progress made by some countries and the difficulties encountered by others through the creation of a composite index capable of considering the triple economic, social, and environmental dimensions of digital development.

The gaps in some areas need strategic interventions and significant investments to stimulate the achievement of sustainable digital development like that achieved by some benchmark countries. Lagging countries could learn from the strategies and actions implemented by leader countries in these three dimensions to try to identify trends and lines of development suitable for the pursuit of long-term sustainable development. Therefore, it becomes crucial to understand which dimension impacts most on overall development, conducting a cost-benefit analysis, and which priorities to draw up, also depending on an individual country's available skills and resources to achieve this final goal.

Despite contributing significantly to the state-of-the-art, the study recognizes its limitations. The focus on the broader digital landscape rather than specific technologies prompts the need for future research to address emerging technologies' governance challenges. Technologies like blockchain and the metaverse, rapidly evolving, require in-depth assessments of their consequences. The study calls for further exploration of individual, organizational, and societal dynamics, considering collaboration and coordination among various stakeholders, such as policymakers, governments, businesses, organizations, and citizens. Indeed, the achievement of Sustainable Development Goals (SDGs) is identified as highly dependent on the close collaboration, cooperation, and coordination of these stakeholders.

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CUSTOMER ENGAGEMENT ON E-MARKETPLACE CONVERSATION: LAZADA THAILAND

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ABSTRACT

This work aims to explore the characteristics of marketer-generated content (MGC) affecting customer engagement on an e-marketplace's social media (SM). Data included 1,054 tweets posted by Lazada Thailand in a 6-month period. Contextual, informational, and brand characteristics as well as the addition of vivid and timing characteristics were investigated. Content analysis for informational characteristics regarding the service marketing mix (7Ps) was conducted by ChatGPT-3.5. Descriptive statistics and regression analyses were used to describe data and evaluate hypotheses. Results supported the influence of contextual (mentions, tweet length), vivid (media type), informational (people and process), brand (brand mentioned), and timing (weekends and working time) in both positive and negative ways. The findings offer valuable guidelines for researchers in including the 7Ps to study e-commerce/ platform businesses and for marketers in employing proper MGC characteristics to effectively communicate to customers. This research shows the application of the popular generative AI (ChatGPT-3.5), whose performance in analyzing textual data is extensively supported by literature, to extract keywords of 7Ps instead of human coders.

Keywords: social media marketing, Twitter, 7Ps, marketing mix, media type, content strategy, customer engagement, Lazada, e-commerce, e-marketplace, ChatGPT

INTRODUCTION

The purpose of this study is to investigate the impact of contextual, vividness, informational, brand, and timing characteristics in an e-marketplace's conversation on followers' engagement.

E-commerce nowadays is the main medium for many businesses to reduce their time, costs, and errors, achieve their goals, and promote their competitive advantages (Barus, 2023, Paredes-Corvalan et al., 2023, Subhan and Thalib, 2022, Ehsani and Hosseini, 2023). E-commerce market value in Thailand has continued to increase meaningfully. E-marketplaces are the most preferred platforms for

online shopping among Thais, while Shopee, Lazada, and Central Online are top choices (Statista Inc., 2023a, Statista Inc., 2023b).

Thais are very active on social media (SM). According to Statista Inc. (2023b), Thai people spend time on SM almost 3 hours daily. Listening and monitoring SM also allow brands to engage with customers in real-time (Harrison and Kwon, 2023). Social media marketing (SMM) could increase sales, generate traffic to online platforms, increase brand awareness, promote trust, enhance user interactions on e-commerce platforms, and so on (Kutela et al., 2022, Grover and Kar, 2020, Weerawatnodom et al., 2017, Husna et al., 2022).

Twitter is a type of SM (microblogs) that becomes a tool for marketing and interaction with prospective customers (Garcia-Rivera et al., 2022, Kutela et al., 2022, Antonakopoulou and Veglis, 2022). Most companies apply microblogs for SMM (Grover and Kar, 2020, Sridevi et al., 2020). Twitter enables marketer-generated content (MGC) to be easily disseminated (Weerawatnodom et al., 2017, Lahuerta-Otero et al., 2018, Alboqami et al., 2015, Purohit et al., 2013). However, marketers and researchers still do not have a clear understanding of which message strategies or content features cause customer engagement as well as electronic word-of-mouth (eWOM) (Sridevi et al., 2020, Weerawatnodom et al., 2017) (Chu and Sung, 2015).

Engagement in SM represents the commitment and bond between a brand and its customers (Garcia-Rivera et al., 2022). Higher customer engagement leads to superior organizational performance (Muñoz-Expósito et al., 2017). For Twitter, the reach of a company's messages depends on followers' sharing (Manzanaro et al., 2018), which FAV and RT are signs of engagement (Paredes-Corvalan et al., 2023, Liu et al., 2021, Shakeel et al., 2020, Grover and Kar, 2020). Customer engagement is largely driven by content (Menon et al., 2019, He et al., 2016). Hence, it is important to investigate how SM content affects engagement (Achen et al., 2020). The introduction of marketing-mix details and information could be one activity on SM (Tsimonis and Dimitriadis, 2014). There are positive and significant relationships between marketing-mix efforts and brand equity (Azad et al., 2012).

For service marketing, marketing-mix (7Ps) information consists of product, price, place, promotion, people, process, and physical evidence. This concept is applied to capture new shopping phenomena such as live streaming shopping (LSS) in the study of Ho et al. (2022). Nevertheless, these key contents do not test quantitatively about their relatedness with customer engagement, particularly in the e-commerce industry.

Each SM plays a different role in developing customer-brand relationships. As such, understanding how engagement happens among each SM platform is needed (Menon et al., 2019). There are problems where some firms post huge amounts of content but receive little or no impact. Besides, the lack of research presents a comprehensive assessment, classification, and analysis of SMM strategies for effective SMM practices (Coursaris et al., 2014). There are few studies on quantitative investigation for what kind of format of a tweet can draw more customer engagement (Han et al., 2019).

Twitter posts normally contain a frequency of spelling, slang, and abbreviations higher than other SM (Fitri et al., 2019), making content analysis more difficult. Content analysis is a prevalently used qualitative research method, which is often burdensome and time-consuming (Chew et al., 2023, Morgan, 2023). Large language models (LLM) like ChatGPT have the power to read, interpret, and categorize textual data because they perform remarkably in a range of natural language processing (NLP) and reasoning tasks (Chew et al., 2023, Geng and Nimehchisalem, 2023, Morgan, 2023). ChatGPT is also compatible with specialists in terms of coding, identification of conceptual metaphors, and thematic analysis (Geng and Nimehchisalem, 2023) as well as experts in terms of systematic reviews (SR) (Alshami et al., 2023).

According to the abovementioned research gaps, this work addresses the following research question (RQ): are there any relationships between e-marketplace conversation in terms of contextual, vividness, informational, brand, and timing characteristics and customer engagement?, using Twitter's data from one of top e-marketplace in Thailand (Lazada: @LazadaTH) together with ChatGPT to extract informational characteristics (7Ps).

HYPOTHESIS DEVELOPMENT

This work employs contextual, informational, and brand characteristics for MGC from Alboqami et al. (2015) and adds two post characteristics from the study of Kordzadeh and Young (2022) which are vividness and timing. Besides, the 7 Ps of services marketing by Booms and Bitner (1987) are applied to classify informational characteristics and to expand insights regarding MGC and customer engagement.

Contextual Characteristics

Hyperlinks, hashtags, mentions, and length are a part of the contextual characteristics of MGC posted on Twitter. Having a hyperlink significantly increases both FAV and RT. Having a hashtag significantly enhances FAV, while having a mention significantly improves RT (Alboqami et al., 2015).

Links have a significant influence on online engagement on Twitter (Iqbal Khan and Ahmad, 2022). The use of hyperlinks frequently results in FAV and RT (Sundstrom and Levenshus, 2017). The number of URLs and hashtags have positive effects on customer engagement of a company in the retail industry (Han et al., 2019). Past research indicates that hashtags and mentions have a significant effect on tweet diffusion (Sridevi et al., 2020). The inclusion of hashtags positively affects the likelihood of having at least one FAV or RT (Manzanaro et al., 2018). More frequent use of hashtags in tweets is significantly related to higher levels of RT influence (Aleti et al., 2016). Mentions per tweet have a significant impact on engagement (Garcia-Rivera et al., 2022). Mentions used significantly increase sharing (López, 2018). Users adding mentions and hashtags significantly gain both likes and retweets (Lahuerta-Otero et al., 2018). Textual characteristics such as hashtags and the number of words have significant influences on liking and sharing (Di et al., 2014). Post length significantly enhances brand engagement (Deng et al., 2021). The length of Twitter use is significantly related to brand followers' engagement in eWOM (Chu and Sung, 2015). The number of words in a tweet significantly increases the RT count (Nanath and Joy, 2021). Therefore, the following hypotheses are set for verification:

H1: The contextual characteristics of a Tweet post in terms of a) hashtags, b) mentions, c) tweet length, and d) having URL have an impact on customer engagement in terms of FAV.

H2: The contextual characteristics of a Tweet post in terms of a) hashtags, b) mentions, c) tweet length, and d) having URL have an impact on customer engagement in terms of RT.

Vivid Characteristics (Media Type)

Videos and pictures are considered as vividness in the SM literature. One picture significantly increases the number of likes, comments, and shares, whereas one video significantly improves the number of likes and shares (Kordzadeh and Young, 2022). Video significantly contributes to the increase in RT (Weerawatnodom et al., 2017). Past research indicates that including videos increases liking and sharing behaviors (Schreiner et al., 2019). Images and videos have significant relationships with online engagement on Twitter (Iqbal Khan and Ahmad, 2022). Videos and images significantly drive forwarding, commenting, and liking (Li et al., 2021). Posts with videos lead to more comments and shares, while posts with photos help receive more likes and emojis (Wang and McCarthy, 2021). The inclusion of rich media types e.g., photos and videos is marginally associated with consumer engagement (Coursaris et al., 2014). The uses of GIFs, photos, and videos have significant and positive effects on brand engagement (Deng et al., 2021). Including multimedia content positively affects the

likelihood of having at least one FAV/ RT (Manzanaro et al., 2018). Thus, the following hypotheses are tested:

H3: The vivid characteristics of a Tweet post in terms of media type have an impact on customer engagement in terms of FAV.

H4: The vivid characteristics of a Tweet post in terms of media type have an impact on customer engagement in terms of RT.

Informational Characteristics (7Ps)

Tweets generally contain useful information (Linvill et al., 2012). Brands let consumers access product information and allow them to give feedback via SM (Shen et al., 2020). Information is one of the characteristics of MGC posted on Twitter. Product or service information significantly affects both FAV and RT (Alboqami et al., 2015). The content type of tweets significantly affects stakeholder engagement (Mehmood et al., 2023). Informative content has a positive impact on attitudes towards SM advertising (Kalogianni, 2019). Informative content as well as promotional content significantly increases likes, replies, and retweets on Twitter (Menon et al., 2019).

The service marketing mix (7Ps) is an extended marketing mix for the service industry. The traditional 4Ps (product, price, place, and promotion) are expanded by the 3Ps (people, physical evidence, and process) (Rathod, 2016, Youseff, 2017). It is recommended that the full 7Ps should be considered when reviewing competitive strategies and defining key issues impacting marketing (Youseff, 2017). The service marketing mix has a greater influence on young consumers' buying interest (Sulistiyo and Augustian, 2018). In the LSS, promotion, placement (distribution characteristics), and physical evidence (environment) of LSS is significantly positively associated with customers' purchase intention. The 7Ps also significantly improve their watching intention, which relates to purchase intention (Ho et al., 2022). There is a positive relationship between 7Ps and brand trust in the hotel (Maleewat, 2023). In the study of Kushwaha and Agrawal (2015), place, people, physical evidence, and process have significant and positive impacts on customers. In the context of tourism, all 7Ps are significantly positively related to tourists' satisfaction (Saha and Ishaque, 2022). Besides, price promotion encourages brand usage and awareness (Huang and Sarigöllü, 2014). So that, the following hypotheses are investigated:

H5: The informational characteristics of a Tweet post in terms of a) product, b) price, c) place, d) promotion, e) people, f) process, and g) physical evidence have an impact on customer engagement in terms of FAV.

H6: The informational characteristics of a Tweet post in terms of a) product, b) price, c) place, d) promotion, e) people, f) process, and g) physical evidence have an impact on customer engagement in terms of RT.

Brand Characteristics

A brand's interaction significantly improves customers' satisfaction in B2C e-retailing stores (Ehsani and Hosseini, 2023). SM brand communication significantly increases SM brand engagement (Gómez et al., 2019). Brand characteristics such as brand centrality significantly affect both FAV and RT (Alboqami et al., 2015). Brand-related factors are proposed to drive brand-related eWOM on Twitter (Chu and Sung, 2015). Brand ambassadors significantly influence Shopee's online purchase decisions (Nabilah, 2020). Brand trust and brand image significantly influence purchase decisions at the Lazada online store (Subhan and Thalib, 2022). As a result, the following hypotheses are proposed:

H7: The brand characteristics of a Tweet post in terms of the brand mentioned have an impact on customer engagement in terms of FAV.

H8: The brand characteristics of a Tweet post in terms of the brand mentioned have an impact on customer engagement in terms of RT.

Timing Characteristics

Literature studies indicate that SM users' activity level differs between weekdays and weekends. Brand tweets posted on weekends get higher engagement than those posted on weekdays (Deng et al., 2021). Posting during weekends significantly enhances RT (Soares et al., 2021). Weekends of year and year significantly enhance likes and retweets (McShane et al., 2021). Post-time and post-day significantly affect citizen engagement, particularly in the morning compared to the evening and during weekdays rather than during weekends (Siyam et al., 2020). Ibrahim et al. (2017) point out that the evenings and weekends are when most people are on Twitter and are a good time for brands to draw engagement (Ibrahim et al., 2017). There is a significant influence of post time on public engagement to Twitter posts, whereas Twitter users are significantly more active during morning hours (Antonakopoulou and Veglis, 2022). The following hypotheses are therefore formulated:

H9: The timing characteristics of a Tweet post in terms of a) weekend and b) working time have an impact on customer engagement in terms of FAV.

H10: The timing characteristics of a Tweet post in terms of a) weekend and b) working time have an impact on customer engagement in terms of RT.

METHOD

Lazada was chosen since it was one of the top e-marketplaces in Thailand. Twitter was the main focus because it mostly applied for information dissemination and marketing (Wang, 2021). The researcher collected data from Lazada's Twitter official account (@LazadaTH). The research period was 6 months from November 1, 2022, to April 31, 2023, which provided a longitudinal aspect to data and mitigated generalizability concerns. The final sample included 1,054 tweets. Data was collected automatically from the Lazada Twitter profile using a Twitter scarper, named Vicinitas.

Data retrieved by Vicinitas consisted of Tweet ID, Text, Name, Screen Name, UTC, Created At, Favorites, Retweets, Language, Client, Tweet Type, URLs, Hashtags, Mentions, Media Type, and Media URLs. Only tweets in 'th' language were used. Engagement, as the dependent variable, was evaluated by favorites and retweets. Passed days (the days between April 31, 2023 and UTC), tweet length (total characters), brand mentioned (counts of 'Lazada' in Text), having URL, media type, weekend, and worktime were derived. Passed days were used as a control variable.

All tweets were converted from Thai to English using Google Translate. Some whitespaces such as new lines were removed using the Find & Replace features in MS Excel. For 7Ps information, the author used ChatGPT-3.5 in order to analyze English Text. After using the tool, the author reviewed the content (if necessary) and took full responsibility for the content of the publication. ChatGPT surpassed coding procedures for qualitative content analysis using human coders, which generally suffered from time-consuming and human errors. According to Chew et al. (2023), ChatGPT-3.5 performed deductive coding at levels of agreement comparable to human coders.

Base-10 logarithmic transformations were applied to convert engagement measures that were non-normal. Descriptive statistics were applied to summarize data. Hierarchical regression analyses were employed to test the proposed hypotheses.

FINDINGS

Descriptive Statistics

Of the 6 months, there was the highest number of tweets in March 2023 (29.5%), while there was the lowest number of tweets in January 2023 (5.3%). The main media types of all tweets were video (37.5%) and photo (36.8%) respectively. More than half of the tweets talked about promotion (80.6%), process (66.6%), product (65.3%), physical evidence (63.9%), place (59.6%), and people (55.0%). Tweets were generally released in the morning (47.9%) or in the nighttime (34.1%) on weekdays (76.6%). The average message length was 218 characters per tweet. Many of them contained URLs (53.0%) and media URLs (74.3%).

E-Marketplace Conversation and Customer Engagement

Independent Variable	Dependent: Log of Favorites				Dependent: Log of Retweets			
	Step1: control variables		Step 2		Step1: control variables		Step 2	
	Beta	S.E.	Beta	S.E.	Beta	S.E.	Beta	S.E.
Passed Days	-.071*	.000	-.104***	.000	-.039	.001	-.074*	.000
Hashtags			.002	.012			-.048	.014
Mentions			.043	.035			.060*	.040
Tweet Length			-.142**	.000			-.144**	.001
Having URL 0 = no URL			-.011	.053			-.037	.061
Media Type (Text) 0 = Video			-.184***	.064			-.148***	.075
Media Type (Photo) 0 = Video			-.149***	.062			-.137***	.072
Product 0 = non-Product			-.015	.050			-.035	.057
Price 0 = non-Price			-.049	.058			-.050+	.067
Place 0 = non-Place			-.033	.057			-.027	.065
Promotion 0 = non-Promotion			-.027	.068			-.025	.077
People 0 = non-People			.299***	.044			.302***	.050
Process 0 = non-Process			-.060*	.050			-.090**	.057
Physical Evidence 0 = non-Physical			-.035	.045			-.042	.052

Independent Variable	Dependent: Log of Favorites				Dependent: Log of Retweets			
	Step1: control variables		Step 2		Step1: control variables		Step 2	
	Beta	S.E.	Beta	S.E.	Beta	S.E.	Beta	S.E.
Evidence								
Brand Mentioned			.079*	.021			.103**	.024
Weekend 0 = non-Weekend			-.081**	.056			-.047	.066
Working Time 0 = non-Working Time			.134***	.053			.190***	.061
R2	.005		.297		.002		.346	
Adjusted R2	.004		.285		.001		.335	
R2 Change	.005*		.292***		.002		.344***	

Note. Standardized regression coefficients are shown in the table. Dummy variables are presented in *italics*.

***$p < .001$, **$p < .01$, *$p < .05$, + $p < .10$

Table 1. The Hierarchical Regression Analyses for Variables Predicting Log of Favorites and Log of Retweets (n = 1,054)

As shown in Table 1, hierarchical regression analyses were applied. The assumptions for regression were evaluated. All assumptions of normality, linearity, homoscedasticity, and absence of multicollinearity were met. A control variable (passed days) was entered in the first block. Then, all variables were input in the second block. There was a significant increment in the squared multiple in the second step in both models when other predictors than the control variable were included.

The control variable was significant in both models, except for the first step in the RT model. For the FAV model, it explained 5% of the variance in the log of FAV. Besides, nine predictors explained 29.7% of the variance (R^2 =.297, F(17,1027)= 25.503, $p < .001$). People (β = .299, p<.001), media type (text) (β = -.184, p<.001), media type (photo) (β = -.149, p<.001), tweet length (β = -.142, p<.01), working time (β = .134, p<.001), passed days (β = -.104, p<.001), weekend (β = -.081, p<.01), brand mentioned (β = .079, p<.05), process (β = -.060, p<.05) significantly predicted to log of favorites. For the RT model, nine antecedents explained 34.6% of the variance (R^2 =.346, F(17,990)= 30.778, $p < .001$). It was found that people (β = .302, p<.001), working time (β = .190, p<.001), media type (text) (β = -.148, p<.001), tweet length (β = -.144, p<.01), media type (photo) (β = -.137, p<.001), brand mentioned (β = .103, p<.01), process (β = -.090, p<.01), passed days (β = -.074, p<.05), and mentions (β = .060, p<.05) significantly

predicted log of retweets. Therefore, H1c (-), H2b, H2c (-), H3 (-), H4 (-), H5e, H5f (-), H6e, H6f (-), H7, H8, H9a (-), H9b, and H10b were supported.

Discussion

This work fulfills the research gaps in revealing that contextual, vividness, informational, brand, and timing content features positively or negatively cause customer engagement in terms of favorites or retweets. In sum, Tweets, containing photos or more mentions, talking about people or an e-marketplace brand, and being posted in working time, lead to more engagement.

Insignificant influences of hashtags, mentions, and URLs on customer engagement harmonize with insignificant effects of URLs, hashtags, and mentions on engagement (Han et al., 2019), insignificant impact of message components i.e., mentions, links, and hashtags on customer engagement (Matosas-López and Romero-Ania, 2021), insignificant impacts of mentions and hashtags on likes and retweets (Di et al., 2014), insignificant influence of links and hashtags used on propagation and sharing (López, 2018), and insignificant influence of links on consumer engagement (Wang et al., 2023). The negative influence of tweet length could be explained by insignificant influences of length on both FAV and RT (Alboqami et al., 2015), the negative and significant effect of tweet length on consumer engagement (Wang et al., 2023), and the negative influence of tweet length on customer engagement (Han et al., 2019).

Although vividness insignificantly impact likes, replies, and retweets (Menon et al., 2019), text and photos in this study drive customer engagement significantly less than video, conforming to more engaging informative content if it is presented with videos (Wang and McCarthy, 2021), the greater influence of videos on likes, retweets, and replies compared to photos (Meire et al., 2022), a photo posted on Instagram gaining less comments than video posts (Abbas et al., 2021), insignificant relationship of text with online engagement on Twitter (Iqbal Khan and Ahmad, 2022), negative results for engagement when combining photos with texts (Lilleker et al., 2016), but contrast to the significant influence effect of pictures on FAV and RT rather than texts and videos in the study of Alboqami et al. (2015).

The insignificance of product, price, place, promotion, and physical evidence could be explained by insignificant influences of product, price, place, promotion, and physical evidence strategies on customer purchase decisions (Asamoah, 2021), insignificant effects of product, price, promotion on customers (Kushwaha and Agrawal, 2015), insignificant associations between product and price offered on LSS platform and customers' purchase intention (Ho et al., 2022), insignificant impact of

content context (message theme) on likes and comments (Chauhan and Pillai, 2013), insignificant influence of topics on likes and negative influence of topics on retweets (Di et al., 2014), low views, likes, and comments receive from giveaways (Pribadi et al., 2022), insignificant effect of advertising on brand awareness (Huang and Sarigöllü, 2014), and insignificant influences of being informative, discount & promotion information, event news on FAV and RT (Alboqami et al., 2015). The negative impact of the process is consistent with the rejection of the positive association of the service marketing mix with customers' purchase intention (Ho et al., 2022).

Insignificance of timing characteristics (weekend and RT) accord with the insignificant moderating impacts of timing on endorsement, recommendation, and feedback (Dhaoui and Webster, 2021), insignificance impact of posting day on likes and comments (Chauhan and Pillai, 2013), and insignificant influence of posting over the weekend on favorites (Soares et al., 2021). Weekend posts decrease FAV, as same as weekend posts in the study of Dhaoui and Webster (2021) that negatively moderate brand presence-endorsement relationship. Although Matosas-López and Romero-Ania (2021) state that publication time slots do not affect customer engagement and there are insignificant effects of all post timing except for posts from 2 PM to 4 PM on propagation and sharing (López, 2018), working time significantly increases both FAV and RT in this work.

CONCLUSION

This work contributes to extending the understanding of customer engagement on Twitter in the e-marketplace context, using the quantitative analysis of influential variables. This research confirms and presents the contrary results to key variables in the literature. This study also digs deeper into the service marketing mix as informational characteristics, which partially impacts engagement in the e-commerce industry, by employing the popular Generative AI (ChatGPT-3.5) to identify 7Ps within tweet content instead of human coding.

Implications

For theoretical implications, this study introduces the exploration of the service marketing mix as informational characteristics that have been rarely investigated in the literature, particularly in the e-marketplace context. Two of seven marketing mixes confirmed their significant influences on customer engagement both in positive and negative ways. The service marketing mix could be employed by researchers in the future to study MGC or brand conversations in other SMs or other industries.

For practical implications, the informational (people), brand (brand mentioned), timing (working time), and contextual (mentions) characteristics in an e-marketplace's conversation could improve customer engagement significantly. On the other hand, vivid (media type: text, photo), contextual (tweet length), informational (process), and timing (weekend) characteristics could decrease that engagement as well. In sum, generally, e-marketplace like Lazada focuses on messages about promotion, process, physical evidence, place, and products more than people. Thus, the company should increase content about people such as brand representatives/ brand ambassadors or celebrities and decrease context about complex processes to draw more engagement in terms of both FAV and RT. Brand mentioned that 'Lazada' should be utilized more since more talking about 'Lazada' significantly draws more FAV and RT. Normally, the company adds videos to its tweets the most. However, video content gains a similar proportion as photo content which leads to less engagement. Hence, the company should consider increasing the number of videos and decreasing text and photo posts. The company utilizes 218 characters per tweet on average. This tweet length should be lower because longer tweets significantly diminish customer engagement. Keeping tweets short is also one of the basic strategies (Sundstrom and Levenshus, 2017). Although more than half of all tweets contain URLs or media URLs, they do not lead to customer engagement significantly. The company commonly communicates with their customers in the morning or nighttime on weekdays. This practice should be maintained since speaking to their customers during working time or on weekdays is better for fan engagement. Dhaoui and Webster (2021) also emphasize people may enjoy social life activities during weekends, so brands could connect and engage consumers during weekdays. Interestingly, tweets that are posted for longer days could decrease engagement.

Limitations and Future Research

The limitations of this paper are as follows. Although this work expands the data collection period to more generalized findings. More data covering one year or more should be gathered in the future. Looking at one e-marketplace's tweet may not sufficiently represent the whole e-marketplace. Collecting tweets from other leading marketplaces such as Shopee should be further conducted. This work focuses only on tweets because they are e-marketplace conversations started directly by brands. However, replies and retweets are other forms of conversations, which should be investigated in their patterns and customer engagement in the future. For using ChatGPT, bias could occur due to limits in the AI's training set (Morgan, 2023). Future research should thus apply the newer version of ChatGPT, which may detect and exclude biases better, or other generative AI tools to extract informational characteristics.

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RISK ASSESSMENT FOR SUSTAINABLE INVESTMENTS

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ABSTRACT

Purpose: The phenomenon of risk analysis of sustainable investments represents a much discussed topic in the literature as the analysis methods are varied and very complex. Although sustainable investments are gaining popularity, their evaluation remains a challenge due to often inadequate analysis methods. This article presents an empirical analysis comparing two analysis methods, traditional free cash flow (FCF) analysis, and an innovative version that integrates Monte Carlo simulations to quantify the probability of shortfall.

Methodology: The article compares the traditional FCF method with the proposed approach, using concrete examples to highlight the weaknesses of conventional methods and explain the advantages of the new two-dimensional model.

Findings: Integrating risk into FCF assessment leads to a more accurate and beneficial view of sustainable investments, demonstrating that they can have a more favorable risk-return profile than traditional investments. This scenario allows you to increase the resilience of the portfolio and make it less vulnerable to negative events. An analysis method including additional tools considerably improves risk management by taking into account the potential for high losses.

Originality: The article offers an original contribution to the evaluation of sustainable projects, providing a practical method for integrating risk into FCF analysis and demonstrating the benefits of this approach for a more complete and accurate evaluation of sustainable investments.

Keywords: Sustainability Investment, Profitability Measure, Risk Assessment, Discount Factor, Shortfall Probability, Monte Carlo Simulation.

INTRODUCTION

The measures to improve sustainability are often considered unprofitable because classical analysis of free cash flows typically focuses on a more likely case for project evaluation. Risk aspects are usually overlooked or considered non-quantitatively.

Sustainability investment analysis, which follows ESG (Environmental, Social, and Governance) principles, is becoming an increasingly interesting aspect, not only academically but also operationally, of significant interest to companies, investors, and financial institutions globally (Jain, et al., 2019).

"Sustainable investments" are defined as an investment action that seeks to combine social and/or environmental benefits with financial returns, thus linking investors' social, ethical, ecological, and economic concerns (Brzeszczynski and McIntosh, 2014).

Despite the growing importance of sustainability in business, many business leaders and stakeholders believe that investing in sustainability reduces profitability (Tantram, 2021). The authors discuss why sustainable measures and behaviors are easily judged as unprofitable and why this is due, among other things, to a largely unilateral view of returns and a focus on the most likely scenarios. Strengthening the quantification of risk in the context of sustainable economic investment evaluation could shift the evaluation in favor of sustainability measures.

Companies have started to derive commercial benefits from responsible practices, and investors are also focusing more on "value" having understood that a company's sustainability strategy can lead to better risk-adjusted returns (Vives and Wadhwa, 2012).

Companies engaged in sustainable investments and business practices question whether they can compete with unsustainable companies (Schittenhelm, 2013). Many aspects of sustainable management are certainly linked to higher costs or missed sales, and many companies would only be able to bear such burdens to a limited extent. However, these expenses often come with better risk positions for the companies involved (Farayibi, 2015).

In other words, such sustainable investments could be considered as an insurance premium against risks paid to receive specific protection. On the other hand, risks always have the character of uncertainty. If risks do not materialize, the previously purchased insurance coverage was unnecessary, and the cost of the insurance premium reduces the company's profit.

Environmental risks play a crucial role in evaluating the economic efficiency of investment projects; so it is important to consider the potential environmental risks associated with the project. These risks can have a significant impact on the overall economic feasibility of the project and should be carefully assessed to make informed decisions (Kabilovna, 2024).

The article examines the impact of risk consideration on the evaluation of sustainable projects. Using examples, the weaknesses of conventional methods are described and discussed, and a more innovative one is presented.

Traditional free cash flow (FCF) analysis often underestimates the potential of sustainable projects due to the lack of risk consideration. This article proposes an alternative method that integrates risk

analysis into FCF evaluation, using the discount factor and Monte Carlo simulations to quantify the probability of shortfall.

The presented paper uses shortfall probabilities as a relevant risk measure for classical free cash flow analyzes and illustrates how sustainable investments are viewed differently and even more attractive in a two-dimensional model of this kind. Risk measurement is carried out by adjusting the discount factor and measuring the probability of shortfall during Monte Carlo simulations.

The research questions set by the authors are:

HQ1: Do sustainable measures really reduce the cost of capital?

HQ2: Do the sustainable measures justify the adjustment of the discount rate?

In addition, this article demonstrates the application of Monte Carlo Simulation in a concrete case to address a gap in existing research (Kabilovna, 2024).

The presented document uses shortfall probabilities as a relevant risk measure for classical free cash flow analyses and illustrates how sustainable investments are seen differently and also more attractively in a bidimensional model of this type.

BACKGROUND

Nowadays, the investment system is increasingly influenced by an evolving landscape where ecological risks are assuming a more central role. Stakeholders are becoming more attentive to the environmental impact of companies and consider it in their evaluations. This means that ecological risks can have a significant impact on a company's financial performance and overall market reputation. Companies that do not properly assess and manage these risks could face negative consequences. (Lam, 2014)

Examples of such risks that can be reduced through sustainable measures include the following. Sustainable investments can include precautions to prevent or reduce the extent of any type of negative events and damages, such as poor working conditions or deficiencies in terms of safety. Such events and their future costs could encompass environmental, social, and economic damages inflicted on society. Naturally, the risk increases as precautions decrease. (Flad, et al., 2012)

Reputational risks are a direct consequence of these negative events. Customers might consider switching products or accepting competitor products despite higher prices. Consequently, sustainable measures reduce these reputational risks. Investments in better working conditions, high safety standards, more attractive wages and salaries, and improved social security simultaneously reduce the risk of employee turnover. At the same time, satisfied and motivated employees are crucial for producing high-quality products. (Chava, 2014).

Simultaneously, sustainable behavior can improve access to financial capital and enable further

investments. Additionally, financing costs might decrease both for equity financing and debt financing. Finally, sustainable companies might anticipate adverse situations, protecting themselves from potential future sanctions, bans, or other trade restrictions under stricter legal conditions.

In evaluating the sustainability of investments, considerations about free cash flows are made more frequently (Graham, Harvey, 2001).

More specifically, this means that the expected cash flows associated with an investment are evaluated for certain scenarios using classic investment criteria such as Net Present Value (NPV) and Internal Rate of Return (IRR). Both criteria measure the extent to which cash flows meet a specified minimum return. This minimum return is based on the company's Weighted Average Cost of Capital (WACC). Increased risk should result in an increase in both equity and debt costs. However, risk is not explicitly evaluated (Ragotzky, et al., 2020).

The weaknesses of this approach include:

- insufficient consideration of risks,

- no systematic assessment of risks associated with investment,

- focus on a "very likely" case,

- indifference towards a universal minimum return for all projects.

Although the weaknesses of this method are well-known, and the risk theme plays a significant role (Ross et al., 2018), especially in theory; in practice, a systematic risk assessment rarely occurs (Gormsen, Huber, 2023).

METHODOLOGY

Evaluating sustainable investments represents a complex challenge, as it requires considering not only traditional financial returns, but also environmental, social and governance (ESG) factors. Traditional analysis methods, such as free cash flow (FCF) analysis, often fail to fully capture the long-term value of sustainable investments, as they do not adequately account for the risks and opportunities associated with these ESG factors.

As highlighted by the empirical analysis provided, sustainable investments may initially be perceived as pure cost drivers, resulting in an underestimation of their potential profitability. To overcome this limitation, it is essential to integrate a specific risk assessment within the analysis process.

In this section, we will present an innovative method for evaluating sustainable investments that integrates Monte Carlo simulations to quantify the probability of shortfall, i.e. the difference between expected cash flows and those actually realized. This two-dimensional approach allows you to consider both the expected value and the probability distribution of cash flows, providing a more complete view of the risk-return profile of sustainable investments.

The proposed methodology will be compared with the practical application of traditional analysis methods in order to validate the advantages of the innovative one.

BUSINESS CASE Protective Investment

A company works with a WACC of 20%. For a concrete project, we assume the following cash flow:

Case 1: (-2,800; 1,000; 1,000; 1,000; 1,000; 1,000).

Id est after an investment of 2,800€ in year 0, we expect positive cash flows of 1,000€ each year for the upcoming next 5 years.

The respective investment criteria result to NPV = 190.61€ and IRR = 23.06%, and the project would be accepted.

a) The above cash flow only describes one possible scenario. If we assume a penalty of 500€ in year 5 due to missing sustainable measures the cash flow results to:

(-2,800; 1,000; 1,000; 1,000; 1,000; 500)

and NPV = -10.33€ and IRR = 19.82%, and the project would be rejected. The question to be asked is which probability for such a case is expected and based on that an expected NPV and IRR could be calculated.

b) On the other hand, additional sustainable investments or precautions, that might prevent from a penalty payment in year 5 might cost additional 200€ in year 0 which leads to the following cash flow:

Case 2: (-3,000; 1,000; 1,000; 1,000; 1,000; 1,000).

Using NPV (with the original discount rate of 20%) and IRR criteria we receive the following results:

NPV = -9.39€

IRR = 19.86%

Since the NPV is negative and the IRR is below the set benchmark of 20%, the sustainable investment would actually be rejected. The company actually decided to buy protection against penalty payments. The positive effect of this kind of insurance is not measured.

Table 1. *Business Case: Protective Investment*

Measuring Risk

In the following, the calculation example is used to show the extent to which the concrete evaluation of risks in the decision-making process can show sustainable investments to be more economically interesting.

The methods used to account for risk are:

-        Adjustment of the discount rate

-        Calculation of a non-profitability probability (shortfall probability) through scenario analyses

or Monte Carlo simulation

Adjustment of the discount rate

We consider case b) from above, id est the cash flow: (-3,000; 1,000; 1,000; 1,000; 1,000; 1,000). An adjustment of the discount rate, for example 19% instead of 20%, would make the investment attractive again. In that case the *NPV* would increase (*NPV* = 57.63€) and the *IRR* would beat the benchmark.

The above shows that risk assessment can change the view on projects. It is not an attempt to make the project look good but a sound consideration of an additional aspect of an investment. Following the above example, one realizes that the choice of a discount rate is crucial for the assessment of a project. In general, companies use their cost of capital as the relevant discount rate for the calculation of a net present value. The cost of capital describes the expectation of equity and debt capital providers with regard to their return on investment. Capital providers should tend to reduce their expectations if there is less risk involved in an investment. Above we discussed some of the aspects that might justify for a risk reduction. Nonetheless, we are talking about a trend not a concrete adjustment. The 19% in our example was randomly chosen. The classical theoretical approach to calculate the cost of capital is via the calculation of the weighted average cost of capital (*WACC*) which includes the cost of equity and the cost of debt:

$$WACC = \frac{market\ value\ equity}{total\ assets} \cdot cost\ of\ equity + \frac{market\ value\ debt}{total\ assets} \cdot cost\ of\ debt$$

For most applications, it is reasonable to include a tax shield for debt in the WACC calculation.

In our context, the determination of adequate cost of equity and cost of debt remains a challenge because the risk reduction effects described above must be integrated. The classical approaches (for example the capital asset pricing model for the cost of equity) only help to a limited extent because they are backwards orientated and consider mainly historical developments (Ross et al. 2018).

Shortfall probability

A shortfall probability or probability of default generally describes the probability of remaining below a specified limit *z* (Wengert/Schittenhelm 2013). For the specific case of an investment evaluation, such a limit is meaningfully a net present value of *z* = 0 for the *NPV* criterion or the expected minimum return for the *IRR* criterion. In those cases, the project would be considered not profitable and rejected. Mathematically expressed, a shortfall probability for a given random variable (discrete or continuous) can be calculated by determining the lower partial moment *LPM₀* for a given limit value *z*:

1) Discrete random variable:

$LPM_0(X) = \sum_{j=1}^{n} \delta_j p_j$ with $\delta_j = \{1\ 0$ if $X_j < z\ else$

where p_j are the probabilities of the realisations of X_j for the given distribution X.

2) Continous random variable:

$$LPM_0 = \int_{-\infty}^{z} (z - x)^0 \cdot f(x) dx$$

where $f(x)$ is the density function of X.

Monte Carlo Simulation for one Parameter and Uniform Distribution

Returning to our example we now consider the effect of different scenarios. One way is to assume a discrete distribution and concentrate on a limited number of cases with different occurrence probabilities. We will use the continuous case here and apply Monte Carlo simulation in order to create a large number of scenarios, a multi-iterative statistical method.

The Monte Carlo method is a valuable tool for assessing and managing environmental risks in an investment project, helping to improve financial performance, reduce risks and increase transparency.

The assessment is the same for both cases. We calculate expected value and shortfall probability. For the shortfall probability we set the limit value $NPV = 0$. All simulations and calculations were made with *Analyze Data* from Excel.
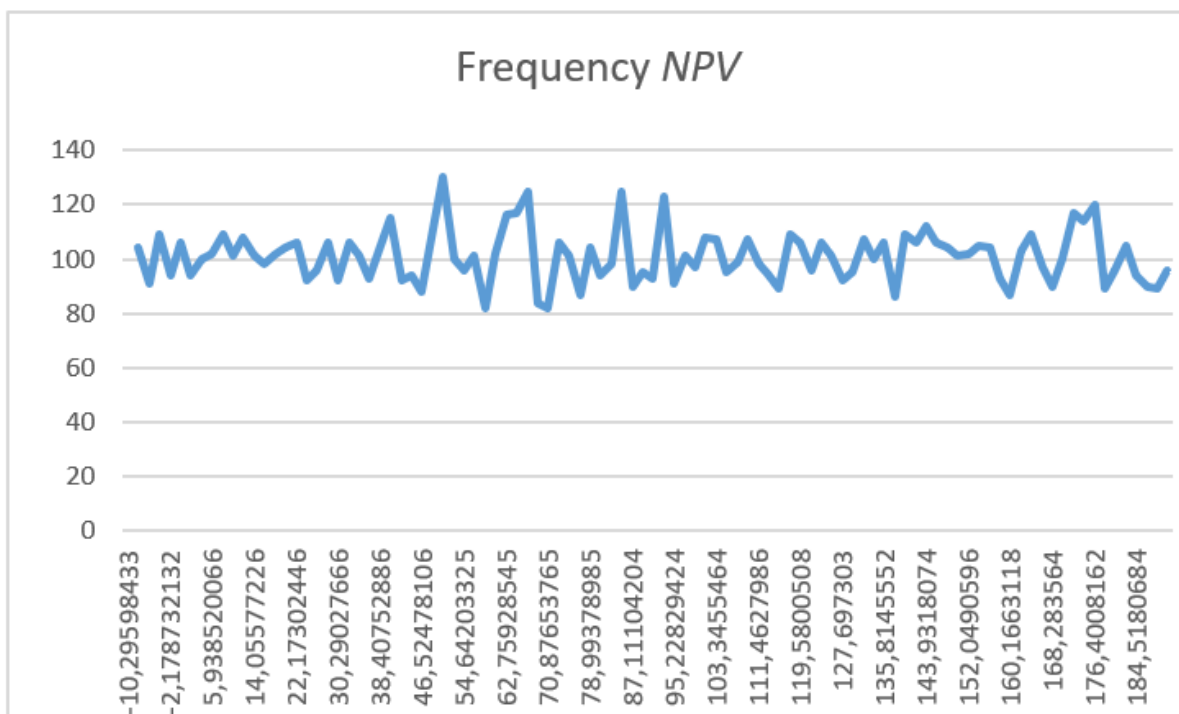
Figure 1. Frequency distribution of NPVs for uniform distributed penalty payments

In our first consideration, we consider penalty payments in year 5 for the cash flow with an initial investment of 2,800€. The penalty payments are modeled as uniform distributed in the range between 0€ and 500€. Given 10,000 simulation we receive the following result:

-        Arithmetic Mean of *NPV*s: 89.97€

-          Shortfall Probability *(NPV < 0): 5.1%*

The average NPV decreases and we recognize a 5.1% probability of a non profitable development of the project.

The frequency distribution of *NPV*s clearly demonstrates the assumption of a uniform distribution for the penalty payments with *NPV* values between -10.33€ and 190.61€.

Monte Carlo Simulation for one Parameter and Normal Distribution

Alternatively, we modelled the penalty payments as normal distributed. We assume an average penalty of 250€ with a standard deviation of 100€. The results for 10,000 simulations are:

- Arithmetic Mean of *NPV*s: 90.47€

-   Shortfall Probability (*NPV* < 0): 1.1%.
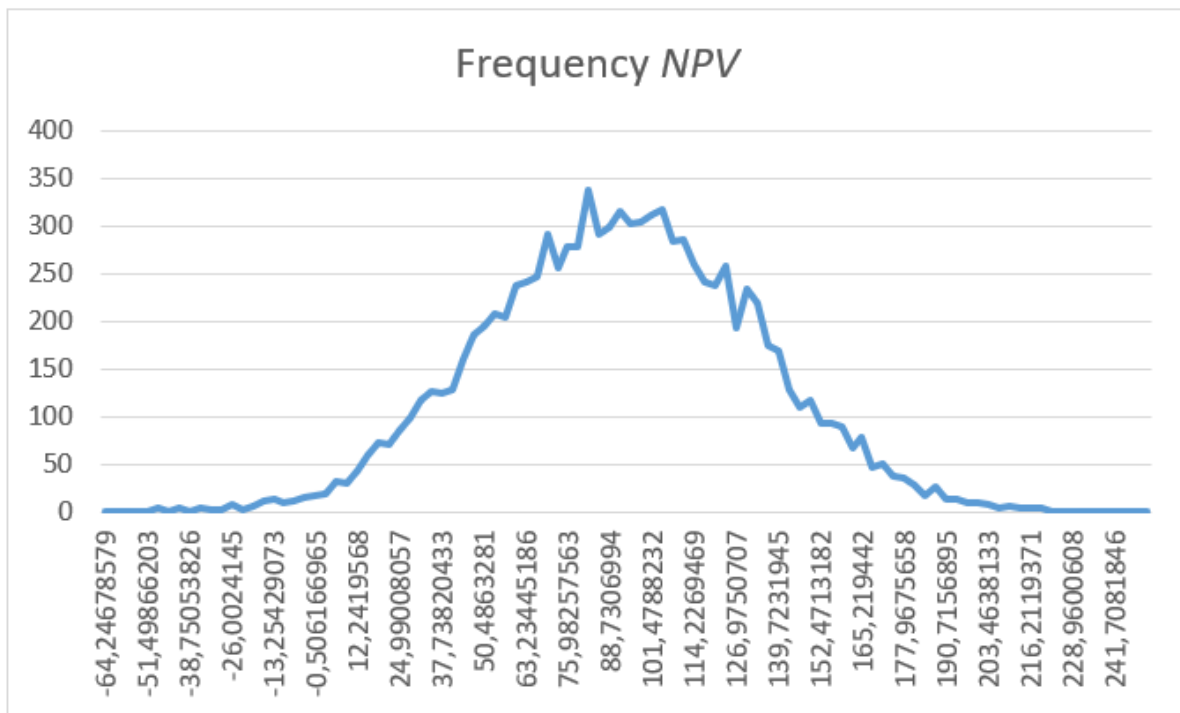
Figure 2. Frequency distribution of NPVs for normal distributed penalty payments

The frequency distribution of *NPV*s represents a normal distribution now. Obviously, the normal distribution also leads to negative penalties which increase the *NPV*. Those scenarios should be cancelled out. The average *NPV* would be slightly smaller, but the shortfall probability remains unchanged since only extreme positive cases are adjusted.

BUSINESS CASE Comparing alternatives

In a world where technology is advancing at an unstoppable pace, the question of the role of robots and artificial intelligence in the workplace arises. The number of robots in Amazon warehouses for example has increased by over 750,000 since 2018, and this trend seems unstoppable (yahoo!finance, 2024). It may sound worrying at first that robots are increasingly replacing human workers. Jobs are being lost, and that is a reality that cannot be ignored. But a closer look reveals a facet of this development that can be quite positive: the safety and health of workers.

Especially in areas where work is associated with potential health hazards, robots can provide a sustainable solution. By using robots for hazardous work, people can be protected from injuries and health risks. The automation of hazardous tasks can help to reduce accidents at work and minimize the physical strain on workers.

Furthermore, by using robots, companies can also achieve economic benefits that are sustainable in the long term. Investing in robot technology can lead to an increase in efficiency, productivity and quality. This in turn can strengthen the company's competitiveness and contribute to stable and sustainable economic development in the long term.

It is also important to recognize that the use of robots does not only require the purchase of the technical equipment. It also requires significant investment in training personnel or hiring skilled workers who are able to effectively operate and maintain the robotic technology. This means that companies not only need to allocate financial resources to the purchase of robots, but also invest in the development of their employees to ensure that they can make the most of the new requirements and opportunities offered by robotics. These investments must also be included in the calculation of the sustainability.

It is important to emphasize that replacing jobs with robots is not a simple matter and has far-reaching implications. A two-dimensional approach can help to improve the assessment and requires a balance to be struck between return and risk taken.

Table 2. *Business Case: Comparing alternatives*

Monte Carlo Simulation for Several Parameters and Uniform Distribution

For illustration, we model to alternative cases with and without the use of robots with respective cash flows for the years 1 to 4 uniformly distributed.

Case 1: Use of Humans

The initial investment is 650, in the upcoming years a positive cash flow is expected, uniform distribution in [50;150], in year 4 the terminal value is modeled as a uniform distribution in [900;1100]

Case 2: Use of robots

The initial investment is 800, in the upcoming years a positive cash flow is expected, uniform distribution in [180;220], in year 4 the terminal value is modeled as a uniform distribution in [700;1100]

Thus, the use of robots requires a higher initial investment. During the following years robots lead to lower costs than humans but eventually the terminal value is expected to be lower.

a) Case 1 with initial investment of 650€ and 2.000 simulations:

- Arithmetic Mean of *NPV*s: 42,90€

- Shortfall Probability (*NPV* < 0): 17,8%

Again, the arithmetic mean of the simulations is close to our original calculation. In 17,8% of the cases the project would not be profitable. The following graph shows the distribution of the *NPV*s created by the simulation.
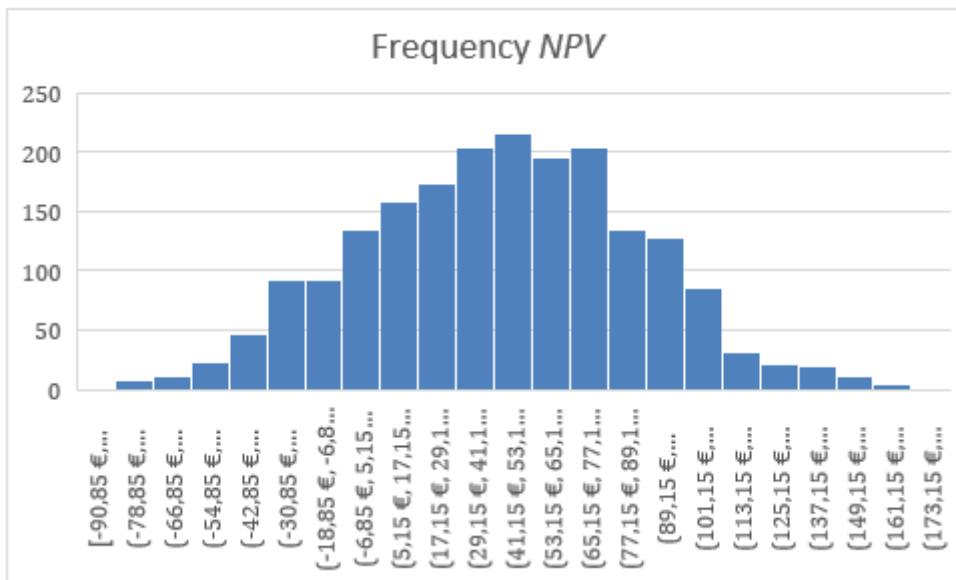
Figure 3. Frequency distribution of NPVs for the human case

b) Case 2 with initial investment of 800€ and 2,000 simulations:

- Arithmetic Mean of *NPV*s: 55,32€

- Shortfall Probability (*NPV* < 0): 21,1%

The arithmetic mean remains above the arithmetic mean of case 1, but the shortfall probability indicates a disadvantage of the use of robots.

The graph (figure 4) emphasizes that the dispersion of NPVs is higher and the frequency of negative events increases.
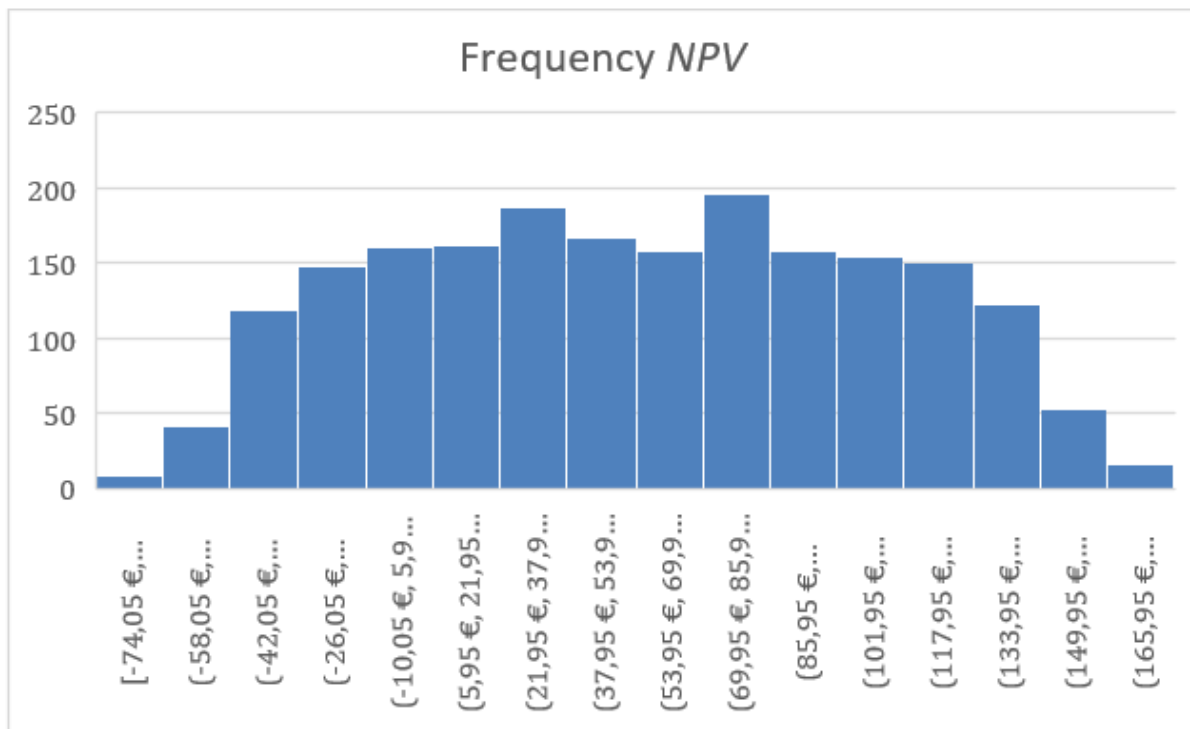
Figure 4. Frequency distribution of NPVs for the robot case

RESULTS

The application of mathematical models helps increase awareness of the risks taken or avoided in a company, but it does not accurately express predictions about the future. Attention to ESG aspects is now a necessity that cannot be ignored. The implications of environmental risks for example, even if they do not impact the timing of investment projects, can reveal serious consequences that translate into higher costs to mitigate the effects caused. (Ekins, Zenghelis, 2021).

Such risks influence the implementation of sustainable investment projects, considering the efforts of environmental remediation, which require the use of the Monte Carlo simulation method to evaluate the effects of risk and quantify the probability of shortfall.

The objective of this methodology is to: (Berk, DeMarzo, 2011).

- Assess risk more accurately: Integrating Monte Carlo simulations allows you to quantify the probability of negative events and evaluate the impact of these events on the value of your investment.

- Improve performance evaluation: Considering the probability distribution of cash flows allows you to obtain a more realistic estimate of the expected return, taking into account the potential variability of the results.

- Make more informed investment decisions: A comprehensive risk analysis enables investors to make more informed decisions and choose sustainable investments that best suit their risk

profile and investment objectives.

The absence of a predictive component for environmental risks in traditional mathematical models often leads to their rejection. This paper addresses this issue by highlighting two crucial aspects:

1. Overcoming the computation disadvantage of sustainable measures.

Traditional financial models, primarily focused on returns, fail to fully capture the value of sustainable measures as they overlook the positive impact such measures can have on reducing environmental risks and, consequently, on the company's future financial performance. To address this issue, it is necessary to integrate environmental risks into valuation models, allowing for a more comprehensive and realistic view of the benefits of sustainable measures.

2. Creating an effective risk management system.

Current corporate governance rules, while promoting risk management, often do not translate into concrete actions within companies. Free cash flow analysis, commonly used in investment decisions, does not adequately account for environmental risks, which can have a significant impact on future profitability. For this reason, it is crucial to implement a robust corporate risk management system that integrates environmental risks into daily decision-making processes.

CONCLUSION

Sustainable financial products represent more than half of the total inflow into European investment products, reflecting a global trend. (Morningstar, 2021)

Despite numerous initiatives, there is still no clear definition within financial markets that identifies an investment product as sustainable in a clear and systematic way. "Sustainable investments" encompass a variety of asset classes selected considering environmental, social, and governance (ESG) factors.

The adoption of sustainable measures in companies presents them with the challenge of simultaneously deriving income benefits. The long-term cost factors resulting from sustainable actions jeopardize a company's existence in a dual manner. On one hand, if competitors forego sustainable measures, they might be more competitive in the market in terms of price. On the other hand, another scenario brings forth reputational benefits stemming from the adoption of responsible governance. (Brzeszczynski, Graham, 2014).

This often leads to an excessive emphasis on moral aspects or legal and tax restrictions related to sustainable behavior.

Consequently, investors face a complex and confusing situation when evaluating the sustainability of an investment product. This lack of transparency requires financial knowledge of sustainable investments that goes beyond basic financial literacy to be well-informed (Filippini, et al., 2024).

Quantitative investment decisions are usually based on two conflicting objectives of return and risk. A general financial belief would state that higher returns generally involve higher risks and vice versa. Investments in sustainability should also be measured against these two objectives when compared to alternatives that might be less sustainable or not sustainable at all. (Schittenhelm, 2023)

In this regard, it has been interesting to observe that there are various reasons why risk measurement is often neglected. A simple initial reason is that evaluation is not straightforward and is often not accepted. This is especially true because different risk measures easily lead to different evaluations.

Furthermore, it is possible that the company's management is more interested in short-term success and that the likelihood of a risky event is low. Additionally, management remuneration systems often do not take into account the risk assumed. Ultimately, both investors and management have little interest in transparency because it could have negative consequences on stock price performance (Schittenhelm, 2023).

According to the authors, however, the goal should be to persuade companies, based on a considerable amount of useful information and proven methods, to adopt a "positive" behavior voluntarily and due to measurable benefits.

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EMOTIONAL INTELLIGENCE AND STRATEGIC DECISION-MAKING:

A BIBLIOMETRIC STUDY

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ABSTRACT

This research aims to study the linkage between emotional intelligence and strategic decision-making through a bibliometric analysis.

This paper uses R. Bibliometrix to present a bibliometric overview to delimit this topic and offer a comprehensive literature mapping. Based on 49 papers (42 articles and 7 reviews), we can trace the theme including the most important and relevant papers, publication outlets, authors, keywords, and trends.

Findings show that (1) 59.18% of all publications (articles and reviews) and 31.75% of all citations were published in the last decade (2014-2023), (2) the top-5 journals are: Baltic Journal of Management, Brain and Cognition, Administrative Sciences, Adult Learning and Aging, Neuropsychology, and Cognition, (3) the most relevant authors (H-index) are Bacigalupo, A.C. and Hess, J.D., (4) the content-based on the main keywords are: Emotional Intelligence; Decision Making; Emotional Regulation; Higher Education; Leadership; Cognitive Reappraisal; Positive Emotions; Qualitative Research; Academic Leaders; and Accounting Education, and that (5) the trend based on conceptual and thematic structure are: (2010) Emotion Regulation; (2012) Decision Making; (2013) Leadership; (2015) Emotional Intelligence; (2022) Higher Education.

This study contributes to the existing literature by synthesising and organising relevant research, shedding light on the current state and future directions of inquiry into the relationship between emotional intelligence and strategic decision-making.

Keywords: emotional intelligence, strategic decision-making, bibliometric analysis, science mapping, performance analysis.

INTRODUCTION

This study aims to investigate the relationship between emotional intelligence and strategic decision-making, a topic that has garnered increasing interest within the scientific community. However, there is still a scarcity of empirical studies on the subject.

Decision-making is a complex process (Schoemaker et al., 2018), and it is generally seen as a rational and intuitive process (Abubakar et al., 2019; Calabretta et al., 2017). Managers' strategies and decision-making are aimed at the success of organisations (Alzoubi & Aziz, 2021). According to Bühring and Moore (2018, p. 6), "Rapid globalization, increasing competitiveness through technological advances and social impacts are among the driving forces that require new strategic directions and decision-making in modern business."

Emotional intelligence is an extremely important factor in decision-making (Zaki et al., 2018), influencing the individual's choices and serving as a motivational process for decision-making (El Othman et al., 2020). For example, emotions (internal factors) and stressful situations (internal feelings and external pressures) can have a negative effect on investment decision-making (Ran et al., 2021). Emotions are vital for decision-making and positively managing these emotions is central to the key processes that determine emotional intelligence (Gladys & Vetriselvi, 2023).

Some scholars from various fields of knowledge (e.g., Damásio, 1994; Phelps et al., 2014) have shown that emotions significantly influence decision-making. However, there remains a research gap in empirical studies on emotional intelligence in the organisational context (Alharb & Alnoor, 2022). Although the theoretical relationship between emotional intelligence and decision-making is well-established, robust empirical studies using reliable tests and instruments are needed (Abu-Shanab & Shanab, 2022). The literature has essentially focused on the theoretical aspects of emotional intelligence, thus identifying an important gap in the literature regarding the practical application of emotional skills to the decision-making process (Hess & Bacigalupo, 2013). Besides, according to Alzoubi and Aziz (2021, p. 2), there is "a huge gap between strategic, result-oriented decisions and simple fluke decisions". Hess and Bacigalupo (2011, p. 714) sustain that "If one believes emotional intelligence adds value to the individual and/or group decision-making process, the question arises: How can it be practically applied to achieve that desired result?". Thus, the need and novelty of this study align with filling the gaps identified in the literature.

Therefore, this bibliometric analysis seeks to answer the following research questions (RQs):

RQ1: Which are the most relevant journals, authors, citations, and keywords in the linkage between emotional intelligence and strategic decision-making literature?

RQ2: What are the main trends associated with the study of the relationship between emotional intelligence and strategic decision-making?

Based on these RQs, the following objectives (O) were defined:

O1: To examine the evolution of research about the theme by enhancing the main journals, authors, citations, and keywords.

O2: To identify the main content of research through trends, and emerging topics.

THEORETICAL BACKGROUND

Emotional intelligence

Emotional intelligence allows to establish the relationship between emotions and cognition (Mayer et al., 2004), and refers to the ability to perceive, understand, regulate, and utilize emotions in problem-solving (Salovey & Mayer, 1990; Mayer & Salovey, 1997; Schutte et al., 1998), leading to positive and negative effects on self-management and relationships with others (Alzoubi & Aziz, 2021). Emotional intelligence empowers individuals to recognize their emotions and those of others, enabling them to make more balanced and empathetic decisions, considering the logic and emotional implications of choices (Goleman, 1995; Salovey & Mayer, 1990).

Several scholars (e.g., Ashkanasy & Daus, 2002; Bar-On, 1997; Grandey, 2000) have correlated the importance of emotional intelligence with creating a positive emotional climate and successfully coping with environmental demands and pressures. Overall, emotional intelligence plays a crucial role in personal and professional development, influencing how individuals interact with themselves and others, contributing to their overall success and well-being (Schutte et al., 2002), leading to reduced stress, increased optimism (Goleman, 1995), enhanced job performance, and yielding positive results (Aqqad et al., 2019).

Gross' (1998, 2002) model of emotional regulation provides a solid theoretical foundation for the concept of emotional intelligence. Emotional regulation refers to the ability to manage and modulate emotions across various domains, including behavioural, experiential, and physiological aspects. By understanding the complexities of emotions and emotional regulation, one can gain valuable insights into human behaviour and foster personal and professional growth (Wong & Law, 2002). It is worth emphasizing that emotional regulation plays a crucial role in ethical thinking and decision-making (Kligyte et al., 2013).

Strategic decision-making

Decision-making is a demanding task that requires the ability and competence of the decision-maker to strike a balance between complex situations, with many variables and different scenarios, in a short period, at any time (Calabretta et al., 2017). Therefore, it is necessary to know how to select the alternative that promotes better results for the organisation, given the highly competitive environment of the current context of uncertainty in which one lives.

Lisi (2018) states that top managers aim to use internal communication media to achieve their ends (e.g., superior performance). Information and communication become essential in determining the implications and consequences of different types of strategies. Thus, the literature on strategy portrays the different activities of managers and the existence of different decision-making processes (Agwu, 2018). Meanwhile, the implementation of strategy as an innovation in management in SMEs results from a combination of factors that can contribute to companies in various ways (e.g., offering goods and services to consumers better than those offered by competitors, distinction strategies, such as reducing the organisation's cost structure and cost leadership strategies, supply chain processes that can have faster delivery, agility in strategy, new ways of selling products, brands, or organisations, market position strategy, and strategy changes) (Branislav, 2014). This could lead to strategic adjustments that should be developed continuously, shortening timeframes, eliminating redundancies, and increasing efficiency with strict deadlines, as companies are treated strategically for decision-making, i.e., companies should be proactive rather than reactive (Branislav, 2014).

Decision-making can be categorised as either programmed, which involves a standard response to a simple or routine problem, or non-programmed, which pertains to problems that are either poorly defined or novel (Griffin, 2011; Hitt et al., 2005). Programmed decisions are previously described and established based on some standard, rule, or procedure. These decisions are typically routine and automatic, requiring little to no conscious reflection. On the other hand, non-programmed decisions lack any normative guidance and result from the interaction of individuals within the institution. They are unique and require careful analysis.

The general factors that influence a decision's quality are the decision-maker characteristics, the problem characteristics, and the decision environmental characteristics (Hitt et al., 2005). The characteristics of the decision-maker are fundamental pillars that shape the path to successful choices, as their wisdom, discernment, and skills pave the way toward prosperous outcomes. Beyond the rationality, knowledge, and experience of a decision-maker, the ability to control emotions and maintain ethical integrity also plays a relevant role in making sound choices (Hitt et al., 2005).

METHODOLOGY

This research follows a bibliometric analysis, a method that uses quantitative and statistical analyses to describe patterns of publications about a particular field of study and analyses cooperation between different research profiles. We use R. Bibliometrix, a software based on co-citation networks and content analysis of scientific articles (Aria & Cuccurullo, 2017).

R. Bibliometrix is an open-source statistical package with mathematical functions, statistical algorithms, and visualization features, all built into R programming. It runs in a Windows and Linux operating system environment, with R Studio's graphical interface (Dervis, 2019). It includes multiple routines to import bibliographic data from PubMed, ClarMate Analytics, Scopus, Web of Science, and Cochrane databases, allowing for rapid updates and integration. Furthermore, it also generates data matrices and bibliometric analyses for co-citation, coupling, scientific collaboration analysis, and co-word analysis (Aria & Cuccurullo, 2017).

For this study, we selected the Scopus database because it is recognized worldwide as one of the most complete and reliable (Pacheco et al., 2020). It also can index highly prestigious journals across a broad range of fields, identify document citations, references used, and analyse scientific production through the calculation of bibliometric indices (Ceretta et al., 2016).

We conducted a systematic search of the literature about the relationship between emotional intelligence and strategic decision-making, using the following query: (TITLE-ABS-KEY ("emot* intelligence") AND TITLE-ABS-KEY ("decision* mak*") AND TITLE-ABS-KEY (strateg*)) AND (LIMIT-TO (SRCTYPE, "j")) AND (LIMIT-TO (DOCTYPE, "ar") OR LIMIT-TO (DOCTYPE, "re")) AND (LIMIT-TO (SUBJAREA, "SOCI") OR LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "DECI") OR LIMIT-TO (SUBJAREA, "ECON") OR LIMIT-TO (SUBJAREA, "PSYC") OR LIMIT-TO (SUBJAREA, "COMP")) AND (LIMIT-TO (LANGUAGE, "English"). The search was conducted in January 2024, without time restrictions and only for papers and reviews published in English.

The data collection process allowed us to extract the bibliographic data and identify the most relevant journals, authors, documents, keywords, and trends about the linkage between emotional intelligence and strategic decision-making literature. Subsequently, through the software R. Bibliometrix, we processed the data of the various series of publications under analysis (Ekundayo & Okoh, 2018), which culminated in obtaining 49 documents in the period between 2004 and 2023. Furthermore, we interrelate the authors, and documents that have most addressed the topic. Finally, we performed bibliometric analyses of co-occurrence, co-citation, and bibliographic, document, and author coupling,

which are the most commonly used to map the topic and introduce a more objective component to the study, increasing the precision and rigor that this type of study requires (Zupic & Cater, 2015).

RESULTS

Retrieved literature and productivity

A total of 46 sources were identified, published between 2004 and 2023, namely, books, journals, and periodicals corresponding to 149 authors, of which 143 are co-authored documents and only 6 refer to single-authored documents. Our bibliometric study identified 49 documents alluding to 2,711 bibliographic references. About 85.7% of the documents are articles (42 articles), and 14.3% are reviews (7 review articles). In Table 1, we summarize the results obtained.

Description	Results
MAIN INFORMATION ABOUT DATA	
Timespan	2004: 2023
Sources (Journals, Books, etc)	46
Documents	49
Annual Growth Rate %	3.72
Document Average Age	8.69
Average citations per doc	35.10
References	2,711
DOCUMENT CONTENTS	
Keywords Plus (ID)	301
Author's Keywords (DE)	190
AUTHORS	
Authors	149
Authors of single-authored docs	6
AUTHORS COLLABORATION	
Single-authored docs	6
Co-Authors per Doc	3.08
International co-authorships %	24.49
DOCUMENT TYPES	
Article	42
Review	7

Table 1. *Main information about collected data*

Source: Own elaboration.

In what refers to the pattern of publications, we see a moderate increase in knowledge production. The years 2010 and 2015, both with 5 articles, and 2022 with 6 articles represent the highest scientific production in the period under analysis, revealing the researchers' interest of in this area of knowledge (Figure 1).
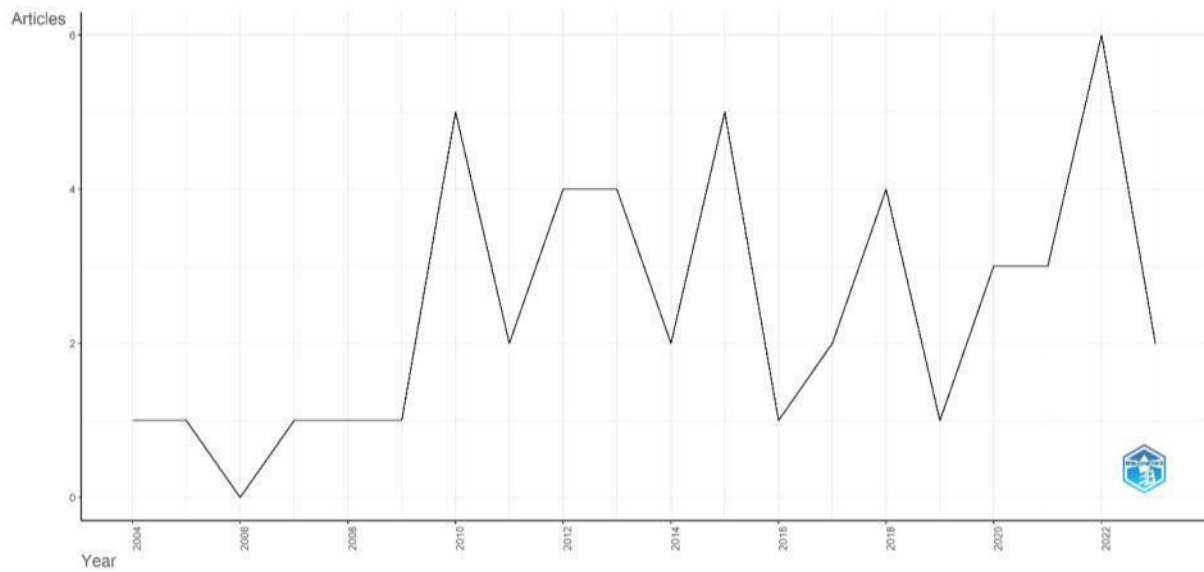
Figure 1. *Annual scientific production*

Source: Own elaboration.

We measured the journals' productivity and scientific impact through the Hirsch index (H-index), which allows the assessment of the authors' performance and the impact factor of the source (Merigó et al., 2015; Merigó et al., 2016; Mingers et al., 2012). The journals with the highest H-index are those that have published the most documents, namely *Brain and Cognition* and *Baltic Journal of Management* (H index: 2).

As for the most cited journals in the Scopus database, we identified, in the first place, the *Brain and Cognition* (H-index: 2; 135 citations), followed by the *Baltic Journal of Management* (H-index: 2; 43 citations) (Table 2). These journals deal, respectively, with (1) neurosciences and cognitive sciences, and (2) emerging fields of management.

Source	H index	G index	M index	TC	NP	Year
BALTIC JOURNAL OF MANAGEMENT	2	2	0,133	43	2	2010
BRAIN AND COGNITION	2	2	0,133	135	2	2010
ADMINISTRATIVE SCIENCES	1	1	0,083	15	1	2013
ADULT LEARNING	1	1	0,125	10	1	2017
AGING, NEUROPSYCHOLOGY, AND COGNITION	1	1	0,067	7	1	2010
AMERICAN JOURNAL OF PHARMACEUTICAL EDUCATION	1	1	0,5	2	1	2023
BEHAVIOR THERAPY	1	1	0,333	7	1	2022
BEHAVIORAL SCIENCES	1	1	0,167	8	1	2019
BRITISH JOURNAL OF CLINICAL PSYCHOLOGY	1	1	0,063	168	1	2009
COGNITIVE BEHAVIOUR THERAPY	1	1	0,077	116	1	2012

Notes: TC = Total citation; NP = Number of publications.

Table 2. *Top-10 source impact*

Source: Own elaboration.

Authors

Between 2004 and 2023, we found that 149 authors published articles about the linkage between emotional intelligence and decision-making, of which 6 articles were single-authored (4%), while 143 were co-authored articles (96%) (see Table 1). The first two authors were the ones who had the most publications throughout the period; Bacigalupo A.C. and Hess J.D., considering their H-index, are the most relevant authors (Table 3).

Author	H index	G index	M index	TC	NP	Year
BACIGALUPO AC	2	2	0,143	87	2	2011
HESS JD	2	2	0,143	87	2	2011
ADELEKE AQ	1	1	0,2	24	1	2020
ALZOUBI HM	1	1	0,25	50	1	2021
ANASTASIADOU M	1	1	0,333	1	1	2022
AZIZ R	1	1	0,25	50	1	2021
BABA MM	1	1	0,25	13	1	2021
BACON L	1	1	0,083	9	1	2013
BAILAO GONCALVES M	1	1	0,333	1	1	2022
BARBEY AK	1	1	0,1	13	1	2015
BEALE KS	1	1	0,067	7	1	2010

Notes: TC = Total citation; NP = Number of publications.

Table 3. *Top-10 author impact*

Source: Own elaboration.

Documents

The document with the highest number of unique citations within Scopus (Local Citations) is Hess and Bacigalupo's (2011) article published in *Management Decision*, with 2 citations, whose study propose "is to identify practical approaches to the application of emotional intelligence to the decision-making process." (p. 710), followed by Di Fabio's (2012) article from the *Journal of Career Assessment*, with the aim of "examin(ing) the relationship between emotional intelligence (EI) and styles of decision making." (p. 404), (3) Hess and Bacigalupo's (2013) article from *Administrative Sciences* with the objective "to identify how emotional intelligence skills can be applied to enhance the leadership decision-making processes within the non-profit organization." (p. 202), and (4) Scott-Ladd and Chan's (2004) article from *Strategic Change* which "argues that organizational learning is more effective if enacted by emotionally intelligent employees within clear operating boundaries such as those offered by participation in decision-making." (p. 95), which has one citation.

As for the most cited documents in all databases (Global Citations), we find, first, Heilman et al.'s (2010) article published in *Emotion*, with 239 citations, which analyses the emotion regulation and decision-making under risk and uncertainty; followed by Mikolajczak et al.'s (2009) article from the *British Journal of Clinical Psychology*, with 168 citations, that "seeks to extend the understanding of the role of dispositional factors in the aetiology and self-harm among adolescents" (p. 181) and Schroder et al.'s (2015) article from *Cognitive Therapy and Research*, with 134 citations, that studies how college students' implicit theories relate to their mental health symptoms, emotion regulation, and hypothetical treatment choices. Table 4 presents the most cited documents between 2004 and 2023 and the total annual citations in Scopus (local citations) and all databases (global citations).

Document	DOI	Year	Local Citations	Global Citations
HESS JD, 2011, MANAGE DECIS	10.1108/00251741111130805	2011	2	72
DI FABIO A, 2012, J CAREER ASSESS	10.1177/1069072712448893	2012	1	50
HESS JD, 2013, ADM SCI	10.3390/admsci3040202	2013	1	15
SCOTT-LADD B, 2004, STRATEG CHANGE	10.1002/jsc.668	2004	1	72
SCHRODER HS, 2015, COGN THER RES	10.1007/s10608-014-9652-6	2015	0	134
MIKOLAJCZAK M, 2009, BR J CLIN PSYCHOL	10.1348/014466508X386027	2009	0	168
HEILMAN RM, 2010, EMOTION	10.1037/a0018489	2010	0	239

Table 4. *Most cited documents*

Source: Own elaboration.

Keywords and knowledge structure

The keywords most found in the documents are *Emotional Intelligence* with 25 occurrences, *Decision Making* with 9, *Emotional Regulation* with 5, *Higher Education* with 3, *Leadership* with 3, *Cognitive Reappraisal* with 2, *Positive Emotions* with 2, *Qualitative Research* with 2, *Academic Leaders* with 1, and *Accounting Education* with 1 (Figure 2).
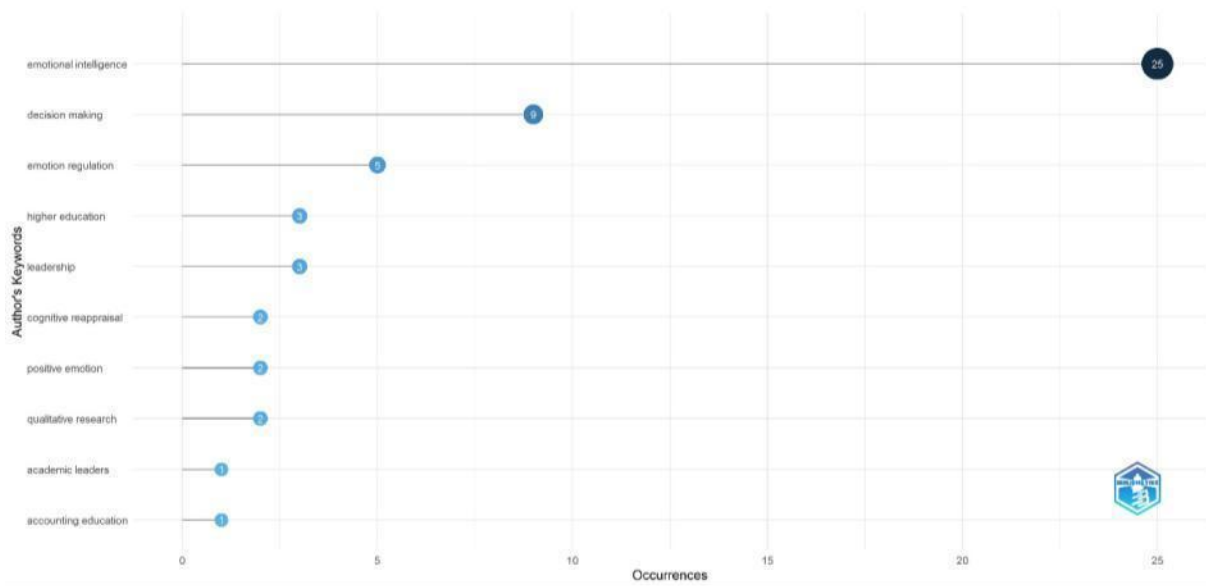
Figure 2. Most relevant keywords

Source: Own elaboration.

The trend topics over the years are displayed in Figure 3. We can see that in 2010, the research trend was towards the *Emotional Regulation* theme; in 2012, the most worked-on themes were related to the organisational theme, *Decision Making*; in 2013, research was oriented towards *Leadership*; in 2015, research focused on *Emotional Intelligence*; and in 2022, *Higher Education* became a research target.
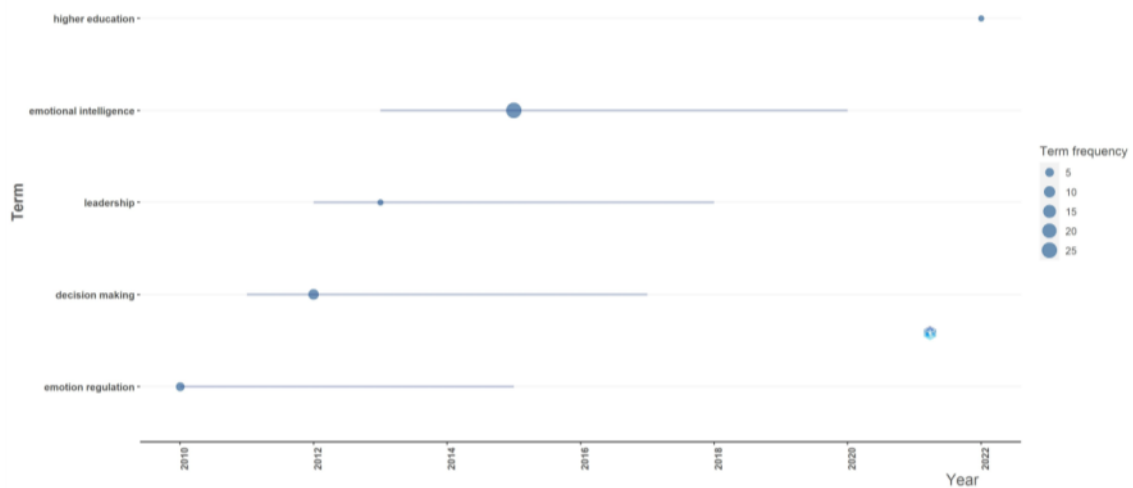
Figure 3. *Trend topics*

Source: Own elaboration.

DISCUSSION AND CONCLUSION

This study makes a bibliometric analysis aiming at understanding of the relationship between emotional intelligence and strategic decision-making. The results show that, despite the growing interest in the theme, more studies are needed to delve deeper into the topic, given the fact that the annual growth rate of scientific production is low (3.72 per cent) and the average age per document is high (8.69 years). Therefore, it is essential to deepen the study of the theme by carrying out more empirical studies (Abu-Shanab & Shanab, 2022; Hess & Bacigalupo, 2013).

As shown in Table 2, considering the top 10 sources, which account for 26.09% of publications and 29.71% of citations, it can be concluded that the theme is essentially studied in journals in the fields of (1) management (*Baltic Journal of Management* and *Administrative Sciences*), (2) neuroscience and cognitive sciences (*Brain and Cognition, Aging, Neuropsychology, and Cognition, Behavior Therapy, Behavioral Sciences, British Journal of Clinical Psychology*, and *Cognitive Behaviour Therapy*), (3) pharmacy (*American Journal of Pharmaceutical Education*) and (4) education (*Adult Learning*). The results show that publications in the field of management and strategy still have a long way to go.

The most relevant authors, according to the H-index, are Bacigalupo A.C. and Hess J.D.. Regarding global citations in all databases, the most representative documents are Heilman et al.'s (2010) article published in *Emotion*, with 239 citations, followed by Mikolajczak et al.'s (2009) article, with 168 citations, and Schroder et al.'s (2015) article with 134 citations (Table 3).

Emotional Intelligence with 25 occurrences (47.2%), *Decision Making* with 9 (17.0%), *Emotional Regulation* with 5 (9.4%), *Higher Education* with 3 (5.7%), *Leadership* with 3 (5.7%), *Cognitive Reappraisal* with 2 (3.8%), *Positive Emotions* with 2 (3.8%), *Qualitative Research* with 2 (3.8%), *Academic Leaders* with 1 (1.9%), and *Accounting Education* with 1 (1.9%) are the keywords most founded in the documents (Figure 2).

Regarding trends and emerging topics, in 2010, the research trend was towards *Emotional Regulation*; in 2012, about *Decision Making*; in 2013, towards *Leadership*; in 2015, focused on *Emotional Intelligence*; and in 2022, about *Higher Education* (Figure 3).

The main findings based on this bibliometric analysis are summarized in the following table.

Evolution of the theme	59.18% of all publications (articles and reviews) and 31.75% of all citations were published in the last decade (2014-2023).
Top 5 journals	Baltic Journal of Management; Brain and Cognition; Administrative Sciences, Adult Learning and Aging, Neuropsychology, and Cognition.
Most relevant authors (H-index)	Bacigalupo, A.C.; Hess, J.D.; Adeleke, A.Q.; Alzoubi, H.M.; Anastasiadou, M.; Aziz, R.; Baba, M.M.; Bacon, L.; Bailão Gonçalves, M.; Barkey, A.K.
Top 5 documents (Global Citations)	"Emotion Regulation and Decision Making Under Risk and Uncertainty" (239); "Adolescents choosing self-harm as an emotion regulation strategy: The protective role of trait emotional intelligence" (168); "The Role of Implicit Theories in Mental Health Symptoms, Emotion Regulation, and Hypothetical Treatment Choices in College Students" (134).
Content-based on the main keywords	Emotional Intelligence; Decision Making; Emotional Regulation; Higher Education; Leadership; Cognitive Reappraisal; Positive Emotions; Qualitative Research; Academic Leaders; and Accounting Education.
Trend based on conceptual and thematic structure	(2010) Emotion Regulation; (2012) Decision Making; (2013) Leadership; (2015) Emotional Intelligence; (2022) Higher Education.

Table 5. *Objectives and findings summary*

Source: Own elaboration.

The relevant nature of the linkage between emotional intelligence and strategic decision-making is unavoidable for individuals and organisations.

This research was guided by an articulation between a systematic literature review and the use of an innovative software, R. Bibliometrix, contributing significantly to a better knowledge of the theme. Bibliometric analysis is a powerful technique to to trace the development of the of the emotional intelligence and strategic decision-making field identifying key milestones and pinpointing future research trends. The primary documents reflect precisely the concern about how emotional intelligence can provide advantages in making smarter decisions and solving problems oriented toward the strategic component.

Theoretical and practical implications

This research contributes to the gaps pointed out in the literature about the scarcity of empirical studies linking emotional intelligence and strategic decision-making. The emergence of articles and reviews about this theme is indicative of the importance that this field of knowledge has been gaining in recent literature. This theme is undoubtedly an emerging paradigm in organisations' management, both by the urgency to find effective paths that can improve the managers' quality strategic decision-making.

This study allows academics to identify research trends in this theme and disseminate to managers the essential tools for linking emotional intelligence and strategic decision-making in organisational management. It also contributes to updating knowledge about the theme. These inputs are vital in the current competitive environment in which organisations are inserted. We provide information on the evolution of research with journals, authors, documents, keywords, trends, and emerging topics, enabling the identification of fields in which research on this theme is still non-existent or weak.

Limitations and future research lines

It is important to acknowledge certain limitations arising from the bibliometric analysis employed in this study, despite its broad contribution to enhancing our understanding of the literature on the linkage between emotional intelligence and strategic decision-making. The sample only included articles and reviews for analytical purposes while excluding book chapters, books, conference papers, editorials, errata, notes, and conference reviews. Nonetheless, exploring the contribution of a broader range of document types in future research would be valuable.

The fact that the bibliometric analysis is focused only on one database (Scopus) can also be considered a limitation. Future studies should gather other databases (e.g., Web of Science) so that the paradigm of the relationship between emotional intelligence and strategic decision-making in management can be more widely understood in its different dimensions, contributing to the literature review in an emerging area.

We suggest using VOSviewer to conduct more refined analyses of the publication's evolution in other journals over the years, focusing on national scientific production and comparing it with the results obtained internationally.

Finally, we believe that the terms *Emotion Regulation, Decision Making, Leadership, Emotional Intelligence,* and *Higher Education* correlate with the need to deepen the understanding of the theme and can be a good starting point for further research.

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TECHNOLOGY, RISK, ARTIFICIAL INTELLIGENCE ACCEPTANCE, AND THE ADOPTION OF SMART DEVICES

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ABSTRACT

Artificial Intelligence (AI) and the Internet of Things (IoT) are revolutionizing device connectivity, promising significant societal and technological transformations. The market for IoT is rapidly expanding, with an estimated 125 billion devices by 2030. Despite the potential benefits, consumers remain apprehensive about adopting these technologies. This research explores the factors influencing the acceptance of smart devices and attitudes toward AI.

Keywords: Artificial Intelligence, Internet of Things, Smart Devices, and acceptance

1. INTRODUCTION

The internet's focus has shifted from humans to integrated systems and automation (Stansberry, Anderson, & Rainie, 2019). AI and IoT are seen as drivers of increased productivity and economic development (Medagliani, Leguay, & Duda, 2014). The internet's evolution has shifted focus from human-centric interactions to integrated systems and automation. AI and IoT, now forming AIoT, enable devices to analyze data and make decisions independently, offering significant opportunities for enhanced productivity and convenience. However, consumer acceptance remains a critical issue, influenced by theories such as the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT).

Objectives

This study emphasizes the importance of technology acceptance and the adoption of smart technology in solving resource distribution issues in smart homes. Additionally, it explores consumer motivations for using technology to develop solutions and products for smart homes.

Gaps in Previous Research

Neumann (2018) noted the lack of diversity in previous smart technology acceptance studies, potentially affecting the results. The influence of education, age, and background on adoption was not thoroughly examined, partly due to limited resources (Taherdoost, 2018).

The advanced sensor technology in smart devices has the potential to improve the comfort and health of seniors and individuals with disabilities living in their own homes. Further research is needed to understand their acceptance of new technology.

The third challenge is Standardization Issues. Smart devices must adhere to specific quality control standards (Rasha, 2021).

Research Questions

What factors increase or hinder the acceptance of smart devices (IoT)?

Are there differences in these factors for adopters/non-adopters in various categories of smart home devices?

2. LITERATURE REVIEW

This section outlines the foundational theories for this study, including the technology acceptance model (Davis, 1989), domain-specific innovativeness and new product adoption (Parasuraman, 2000), perceived risk theory (Featherman & Pavlou, 2003).

Technology Acceptance

The concept of technology acceptance is based on the reasoned action theory and planned behavior theory. It is widely used to understand the factors that drive individuals and organizations to adopt new technologies. The Technology Acceptance Model is applied to a wide range of technological adoptions, including smart home technology, e-commerce, and others. (Davis, 1989). The Technology Acceptance Model (TAM) suggests that perceived ease of use and perceived usefulness are key determinants of technology adoption. Domain-specific innovativeness and perceived risk also play significant roles.

RESEARCH MODEL AND HYPOTHESES DEVELOPMENT

Research Model

The research model and hypotheses are based on the following previously discussed theoretical constructs: Technology access model (TAM), Innovativeness and Perceived Risk while using age, income, education, and gender level as control variables.
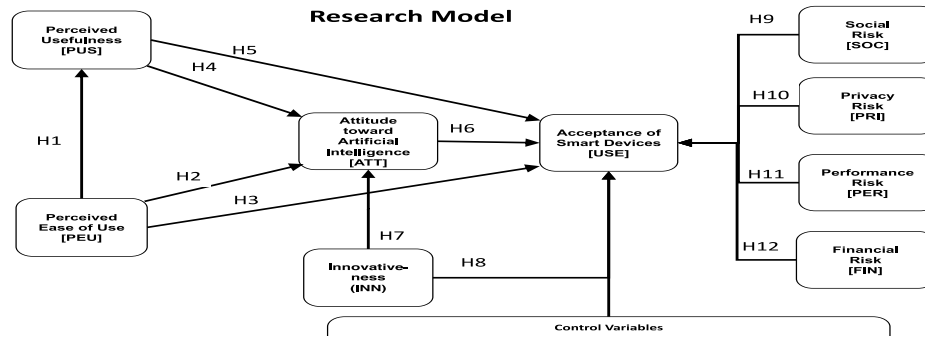
Figure 1. Research model.

Hypotheses Development

The literature review provides context, models, and methods for measuring variables in specific settings using various techniques. This study identifies the three most likely adoption models for smart home technology in Figure 1.

Technology Acceptance Model

The Technology Acceptance Model (TAM) suggests that customers' acceptance of new technology is influenced by perceived usefulness and ease of use. When customers evaluate smart devices for home automation, their behavior is directly and indirectly affected by perceptions of ease of use, according to a literature review (Davis, 1989). Various hypotheses were tested to ensure consistency and comparability with previous studies on new technology adoption.

H1 Perceived ease of use positively affects perceived usefulness of Smart Devices

H2 Perceived ease of use positively affects attitude towards Artificial Intelligence.

H3 Perceived ease of use positively affects acceptance of Smart Devices.

H4 Perceived usefulness positively affects attitude towards Artificial Intelligence.

H5 Perceived usefulness positively affects acceptance of Smart Devices.

H6- Attitude toward Artificial Intelligence has a positive effect on Smart Devices acceptance

Innovativeness

Consumer innovativeness refers to consumers' readiness to embrace new products and experiences and their predisposition to purchase or adopt new products. Innovators are typically at the forefront of technology and thinking (Parasuraman, 2000).

H7 Innovativeness positively affects customers' attitudes toward AI.

H8 Innovativeness positively affects acceptance of (use) Smart Devices.

Perceived Risk

Bauer (1960) defines perceived risk as the uncertainty and potential consequences associated with a consumer's decision. It negatively impacts users' intentions to adopt information technology

and includes six dimensions: performance, financial, time, psychological, social, and privacy. This study identified four types of perceived risks associated with smart devices: social risk, privacy risk, performance risk, and financial risk. Time and psychological risks were not considered in this study.

In this study, social risk refers to the potential status loss within a social group when embracing a product or service perceived as different (Parasuraman, 2000). Hence,   H9. Social Risk will negatively influence the Behavior of Smart Devices acceptance.

The privacy risk definition is "potential loss of control over personal information, such as when information about you is used without your knowledge or permission" (Featherman & Pavlou, 2003). Hence, H10. Privacy Risk will negatively influence the Behavior of Smart Devices acceptance.

Performance risk is the chance of a product not meeting expectations, failing to deliver as advertised, or experiencing software, power, or hardware malfunctions in smart devices. It also includes concerns about compatibility with other brands on the network.. Hence,

H11. Performance Risk will negatively influence Smart Device acceptance

The financial risk definition is "the potential monetary outlay associated with the initial purchase price as well as the subsequent maintenance cost of the product" (Grewal et al., 1994).

H12. Financial Risk will negatively influence Smart Device acceptance.

3. METHODOLOGY

A multi-stage quantitative research design was employed, using a pilot test followed by an online survey distributed through LinkedIn and Amazon Mechanical Turk. The survey included 76 questions across three sections, utilizing a 5-point Likert scale. Data were analyzed using IBM SPSS and Smart PLS-SEM.

Dependent Variable

In my model, I defined the dependent variable as the range of smart devices in a person's house, using 6 categories and SmartPLS for testing.

Table 9: Smart Devices and Solutions

Smart Devices and Solutions (List Number/Definition)
Complete Home Automation System
1. Home Automation System, you can control your whole house.
Security System Smart Devices
8. Smart home security system
12. Smart door lock system
13. Smart video door phone system
Ambiance Smart Devices
3. Home shading solutions, integrated lighting control solutions include motorized shades (Jalousie, Roller blind

and Marquise)

4. Smart home weather system, an AI-powered weather application with guaranteed accuracy

5. Automated Heated Driveways and snow melting system

9. Smart thermostat

10. Smart lighting , Switching, Dimming, Lighting scenes and navigation

Appliance Control Smart Devices

6. Smart toilets system, with features that include personal cleansing, individual temperature settings and soft nighttime lighting

14. Smart appliances

15. Smart plugs

Entertainment Smart Devices

7. Portable Smart table, a Bluetooth connected speaker and wireless charging device

17. Smart voice assistants (Alexa, Google, Echo)

Work Solutions Smart Devices

3. Home Conferencing, for working from home, school learning and socializing

I encoded device categories into binary codes for a MANOVA experiment using SPSS. This method focused on specific categories of smart home devices rather than examining all owned devices.

4. RESULTS

Data Demographics

Out of 453 survey responses, 148 were incomplete. After review, the missing data was found to be random. There were 305 complete survey participants.

Table 10: Demographic Profile

Factors	Category	Frequency N (305)	Percentage (%)
Gender	Male	214	70.2
	Female	91	29.8
Age	18 - 24	13	4.3
	25 - 34	137	45.1
	35 - 44	70	23.0
	45 - 54	42	13.8
	55 - 64	30	9.9
	65 and Older	12	3.9
Annual Income	Below $10,000	18	5.9
	$10 000 to $24 999	37	12.2
	$25 000 to $49 999	71	23.4
	$50 000 to $74 999	86	28.4
	$75 000 to $99 999	46	15.2
	$100 000 to $149 999	26	8.6
	$150 000 and greater	19	6.3
Education	High school diploma	6	2.0

Factors	Category	Frequency N (305)	Percentage (%)
	2-year degree	14	4.6
	4-year degree	196	64.3
	Master	76	24.9
	Doctorate / PHD	13	4.3
Work Experience	0-5 years	78	25.6
	6 - 11 years	105	34.4
	12 - 20 years	66	21.6
	21 - 30 years	34	11.1
	31 and over	22	7.2
Industry	Retired	4	1.3
	Agriculture, Forestry, Fishing and Hunting	7	2.3
	Computer and Electronics Manufacturing	48	15.9
	Wholesale	8	2.6
	Transportation and Warehousing	7	2.3
	Software	66	21.9
	Broadcasting	6	2.0
	Real Estate, Rental and Leasing	13	4.3
	Health Care and Social Assistance	11	3.6
	Hotel and Food Services	6	2.0
	Legal Services	5	1.7
	Construction	7	2.3
Factors	Category	Frequency N (305)	Percentage (%)
	Retail	6	2.0
	Telecommunications	12	4.0
	Information Services and Data Processing	30	9.9
	Finance and Insurance	23	7.6
	Scientific or Technical Services	6	2.0
	Other Industry	7	2.3
Position	Upper Management	31	10.3
	Middle Management	98	32.6
	Junior Management	44	14.6
	Administrative Staff	34	11.3
	Support Staff	18	6.0
	Student	6	2.0
	Trained Professional	21	7.0
	Skilled Laborer	8	2.7
	Consultant	13	4.3
	Temporary Employee	1	0.3
	Researcher	8	2.7
	Self-employed/Partner	14	4.7
	Other	5	1.7

Data Smart Devices

Four hundred and fifty-three survey responses were received within 40 days. Of these 453 responses, 148 were incomplete due to missing information, 305 survey participants final resutls. it was determined that it was missing at random and not deliberately.

Table 3: Data Smart Devices Profile

Smart Devises and Solutions (List Number/Definition)	Frequency N (305)	Percentage (%)
Complete Home Automation System		
1. Home Automation System, you can control your whole house.	161	53
Security System Smart Devices		
8. Smart home security system	107	35
12. Smart door lock system	86	28
13. Smart video door phone system	81	27
Ambiance Smart Devices		
3. Home shading solutions, integrated lighting control solutions include motorized shades (Jalousie, Roller blind and Marquise)	88	29
4. Smart home weather system, an AI-powered weather application with guaranteed accuracy	103	34
Smart Devises and Solutions (List Number/Definition)	Frequency N (305)	Percentage (%)
9. Smart thermostat	87	29
10. Smart lighting , Switching, Dimming, Lighting scenes and navigation	118	39
Appliance Control Smart Devices		
6. Smart toilets system, with features that include personal cleansing, individual temperature settings and soft nighttime lighting	48	16
14. Smart appliances	87	29
15. Smart plugs	66	22
Entertainment Smart Devices		
7. Portable Smart table, a Bluetooth connected speaker and wireless charging device	112	37
17. Smart voice assistants (Alexa, Google, Echo)	125	41
Work Solutions Smart Devices		
2. Home Conferencing, for working from home, school learning and socializing	169	55

Measurement Model

The next table presents the reliability of individual items based on their factor loadings. Only items with factor loadings greater than or equal to 0.7 are considered significant.

In this study, the cutoff value for the AVE is 0.5.

Table 4: Reliability and Validity Analysis

Constructs & Measurement Items	β	t	Cronbach Alpha	Composite Reliability [ϱ]	Average Variance Extracted (AVE)
Ease of Use			0.641	0.807	0.582
PEU1	0.772	21.362			
PEU2	0.741	17.917			
PEU3	0.774	24.251			
Usefulness			0.675	0.822	0.606
PU1	0.764	18.176			
PU3	0.788	22.679			
PU4	0.783	21.664			
Innovativeness			0.690	0.809	0.516
TR_INN 1	0.759	18.450			
TR_INN 2	0.628	8.496			
TR_INN 3	0.775	19.272			
TR_INN 4	0.702	14.444			
Attitude AI			0.674	0.804	0.507
AI_P11	0.753	19.076			
AI_P12	0.683	14.861			
AI_P5	0.736	20.875			
AI_P6	0.672	14.750			

Constructs & Measurement Items	β	t	Cronbach Alpha	Composite Reliability [ϱ]	Average Variance Extracted (AVE)
R_SOC1	0.916	4.918			
R_SOC2	0.903	4.793			
R_SOC3	0.807	3.628			
Privacy Risk			0.666	0.807	0.687
R_PRIV1	0.987	3.188			
R_PRIV2	0.632	1.991			
Performance Risk			0.768	0.866	0.683
R_PERF2	0.826	46.310			
R_PERF3	0.825	42.070			
R_PERF4	0.829	40.332			
Financial Risk			0.516	0.772	0.641
R_FIN2	0.957	2.461			
R_FIN3	0.605	1.564			

The Fornell-Larcker criterion checks discriminant validity by comparing the square root of the average variance extracted from each construct with the highest correlation with another. In our study, all average variance extracted values exceeded 0.50, confirming the model's reliability and validity.

	PEU	PU	INN	ATT	RSOC	RPRI	RPER	RFIN	AGE	INC	EDU	GEN	SD
PEU	*0.763*												
PU	0.634	*0.778*											
INN	0.316	0.253	*0.718*										
ATT	0.384	0.371	0.443	*0.712*									
RSOC	0.008	-0.054	0.266	0.059	*0.877*								
RPRI	0.057	-0.022	0.062	0.056	0.557	*0.829*							
RPER	0.010	-0.037	0.118	0.041	0.739	0.680	*0.827*						
RFIN	0.059	0.055	0.105	0.188	0.541	0.459	0.630	*0.800*					
AGE	0.005	0.006	-0.194	0.007	-0.181	-0.016	-0.045	-0.032	1.000				
INC	0.158	0.119	0.072	-0.058	-0.137	-0.082	-0.102	-0.110	0.199	1.000			
EDU	0.106	0.048	0.115	0.124	-0.023	0.023	0.008	0.037	0.109	0.153	1.000		
GEN	-0.024	-0.028	-0.121	-0.113	-0.006	-0.061	-0.063	-0.001	0.079	-0.080	-0.090	1.000	
SD	0.268	0.275	0.124	0.146	-0.075	-0.080	-0.100	-0.034	-0.013	0.153	0.050	0.046	1.000

Note. PEU=Perceived ease of use ; PU=Perceived usefulness; INN=Innovativeness;; ATT=Attitude towards Artificial Intelligence; RSOC=Perceived Social Risk; RPRI=Perceived Privacy Risk; RPER=Perceived Performance Risk; RFIN=Perceived Financial Risk; INC=Income; EDU=Education, GEN= Gender; SDE= Smart Devices Range Index

Table 5: Data Analysis - Discriminant Analysis

Hypotheses Testing

In the second phase of PLS-SEM evaluation, the structural model is assessed for multicollinearity, predictive validity, empirical significance of path coefficients, and confidence level (Hair et al., 2020).

I examined the variance inflation factor (VIF). VIF values below 0.5 have no collinearity issues (Hair et al., 2014). The current study's findings illustrate that the values of the constructs for the inner VIF are significantly lower than the recommended threshold (<0.5). It shows no collinearity in the data used in this analysis and reinforces the model's robustness.

Next, to assess the 12 hypotheses developed, I ran a bootstrapping of 5,000 resamples, and the direct effects were measured to describe the variables' relationship further.

Table 6: Direct Effects – Structural Model Results

Hyp	Direct Effects	β	t	p	Hypothesis Support
1	Ease of Use —> Usefulness	0.634	13.946	0.000	YES
2	Ease of Use —> Attitude AI	0.159	2.239	0.025	YES
3	Ease of Use —>Acceptance of Smart Devices	0.130	1.770	0.077	NO
4	Usefulness —> Attitude AI	0.183	2.573	0.010	YES
5	Usefulness —> Acceptance of Smart Devices	0.152	2.053	0.040	YES
6	Attitude AI —> Acceptance of Smart Devices	0.045	0.670	0.503	NO
7	Innovativeness —> Attitude AI	0.347	5.113	0.000	YES
8	Innovativeness —>Acceptance of Smart Devices	0.024	0.344	0.731	NO
9	Social Risk —> Acceptance of Smart Devices	-0.008	0.076	0.939	NO
10	Privacy Risk —>Acceptance of Smart Devices	-0.031	0.390	0.696	NO
11	Perform Risk —>Acceptance of Smart Devices	-0.064	0.654	0.513	NO
12	Finance Risk --->Acceptance of Smart Devices	0.009	0.130	0.897	NO
CV	Age —>Acceptance of Smart Devices	-0.045	0.691	0.490	
CV	Income —> Acceptance of Smart Devices	0.119	1.984	0.047	
CV	Education —>Acceptance of Smart Devices	0.014	0.211	0.833	

CV	Gender —>Acceptance of Smart Devices	0.070	1.228	0.219

Discussion structural model results

All TAM constructs had a positive effect on the use of Smart Devices in the home as expected. However, Ease of Use, Attitude toward AI, and Innovativeness did not reach significance levels. One possible reason for this could be that Smart Devices are widespread and may not be perceived as AI. Another reason could be that they have not penetrated past the Innovators stage..

Smart home devices are widely accepted with companies implementing security measures to protect users. The investment required is not risky, and these devices usually don't share excessive information.

Based on my analysis, perceived ease of use significantly impacts usefulness and attitude toward AI (p<0.05). Users with a positive perception of ease of use find devices more important. Interestingly, ease of use does not affect acceptance of smart devices (p<0.05). Perceived usefulness positively impacts attitude toward AI and smart device acceptance (p<0.05), highlighting the importance of innovation in creating useful products.

Control Variables

Reviewing the results for the demographic control variables, I can see that age is negatively related to Acceptance of Smart Devices (β=-0.045, p=0.490). Income (β=0.119, p=0.047) and Education have a positive relationship with Acceptance of Smart Devices (β=0.014, p=0.833) and Males (Female=2, Male=1) have a larger range of Acceptance of Smart Devices in their homes (β=0.070, p=0.219). Except for Income none of the other relationships are significant (p<0.05).

I used MANOVA analysis to predict the likelihood of a specific outcome based on multiple explanatory variables from my research model. MANOVA helps examine statistical differences on multiple dependent variables, grouping them into composite variables.

Post-Hoc MANOVA

Research question 2 - Are there differences in these factors for adopters/non-adopters in various categories of smart home devices?

Reason for analysis:

The various functions of smart devices cause differences between adopters and non-adopters across device categories.

Analysis Methodology

Creation of bi-modal groups – A model was constructed to compare factors of adopters and non-adopters for all 5 categories of use.

Home Automation System -   127 Adopters   173 non-Adopters

Security System Smart Devices -   221 Adopters   79 non-Adopters

Ambiance Smart Devices -   225 Adopters   45 non-Adopters

Appliance Control Smart Devices -   193 Adopters   107 non-Adopters

Entertainment Smart Devices -   271 Adopters   29 non-Adopters

Classification: if any smart device items in that category were used would be an Adopter.

It is important to mention that I used MANOVA analysis to apply and predict the probability of a specific categorical outcome based on several explanatory variables from my research model Fig. 1. To do the MANOVA, I created a Smart Devices Sub specifications (Binary) table 1, with different categories Home Automation System, Security System, Ambiance Smart Devices, Appliance Control Smart Devices, Entertainment Smart Devices, Work Solutions Smart Devices from table 1 smart devices and solutions and I coded people who have these categories and solutions as 1 and everybody else I put them as 0 buckets.

The MANOVA results on Home Automation System Table 9 indicate that Adopters are 127 and non-Adopters are 173, also Home Automation System indicates that has not a statistically significant effect between Adopters and Non- Adopters, I can examine the results of Hotelling's trace (F(12,287)=1.573; p=.099. However, we see significant differences in the TAM factors between the two groups.

Perceived Ease of Use, Usefulness, Attitude and Innovativeness means of non-adopters are significantly below those of Adopters.

People using Home Automation Systems find them more useful and user-friendly than others. They also tend to be more innovative and have a positive attitude towards AI. Smart devices are now ubiquitous in the market and are not typically regarded as artificial intelligence.

The differences in social, privacy, performance, and financial risks between home automation system adopters and non-adopters are minimal. People have become accustomed to technology and accepted its associated risks.

Table 7: Results of MANOVA

Home Automation System Independent Variable	Group Means		F	P<
	Adopters (n=127)	Non-Adopters (n=173)		
Ease of Use	4.266	3.998	12.399	0.000
Usefulness	4.260	4.026	9.421	0.002
Innovativeness	4.014	3.837	4.991	0.026
Attitude AI	4.116	3.964	5.173	0.024
Social Risk	3.294	3.167	0.786	0.376
Privacy Risk	3.724	3.673	0.217	0.642

Performance Risk	3.564	3.513	0.223	0.637
Financial Risk	3.736	3.601	1.840	0.176
Age	2.937	2.873	0.204	0.652
Income	4.008	3.728	2.482	0.116
Education	3.268	3.231	0.200	0.655
Gender	1.323	1.283	0.544	0.461
Hotelling's traceb			1.573b	.099

b. Exact statistic

The MANOVA results for Security Automation Table 8 indicate that both adopters and non-adopters prefer having a security system in their homes. However, there is no statistically significant difference between the two groups. Risks such as social, privacy, and performance are minimal, while financial risk differences even out. These risks do not significantly impact the use of Security Automation.

Surprisingly, non-adopters find Security System SD more useful than adopters, and the difference is significant. This suggests that security system owners may be disillusioned.

Table 8: Results of MANOVA

Security Automation	Group Means			
Independent Variable	Adopters (n=221)	Non-Adopters (n=79)	F	P<
Ease of Use	4.096	4.156	0.479	0.489
Usefulness	4.073	4.270	5.235	0.023
Innovativeness	3.905	3.930	0.078	0.780
Attitude AI	4.042	3.991	0.470	0.494
Social Risk	3.275	3.068	1.668	0.198
Privacy Risk	3.715	3.639	0.380	0.538
performance Risk	3.538	3.523	0.015	0.901
Financial Risk	3.658	3.658	0.000	0.999
Age	2.896	2.911	0.009	0.923
Income	3.828	3.899	0.125	0.724
Education	3.262	3.203	0.428	0.514
Gender	1.281	1.354	1.510	0.220
Hotelling's traceb			1.203b	.280

b. Exact statistic

Table 9 indicate that Adopters 225 and non-Adopters 45, Adopters prefer to have an Entertainment Automation in their homes. Also, Entertainment Automation indicates that has a statistically significant effect between Adopters and Non- Adopters, The MANOVA results on

Entertainment Automation indicate a statistically significant effect between Adopters and Non-Adopters, From the results of Hotelling's trace (F(12,287)=5.28; P<.0005. Additionally, adopters perceive higher risks in social, privacy, performance, and financial aspects.

Table 9: Results of MANOVA

Entertainment Automation	Group Means			
Independent Variable	Adopters (n=255)	Non-Adopters (n=45)	F	P<
Ease of Use	4.045	4.489	18.035	0.000
Usefulness	4.070	4.437	12.238	0.001
Innovativeness	3.924	3.844	0.519	0.472
Attitude AI	4.001	4.183	3.869	0.050
Social Risk	3.364	2.407	25.060	0.000
Privacy Risk	3.725	3.522	1.810	0.180
performance Risk	3.627	3.007	17.659	0.000
Financial Risk	3.718	3.322	8.417	0.004
Age	2.835	3.267	4.889	0.028
Income	3.729	4.511	10.402	0.001
Education	3.227	3.356	1.289	0.257
Gender	1.294	1.333	0.279	0.598
Hotelling's traceb			5.227b	.000

b. Exact statistic

The MANOVA results on Ambiance Automation Table 10 indicate that Adopters are equal to 193 and non-Adopters are equal to 107, also Ambiance Automation indicates that has not a statistically significant effect between Adopters and Non- Adopters, The MANOVA results on Ambiance Automation indicate no statistically significant effect between Adopters and Non-Adopters, From the results of Hotelling's trace (F(12,287)=1.29; P=.226

Ambiance Automation Adopters perceive lower risks than Non-Adopters for Social, Privacy, and Performance risk measures are significantly higher for non-adopters with significant differences.

Researchers are studying consumer resistance to innovations (Ram, 1987) which means non-adopters are concerned about their social lives and privacy. In addition, they fear that new smart devices will perform poorly. (Talwar, Talwar, Kaur, & Dhir, 2020).

Table 10: Results of MANOVA

Ambiance Automation	Group Means			
Independent Variable	Adopters (n=193)	Non-Adopters (n=107)	F	P<
Ease of Use	4.056	4.212	3.816	0.052
Usefulness	4.086	4.195	1.854	0.174
Innovativeness	3.890	3.951	0.544	0.461
Attitude AI	4.004	4.072	0.966	0.327
Social Risk	3.073	3.486	7.944	0.005
Privacy Risk	3.601	3.864	5.538	0.019
performance Risk	3.428	3.726	7.072	0.008
Financial Risk	3.601	3.762	2.451	0.118
Age	2.922	2.860	0.182	0.670
Income	3.860	3.822	0.042	0.838
Education	3.207	3.318	1.729	0.190
Gender	1.290	1.318	0.248	0.619
Hotelling's traceb			1.286b	.226

b. Exact statistic

The MANOVA results for Appliances Automation show that 271 adopters and 29 non-adopters prefer having appliances automation in their homes. There is no statistically significant effect between the two groups, according to the results of Hotelling's trace (F(12,287)=.95; P=.500).

The NON-ADOPTERS perceive significantly HIGHER ease-of-use and usefulness than the adopters. Maybe the adopters are a bit disillusioned by the devices not holding all the promises.

People who have Appliances Automation (Adopters) think They don't have Privacy and Performance risks.

Unexpectantly, Appliances Automation Non-Adopters perceive higher risks than Adopters. Social, and financial risk measures are higher for non-adopters. Maybe the adopters are more concern about social status and financial status

Table 11: Results of MANOVA

Appliances Automation	Group Means			
Independent Variable	Adopters (n=271)	Non-Adopters (n=29)	F	P<
Ease of Use	4.083	4.379	5.283	0.022
Usefulness	4.098	4.379	4.811	0.029
Innovativeness	3.891	4.112	2.790	0.096
Attitude AI	4.021	4.103	0.543	0.462
Social Risk	3.211	3.310	0.171	0.680
Privacy Risk	3.697	3.672	0.019	0.891
performance Risk	3.544	3.448	0.27	0.603
Financial Risk	3.657	3.672	0.009	0.926
Age	2.926	2.655	1.306	0.254
Income	3.812	4.172	1.472	0.226
Education	3.232	3.379	1.159	0.282
Gender	1.306	1.241	0.523	0.470
Hotelling's traceb			.947b	.500

b. Exact statistic

CONCLUSION, LIMITATIONS, AND FUTURE WORK

The findings underscore the importance of perceived ease of use and usefulness in technology adoption. Contrary to expectations, perceived risk did not significantly deter smart home device usage. Future research should address demographic imbalances and explore broader security risk implications.

Future work should consider expanding security risk assessments to include intelligent homes for eldercare, healthcare, childcare, and remote working. A deep study on security risks and standardization issues for smart home devices is also needed. This technology poses challenges such as labor force disruptions, market changes, increased inequalities, and threats to public safety and national security (Kavanagh, 2019).

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APPENDICES

APPENDIX A

Sample Characteristics: Eleven Prominent Definitions of Smart Home

Technologies, 1992 to 2019

Source	Date	Definition
Lutolf, R.	1992 2002	The integration of different services within a home by employing a common communication system. It ensures an economic, secure, and comfortable operation of the home and includes a high degree of intelligent functionality and flexibility.
Aldrich, F.	2003	A residence equipped with computing and information technology, which anticipates and responds to the needs of the occupants, working to promote their comfort, convenience, security, and entertainment through the management of technology within the home and connections to the world beyond.
De Silva, LC.	2012	A home-like environment that possesses ambient intelligence and automatic control, which allows it to respond to the behavior of residents and provide them with various facilities.
Balta-Ozkan, N.	2014	A residence equipped with a communications network, linking sensors, domestic appliances, and devices that can be remotely monitored, accessed, or controlled and which provide services that respond to the needs of its inhabitants.
Saul-Rinaldi, K.	2014	Inclusive, two-way communication system between the house and its occupants.
Hargreaves, T. and Wilson, C.	2017	A smart home collects and analyzes data on the domestic environment, relays information to users (and service providers), and enhances the potential for managing different domestic systems (e.g., heating, lighting, entertainment).
Shin, J.	2018	An intelligent environment that can acquire and apply knowledge about its inhabitants and their surroundings to adapt and meet the goals of comfort and efficiency.
Marikyan, D.	2019	A residence equipped with smart technologies aimed at providing tailored services for users.

Sources: Wilson, Hargreaves, & Hauxwell-Baldwin, 2015; Hargreaves & Wilson, 2017

APPENDIX B

Functional, Instrumental, and Sociotechnical Views of Smart Home Technologies

	Functional view	Instrumental view	Socio-technical view
What is the smart home?	A monitored, sensed environment that informs occupants allowing active control or automation.	An optimally managed building energy system allowing information and price-responsive adjustments to behavior.	A digital, technological, networked vision confronted by the mundane realities of domestic life.
	A set of inconspicuous technologies offering multiple remote and automated opportunities to control the domestic environment.	A domestic energy management system for cost and convenience.	(Yet another) set of technologies and devices to be integrated with existing domestic appliances and routines.
What is the purpose of the smart home?	Improve quality of home life through new services and enhanced functionality.	Enable energy demand reduction in the home and improved system management by utilities.	No inherent purpose, functions emerge as SHTs that are incorporated into domestic life as part of digitalization of homes.
	Enhancing lifestyle and domestic life by improving convenience, Security, entertainment, and communication.	Controlling heating and energy-using appliances and linking energy consumption to household lived experience.	Making control and monitoring of homes and appliances easier and more convenient as part of a long-running dynamic towards modernizing. homes

Sources: Wilson, Hargreaves, & Hauxwell-Baldwin, 2015; Hargreaves & Wilson, 2017

APPENDIX C

Table Constructs & Measurement Items

Constructs & Measurement Items	Questions
Ease of Use	
PEU1	Learning to operate smart home devices would be easy for me
PEU2	I would find it easy to get smart home devices to do what I want it to do.
PEU3	I would find home smart home devices easy to use
Usefulness	
PU1	Using smart home devices would make my life more convenient
PU3	Using smart home devices would make living at home easier
PU4	I find using smart home devices useful in my life
Innovativeness	
TR_INN 1	In general, you are among the first in your circle of friends to acquire new technology when it appears
TR_INN 2	You can usually figure out new high-tech products and services without help from others
TR_INN 3	You keep up with the latest technological developments in your areas of interest
TR_INN 4	You enjoy the challenge of figuring out high-tech gadgets
Attitude AI	
AI_P11	Much of society will benefit from a future full of Artificial Intelligence
AI_P12	I would like to use Artificial Intelligence in my own job.
AI_P5	I am interested in using artificially intelligent systems in my daily life
AI_P6	Artificial Intelligence can have positive impacts on people's wellbeing
Social Risk	
R_SOC1	Using smart devices will negatively affect the way others think of me is high
R_SOC2	Using smart devices would lead to a social loss for me because my friends and relatives would think less highly of me
R_SOC3	I would be concerned about what others would think of me if I made a bad choice when using smart devices
Privacy Risk	
R_PRIV1	The chances that using smart devices will cause me to lose control over the privacy of my data transfer is high
R_PRIV2	Using smart devices would lead to a loss of privacy for me because my personal information would be used without my knowledge
Performance Risk	
R_PERF2	The security systems built into the smart devices are not strong enough to protect my privacy
R_PERF3	The probability that there will be something wrong with the performance of smart devices or that it will not work properly is high
R_PERF4	Considering the expected level of service performance of smart devices, for me to use it would be risky
Financial Risk	
R_FIN2	Using a smart device subject to potential fraud.
R_FIN3	Using smart devices would lead to a financial loss for me.

CHANGES IN THE PUBLIC POLICY OF CULTURAL AND CREATIVE INDUSTRIES AND IN THE CULTURAL BEHAVIOUR CAUSED BY COVID 19 PANDEMIC IN THE SLOVAK REPUBLIC

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ABSTRACT

The COVID 19 pandemic has significant impact on the economic, social and environmental development of the world. To the most affected areas belong cultural and creative industries, where the COVID 19 enhanced the great digital transformation on the one hand, but also the financial constraints on the other hand. Both stimulated the significant changes in the implemented public policies. The paper identifies the challenges raised by the COVID 19 pandemic in the public policy of cultural and creative industries and in behavior of cultural customers on the example of the Slovak Republic and to link them with the already implemented measures by the state as the respond of public policy. They can be seen as a new strategical approach to the development of cultural and creative industries, which the pandemic identified as one of the key weaknesses in the previous policy of the cultural and creative industries.

Keywords: policy of cultural and creative industries, customers, COVID 19 pandemic, challenges

INTRODUCTION

Cultural and creative industries have become integral to economic development policies worldwide over the past two decades. Central to the creative economy are arts and culture, fostering innovation, design, and entrepreneurship. While these industries can drive economic growth, create sustainable jobs, and enhance regional appeal, they have been particularly vulnerable to the COVID-19 pandemic, especially those reliant on in-person interactions.

This paper examines the challenges posed by COVID-19 on public policy and cultural consumer behavior in Slovakia, aligning them with existing state responses. It reviews international measures

addressing the pandemic's impact on cultural industries, categorizes key policy challenges in Slovakia, and presents findings from a 2021 survey on virtual cultural engagement. Additionally, it outlines the Ministry of Culture's responses to pandemic challenges.

Offering insights into policy shifts during and post-pandemic in Slovakia, this article sheds light on longstanding issues within cultural policy. It serves as a reference for countries facing similar challenges, particularly in Eastern Europe, and underscores the need for greater recognition of the economic and societal importance of cultural and creative industries.

LITERATURE REVIEW

Art, culture and the sciences represent an important part of the wealth of the society. From the economic point of view, they belong to the cultural and creative industries, which have their origin in individual creativity, skill and talent and have a potential for wealth and job creation through the generation and exploitation of intellectual property (DCMS, 2001). They include various areas as architecture, fashion, design, advertising, crafts, art market, antiques market, film, video, computer games, music, television, radio, book publishing, software, newspaper and magazine publishing and performing arts (DCMS, 2001; Hesmondhalgh, 2007; Thorsby, 2001).

The development of the cultural and creative industries requires educated consumers, and an educated labour force, that is, people who have a high level of cultural and aesthetic values. Creativity of these people is based on originality, new and useful ideas and thought, and their individuality (Costa Seixas, Roldao, 2009, Borrup, 2010). It presents the potential for original, innovative and new solution to various problems. To develop the creativity, the effective combination of specific resources is needed as intellectual abilities (the synthetic, analytical and practical skills), knowledge, styles of thinking (how to deploy the skills), personality (willingness to overcome obstacles, willingness to take sensible risks, willingness to tolerate ambiguity, and self-efficiency), motivation, and supportive and rewarding of creative ideas environment (Sternberg, 2009). By other words, these industries are developing where the environment is friendly, open, and free, and that is why it fosters freedom, equality between people, and strengthening of cultural and aesthetic perceptions. The increasing demand for diverse content from both diverse audiences and diverse content aggregators such as broadcasters fuels the creative talent of diverse groups. A diverse creative workforce working collaboratively has therefore a great opportunity to make products to meet this demand. (Vaňová, et al., 2016).

However, from the beginning of 2020 and during next two years, the pandemic COVID 19 changed totally the features of environment, where the creative labour force could realise their activities. The implemented protected measures worldwide strictly eliminated the social contacts and the human freedom. The cultural and creative industries were one of the main effected sectors of world economy.

It is clear that the COVID 19 pandemic and the accompanying lockdowns have had a direct financial impact on the cultural and creative industries. Performances by musical artists have been cancelled due to closed venues and social distancing (Khlystova et al., 2022). Theatres, museums and libraries were closed, although some later tried to start functioning using digital technologies, but this was difficult for small cultural institutions to do (Vitálišová et al., 2021; Khlystova et al., 2022; Snowball, Gouws, 2023). Restrictions had a significant impact on the financial results of all kinds of cultural institutions. The film industry could not create and cinemas did not work, although, on the other hand, people spent more time in front of televisions or using subscription videos like Netflix. For example, China's cultural and creative industries, the largest economy and the first country to face the pandemic, saw a 14 percent drop in revenue in the first quarter of 2020 but recorded a growth of 2.2 percent at the end of the year (UNESCO, 2021).

It is no coincidence that in the case of China, even growth was recorded later, because after the first wave of COVID 19, central and local governments in most countries of the world offered various business support plans, which were not only focused on the cultural and creative industries but of course were also important for this sector. For example, in Lithuania, the municipalities of the two largest cities proposed the following financial assistance measures in their plans: waiver of rent tax, real estate tax, reduction of communal fees and the like (Dvorak, 2021). In Germany, direct and indirect support measures for the cultural and creative industries sector were also used: grants and loans; credit aid to preserve liquidity; specific rental agreements due to rent debts for studios, rehearsal rooms, and clubs; tax relief measures with options for deferring tax liabilities and reducing tax advance payments; short-time work allowances as an instrument for bigger and smaller cultural institutions and cultural enterprises (Dümcke, 2021). Dümcke (2021) noted that it is important that financial support measures were used from the beginning of the pandemic, and not retrospectively. Wall-Andrews et al. (2021) noted that due to the specific nature of the cultural and creative industries sector, as many people working in the sector are self-employed or perform contract work as freelancers, governments needed to find measures to protect this category of workers. For example, the Canadian government has two strategies: lowering the criteria and qualifying conditions of specific social protection schemes; the interest-free Canada Emergency Business Account loan

program. To qualify for the loan, the company is required to have paid salaries of at least $50,000 the previous year (Wall-Andrews et al., 2021)

The impact of the measures resulted in the progressive digital transformation of the cultural and creative industries, especially in a form of innovations in service delivery methods, direct customer interactions, and the proliferation of smart products that enable real-time monitoring and updates (Mergel, Edelmann, Haug, 2019) and establishing virtual culture as a replacement of live cultural events and performances. In the cultural sphere, the effects of digital transformation are evident in fostering the imaginative engagement with spaces and objects, enabling innovative forms of participation, and extracting new forms of value from previously inaccessible archives (Arrigoni, Schofield, Pisanty, 2020). Novel technologies have revolutionized cultural services by challenging and transcending conventional cultural norms within product categories. They introduce cultural meanings that were previously untapped by incumbents, resonating with end customers (Pedeliento et al., 2018). The impacts of digital transformation on cultural institutions go beyond just empowering customers. They also involve encouraging staff to think beyond their immediate service responsibilities, fostering exploration of new and more efficient work methods, and supporting continuous improvement among employees. This transformation promotes a customer-centric mindset and the development of organizational culture (Curtis, 2018).

Of course, as the pandemic progressed, the culture and creative industries sector's product consumption habits changed. It is noted that at the beginning it was a panicked behavior, as consumers needed to cancel purchased tickets to theatres and events, and tourist trips (Billore, Anisimova, 2021; Hu et al., 2021; Khlystova et al., 2022). Habits regarding social distancing and wearing masks also changed, for example, in the beginning, it was necessary to wear a mask when visiting museums and theatres. This was done to ensure quality and safe services for visitors (Burksiene et al., 2022). In some places, registration was required, for example at the Krakow Opera House, in Poland, all seats were not sold in theatres to maintain social distance between theatregoers. In addition, a number of events have moved online and remote concerts and exhibitions have been held (Davies, 2021; Rentschler, Lee, 2021; Khlystova et al., 2022; Mohanty et al., 2022).

METHODOLOGY

The aim of the paper is to identify the challenges raised by the COVID 19 pandemic in the public policy of cultural and creative industries and in behavior of cultural customers on the example of the

Slovak Republic and to link them with the already implemented measures by the state as the respond of public policy.

The first part of the paper, the literature review is focused on identification of the main challenges raised by the COVID 19 pandemic specially focused on the cultural and creative industries based on the international reports and literature resources.

The paper then outlined the policy response to the COVID-19 pandemic in Slovakia, detailing the implemented measures and financial support extended to cultural and creative industry stakeholders. It identified key challenges faced by Slovak cultural policy due to the pandemic, drawing on analytical documents from the Ministry of Culture and Ministry of Finance, as well as insights from structural interviews with representatives of the Institute of Cultural Policy at the Ministry of Culture..

The second part of analysis presents the research results of the questionnaire survey among the cultural customers in the Slovakia conducted in 2021, distributed electronically. The aim of the survey was to evaluated interest of customers in virtual culture as a possible full replacement of live culture. The survey includes the responses of 348 respondents (35,63 % men; 63,51 % women; 0,86% without answer) randomly selected coming from the Slovak Republic. The respondents were randomly selected. The other characteristics of the respondents present table 1.

Age	Number of respondents	%	Education	Number of respondents	%
18 - 30 years	223	64,64%	Grammar school	12	3,48%
31 - 40 years	8	2,32%	Secondary education without high school diploma	21	6,09%
41 - 50 years	69	20,00%	Graduated	253	73,33%
51 - 60 years	35	10,14%	University educated	58	16,81%
60 + years	8	2,32%			
No answer	5	1,45%	No answer	4	1,16%
Total	348	100,87%	Total	348	100,87%

Table 1. *Respondents by age and education*

The questionnaire used in the survey included 23 questions mapping the behavior of cultural customers before the COVID 19 pandemic and during the COVID 19 pandemic. The questions were scaling, open or combined. For the paper we selected only a few of them, which were processed by Excel and SPSS and with application of mathematical and statistical methods. Beside the basic statistical methods, the behavior of cultural customers in Slovakia during the COVID 19 pandemic in

connection with the use of virtual culture is verified in the paper through the regression analysis implemented and the Pearson correlation coefficient at the 5% level of significance ($\alpha = 0.05$).

The conclusions of the paper summarize the main challenges raised during pandemic period and identified the implemented measures of the Ministry of Culture as a respond to the them in 2022 and 2023.

RESEARCH RESULTS

In the Slovak Republic, the Ministry of Culture oversees cultural policy and creative industries, including heritage preservation, arts, copyright, and national culture promotion. It manages 36 cultural organizations centrally and coordinates activities of 159 others at the regional level. Before the COVID-19 pandemic, Slovakia allocated about 0.76% of GDP for culture, with 1.83% of public expenditure dedicated to cultural and creative industries. In 2018, total public spending on culture reached €645.8 million, with the majority supporting cultural services provided by institutions like theatres and museums. Local and regional governments also play a significant role, contributing 40% of culture financing. However, the pandemic has prompted changes in support for cultural and creative industries, explored further in the following section.

COVID 19 pandemic in the cultural and creative industries in the Slovak

Slovakia swiftly responded to COVID-19, implementing a state of emergency from March to June 2020, with cultural events halted and only essential businesses operating. Despite gradual reopenings, restrictions persisted, with controlled measures in high-risk areas during the second wave. Since August 2020, the cultural and creative sectors have faced financial strain and isolation's emotional toll. However, this adversity spurred innovation, with institutions and artists offering diverse online activities, reaching audiences at home.

However, even as these innovations partially substituted physical engagements in the creative and cultural realms, the representatives of these industries experienced a staggering 80% decline in sales during the first half of 2020 alone. This scenario deteriorated further in the latter half of the year (Press release of the President of SR, 2020). The economic ramifications of COVID 19 on the cultural and creative industries, though profound, lacked official and comprehensive data for analysis. Experts from the Institute of Cultural Policy envisage a return to normalcy not before a two-year period. The Institute of Financial Policy (Pažický, Žudel, 2020) foresees a pandemic-induced 6.7% recession in 2020, leading to a decrease of around 38,000 jobs, accompanied by a subdued inflation of 1.7%.

Gauging the holistic impact of COVID 19 is intricate, given the dynamic nature of the situation and the unpredictable duration of restrictive measures (Muchová, 2020).

The "We Stand by Culture" study surveyed 470 cultural and creative industry representatives during the initial COVID-19 lockdown, revealing varied damages. Individual losses ranged from €1,400 to €2,400, and for entities, €3,100 to €27,200. Respondents advocated for lump-sum financial compensation covering minimum state aid, partial fixed cost coverage, and flexible subsidy adjustments (Bieščad, Svorenčík, Borošová, 2020).

Public cultural and creative organizations faced COVID-19 impacts, but received timely compensation. Additional state budget resources supported institutions like theatres, museums, galleries, and cultural-educational entities, mitigating around 17.4% of their expenses (Ministry of Culture, Ministry of Finance of the Slovak Republic, 2020).

The data from the Institute of Cultural Policy and the aforementioned research validated that those independent of state and public funding were hardest hit. These actors, largely reliant on sporadic subsidies and their own activities (Trexima, 2020).

Financial assistance for those in the cultural and creative sectors occurred in two phases. Initially, the Ministry of Labour, Social Affairs and Family of the Slovak Republic offered a "first aid kit." Later, the Ministry of Culture of the Slovak Republic provided more targeted support based on survey results from industry representatives, refining the assistance mechanisms. The initial measures were part of the First Aid Kit overseen by the Ministry of Labor, Social Affairs, and Family, aimed at safeguarding employment and self-employment during the pandemic. However, stringent rules inadvertently excluded entities with multiple revenue sources. In response to industry backlash, the Ministry of Culture initiated a supporting scheme and reformed these rules to address the aftermath of the second pandemic wave.

During the second wave, the Ministry of Culture conducted a survey to gauge the actual impact on companies, individuals, and non-profits in the cultural and creative sectors. Results were sobering: 79% of companies saw over a 50% drop in income compared to 2019, with nearly half experiencing losses exceeding 80%. Collectively, these sectors lost over €630 million monthly. Individuals and non-profits also suffered significant income reductions.

To address these challenges, the Ministry introduced expanded subsidies and revised rules under Act no. 299/2020 Coll. These measures aim to provide financial aid for uncovered fixed costs and improve

accessibility for industry members. Ongoing negotiations reflect a commitment to assisting non-profits, with plans for further subsidies to mitigate revenue drops and cover costs incurred during 2020. However, challenges remain, including criticism, bureaucratic hurdles, and delays, casting uncertainty on the efficacy of these measures.

The total support for the cultural organisations established by Ministry of Culture presented table 2.

Purpose	Source	Total amount in €
Support of employment in the primary musical schools	Ministry of Education, Science, Research and Sport and Ministry of Labour, Social Affairs and Family.	16 627 593,00
Transfer of COVID contribution for 31 established organisations	Ministry of Culture	6 936 189,00
Loss of income	Ministry of Culture	2 780 764,00
Transfer of additional COVID contributions for RTVS and TASR	Ministry of Culture	2 255 508,00
The total support		28 600 054,00

Table 2. *Support for the cultural organisations established by Ministry of Culture in the Slovak Republic*

The total support for the cultural organisations which are beyond the establishment scope of the Ministry of Culture presented table 3.

Purpose	Source	Total amount in €
First Aid, First Aid +, First Aid++	Ministry of Labour, Social Affairs and Family	65 951 171,41
COVID subsidies for single person – limited liability company	Ministry of Culture	15 673 083,00
Fine Arts Fund	Fund for support arts	8 574 500,00
Subsidy for micro, small and medium enterprises operating in the field of culture and creative industry	Ministry of Economy	7 610 506,00
COVID subsidies for non-profit organizations active in culture	Ministry of Culture	5 901 474,00
COVID subsidy for professionals working in cultural and creative industries	Ministry of Culture	3 448 000,00
Special call 1/20	Fund for support arts	1 122 893,00
Extraordinary COVID transfer of Ministry of Culture to audiovisual fond for support the distribution of audiovisual works and the attendance and operation of cinemas.	Audiovisual Fund	1 000 000,00
COVID help for technical and support professions in parallel	Ministry of Culture	853 200,00
Call 3/2020	Audiovisual Fund	612 900,00
Call 9/2020	Audiovisual Fund	539 800,00
Special call 1/2020	Fund for the support of cultural national minorities	448 812,00
	Ministry of Transport	57 573,65
The total support		111 793 913,06

Table 3. *Support for the cultural organisations beyond the establishment scope of the Ministry of Culture in the Slovak Republic*

COVID-19 has exposed vulnerabilities in the cultural and creative industries but also highlighted opportunities for strategic improvement (Vitálišová, Vaňová, Borseková et al., 2020). A clear definition of these sectors and a consolidated database of their representatives are recommended for collective development. Despite their absence from the Slovak Recovery Plan, these industries are crucial for societal development. Research by Vitálišová et al. (2021) indicates that women and individuals in one-member households are the most vulnerable groups during the pandemic, necessitating targeted support measures. While the Ministry of Culture has initiated collaborative efforts to address the challenges, their efficacy is uncertain due to various obstacles.

Changes in cultural behaviour and cultural offer during COVID 19

During the COVID-19 pandemic, live cultural events were strictly restricted, prompting cultural institutions to explore virtual alternatives, both free and paid. In Slovakia, major state cultural institutions and numerous private and non-profit actors offered virtual cultural events. Research evaluating cultural customer views on virtual culture found that while 74.7% were aware of it, only 36.8% actually engaged with it, indicating that for over 60% of respondents, virtual events did not adequately replace live ones.
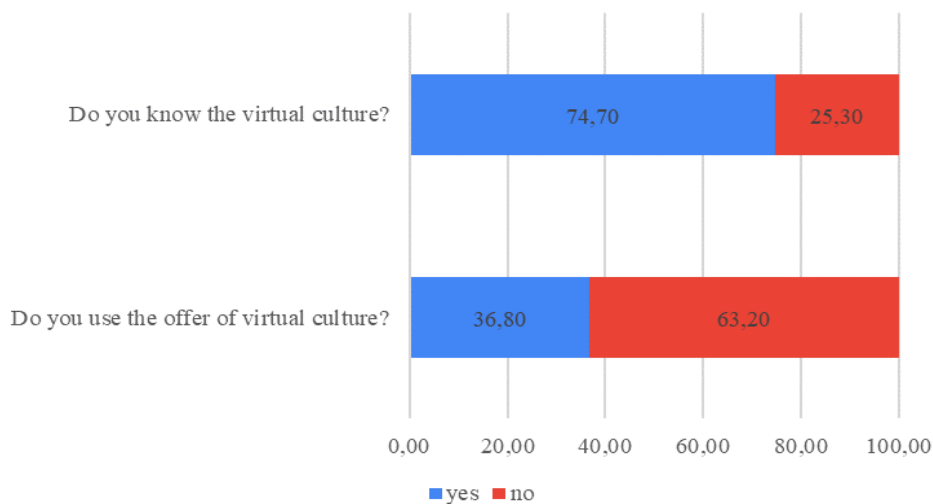
Figure 1. *The awereness on virtual culture*

Control questions confirmed earlier findings. Respondents were asked about their frequency of using virtual culture offerings before and during the COVID-19 pandemic. During the pandemic, 59.80% did not utilize virtual culture. Comparing responses on cultural event attendance before and during COVID-19, positive answers significantly decreased across all options during the pandemic.

How many times during month did you attend some cultural event before COVID 19 pandemic?			How many times did you use the virtual culture?		
less than 2 times	56,61	197	1 - 5 times	33,60	117
3 - 5 times	27,01	94	6 - 10 times	4,60	16
6 - 10 times	4,89	17	11 - 20 times	0,90	3
more than 10 times	1,44	5	More than 20 times	1,10	4
I did not attend the cultural events	10,06	35	No when	59,80	208
Total	100,00	348	Total	100,00	348,00

Table 4. *Attendance of cultural events before and during COVID 19 pandemic*

We explored changes in cultural behavior by examining which cultural institutions or events respondents visited before and during the COVID-19 pandemic. They could select from predefined options or add their own answers (Table 5).

Respondents	Before COVID	During COVID
Lectures		94
Concerts	12	90
Theatre performance	154	28
No one	24	27
Discussions		27
Museum versus virtual museum	107	20
Gallery versus virtual gallery/exhibition	67	10
Others (musical, concert, virtual Paris)	8	6
Cinema	282	
Castles, manor houses	8	
Total answers	662	302

Table 5. *The cultural institutions/events visited by the respondents before and during COVID 19*

The COVID-19 pandemic significantly reduced interest in cultural institutions and events, with responses dropping by more than half compared to pre-pandemic levels. As a response, alternative cultural events like lectures, concerts, and discussions gained preference.

Respondents rated virtual cultural events on a scale from 1 to 5, with an average score of 2.95, indicating medium quality. Comparing virtual events to live cultural experiences, most respondents felt that virtual culture was either the same or inferior in quality (Figure 2).
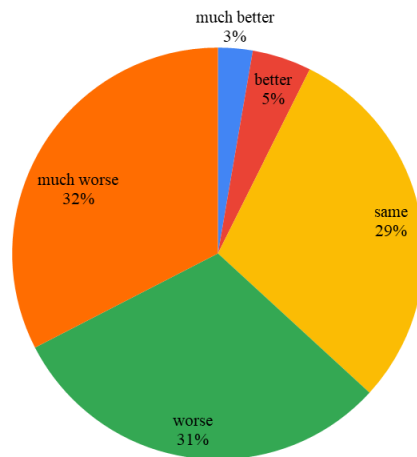
Figure 2. *The quality of virtual culture in comparison to live culture*

The last researched issue was to identify the consequences of live cultural events prohibition during COVID 19 pandemic for the customers. From 321 answers, 52,65 % respondents indicated as problem issues: the loss of social relations and contacts, 19 % respondents - loss of motivation, 4,36 % respondents - the loss of income. 23,99 % respondents did not notice any negative consequence of live cultural events prohibition during COVID 19 pandemic.

The behaviour of cultural customers in Slovakia in relation to the use of virtual culture can be influenced by a number of factors. These factors can be related, on the one hand, to the availability of communication technologies and IT skills of various groups of residents and, on the other hand, to the very relationship of cultural customers to culture. As part of the research results analysis, we examined which factors and to what extent influenced the cultural behaviour of customers in Slovakia during the COVID 19 pandemic.

We verified the influence on the behaviour of cultural customers in Slovakia during the COVID 19 pandemic in relation to the use of virtual culture through the regression analysis implemented and the Pearson's correlation coefficient at the 5% significance level of significance ($\alpha = 0.05$). Research has shown that the use of virtual culture influences the most the attitude of cultural customers toward culture (r = 0.27), which is also related to the frequency of visits to cultural institutions (r = 0.13) and the funds spent on culture before the COVID 19 pandemic (r = 0.20). Customers who have a positive attitude toward culture and before the COVID 19 pandemic visited cultural institutions more often, used the offer of virtual culture earlier and more often than customers who did not "live" culturally before the pandemic. Cultural customers with a higher average monthly income spent more money on culture before the COVID 19 pandemic. Surprisingly, the research showed a negative relationship between the use of virtual culture offers during the COVID 19 pandemic and whether cultural

consumers were guided to culture in childhood (r = -0.057) or led and guided their children to culture (r = -0.027). This also confirmed the relationship between the attitude toward culture and whether cultural customers were guided toward culture in childhood. A very weak negative dependence was also manifested here. However, this would mean that if we lead our children to culture in childhood, on the contrary, their attitude toward culture in adulthood will be more negative than positive. The research also showed a very weak positive correlation between the use of the virtual culture offer and age (r = 0.035) and the level of education (r = 0.065). However, it should be added that only 27 (0.19 %) out of the 141 Slovak cities offered virtual culture during the COVID 19 pandemic. In this period, the offer of virtual culture of cities was supplemented directly by cultural institutions of mainly national, but also regional, and local importance. Virtual culture in this period mainly took the form of music concerts, theatre performances, exhibitions, and reading books.

CONCLUSION

The COVID 19 pandemic highlighted in the Slovak Republic the long-term problems in the policy of the cultural and creative industries. To the most serious belong unclear definition of these industries, those was reflected in lack of relevant statistical data describing the situation in the cultural and creative industries. The absence of a strategic approach to the development of cultural and creative industries caused also the weak financial support, often not adequately aimed and used. Even the COVID 19 had a very negative impact on the sector of the creative industry and culture, it brings also the inevitable need to solve these challenges.

Based on the activities and analysis of the Institute of Cultural Policy during COVID 19 pandemic, there were implemented gradually the steps to manage the cultural and creative industries more strategically. The new methodology for the division of cultural policies and economic indicators and the set of aims and measurable indicators for cultural policy in Slovakia were settled. Due to the great vulnerability of the cultural and creative sectors´ representatives, the new financial support through the special calls to replace their income was introduced.

The pandemic influenced significantly also the behaviour of cultural customer in the Slovakia. Even the cultural institutions looked for the possibilities how to come closer to customers, the virtual culture had not been seen as an adequate replacement for the live cultural experience.

Although, the research findings are oriented on the Slovak Republic, it can be used as a case study example for countries with the similar economic and social conditions as well as for less-developed countries where the value of the cultural and creative industries is underrated. We realise, that the

focus one country can be perceived as a limitation of the research. On the other, it can be seen as a pilot research that can be a starting point for the comparative research of the topic internationally. As the next step in the research, it would be very beneficially to investigate also the efficiency of the implemented measures and if their framework really met the expectations of the cultural and creative industries´ representatives and settled aims of the policy of cultural and creative industries.

By providing these implications, the study not only contributes to academic discourse but also offers actionable insights for policymakers and practitioners aiming to support cultural and creative industries in the wake of global crises.

ACKNOWLEDGEMENT

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KEY FEATURES FOR SUSTAINABLE DEVELOPMENT STRATEGY OF THE POĽANA BIOSPHERE RESERVE

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ABSTRACT

Current global challenges highlight the need for smart use of limited resources and sustainable development of territories. Biosphere reserves as model territories represent an environment where biodiversity conservation with sustainable development is essential. These territories, based on the harmony of man and nature, should be smart managed through strategic spatial planning in accordance with the principles of sustainable development. The aim of the paper is to evaluate the current approach to the strategic planning of the biosphere reserves and on the example of the Poľana Biosphere Reserve to develop the key recommendations for its sustainable development strategy. The case study of Poľana Biosphere Reserve includes the SWOT analysis of the partial territorial potentials, which is supplemented by the assessment of the quality of life on its territory by its inhabitants through a questionnaire. The discussion and conclusion present a TOWS synthesis of the results of the analyses, based on which, together with examples of good practice, are formulated the key recommendations for the development strategy of the Poľana Biosphere Reserve.

Keywords: sustainable development, territory potential, Poľana Biosphere Reserve

INTRODUCTION

Biosphere reserve (BR) as an internationally recognized territory within the framework of UNESCO's Man and the Biosphere (MAB) programme, consisting of terrestrial, marine and coastal ecosystems and their combination, is devoted to strengthening sustainable development and supporting local solutions to global challenges, through connecting and preserving biodiversity with its sustainable use and development (UNESCO, 2022). The task is not only to preserve the natural heritage of the territory, but also cultural components in the form of traditions and a lifestyle of the people in the given territory, or their behaviour and socialization within the society belonging to this territory. (Lepeška, 2012; UNESCO, 2022). The development of BR is based on the participative approach, so the

local community as well as environment should benefit from the status of biosphere reserve (UNESCO, 2021; Turečková and Nevima, 2019).

However, the issue of sustainable development of BR is not paid adequate attention. The authors (Batisse, 1997; Ishwaran et. al, 2008; Ishwaran, 2012; König et al., 2022; Reed and Price, 2020; Bridgewater, 2002; UNESCO, 1996; UNESCO, 2015) stress the need of sustainable development within the transitional zone of BR, but there are less studies focusing on the strategical approach and its practical implementation (Yazdandoost, 2019; Van Cuong et. al, 2017; Gehrlein et. al., 2019; Jungmeier et. al, 2011; Mai, 2012; Vaňová et. al, 2023; Engelbauer, 2023). That is why the aim of the paper is to evaluate the current approach to the strategic planning of the biosphere reserves and on the example of the Poľana Biosphere Reserve to develop the key recommendations for its sustainable development strategy.

The paper presents partial results of the project APVV-20-0108 Implementation of Agenda 2030 through biosphere reserves.

1. BIOSPHERE RESERVE AND ITS DEVELOPMENT FROM DIFFERENT PERSPECTIVES

The development of a BR reflects the specifics of spatial development (Maier, 2012; Vaňová 2006) as an economic and a social process that aims to create a viable and productive territory and build the long-term competitive advantage based on the use of spatial potential. Moreover, it also reflects the political, social needs of the community of the territory and the development of employment opportunities, equality, justice, participation and independence in the territory. Vitálišová, et. al (2021) support this approach as suitable for application in BRs and add that "their development will never be able to be based on progressive industrial development but should be based on the use of soft factors of development in combination with the exceptional natural potential."

The BR development is based on exploitation of the endogenous potential of the BR in line with the endogenous growth theory (Arestis et. al, 2007; Bharadwaj et. al, 2005; (Ivaničková in Gerulová, Kováč, 2010; Hontyová and Lisý, 1999; Svidroňová and Mikuš, 2014). Moreover, BRs can be seen also as objects of the theory of learning regions, in which knowledge and the capacity to learn and innovate are key factors for development. (Blažek and Uhlíř, 2021).

Sustainable development of the BR must reflect four functions which BR fulfill. They include a protection of biodiversity, ecosystems, and the landscape; affecting the social or cultural system; a support of science, research, and education with an emphasis on building partnerships at the local, regional and international level, (ŠOPSR, 2022; UNESCO, 2015; UNESCO, 2022; Vitálišová et. al, 2022;

Turečková et al., 2023; Sýkorová, 2023) and supporting mitigation and adaptation to climate change and other aspects of global environmental change (Špulerová et al., 2023).

Strategic planning in territories seeks to coordinate activities in the territory and to respect existing interest groups, aligning individual objectives. It is desirable to apply a demand-oriented (marketing) approach, which complements the traditional approach by identifying the needs of target groups, creating conditions for the effective use of the territory, the operation of the functions and activities of the territory based on the collectively set objectives (Vitálišová et al., 2017, Vaňová, 2006). To achieve a higher level of success in strategic planning is necessary the adapting planning cycles to the needs of individual companies, territories, stakeholders, citizens, etc., by introducing a strategic performance management system, or by integrating human resources systems into the strategic plan. (Dye and Sibony, 2007). This approach is possible applied also in the BRs, where the rules given by the Technical Guidelines for Biosphere Reserves, UNESCO support this approach (UNESCO, 2021). The strategy of the BR should cover a multi-year period, be formulated through a participatory process, and adopted by the relevant decision-making body. UNESCO gives several reasons why a strategy for a biosphere reserve is necessary, e. g. coordination of activities, funding for the national government or potential donors; in-depth engagement with stakeholders and meeting their expectations, etc.

In the Slovak Republic, the current valid document that should be followed by the BRs is an Action Plan for the implementation of the UNESCO MAB Programme and the World Network of Biosphere Reserves in the Slovak Republic for the years 2018 to 2025, (ŠOPSR, 2022; Et. al., 2014; Ministry of the Environment; Rojíková, Orviský and Mihók, 2022; Urban, Miňová, 2024). To the other regulations that influence the strategic planning of BRs include spatial-planning and environmental programs and plans (the Territorial Ecological Stability System, Local Territorial Ecological Stability System, Regional Territorial Ecological Stability System, Landscape-ecological Plan, Territorial Planning of self-governing regions and Municipalities, District Development Action Plan, Visitors' Regulations of Protected Areas, and Programmes for Economic and Social Development of Municipalities and the Region). At the national level, the strategical planning of BRs have to adapt to the Habitats/Birds Directive, Management plan for Natura 2000 area, National Park Care Programme, Species Conservation Plan, National Programme Documents touching on nature and landscape conservation, biodiversity conservation and sustainable development, Concept of Nature and Landscape Conservation, Development Strategy of State Nature Conservation of the Slovak Republic, or Communication and Interpretation Strategies for Nature Conservation, Enviro-strategy 2030 and Enviro-strategies of self-governing regions.

The fact remains that the key strategic documents and concepts mentioned above focus primarily on nature conservation and the environment of the areas concerned. Some of them belong to the

landscape ecological plans, that regulate the rational forms of the use of renewable and non-renewable resources while preserving all the natural, aesthetic, and cultural values of the country (Belčáková, 2013). However, the attention pays to overall socio-economic development is very limited, by this way it abstracts also from the development function of the BRs. Although key documents in biosphere reserves can be complemented by sectoral documentation, i.e. programme documents in specific areas of life in the territory (especially in the field of tourism development, support for business activities with an emphasis on agriculture, food industry, crafts, culture, e.g. Rural Development Programme, Strategic Plan of the Common Agricultural Policy, documentation of individual sectors, e.g. Tourism Development Plan, Water Plan, etc.), their real consideration and interconnection with the priorities of biosphere reserves is questionable in the conditions of Slovakia (Vitálišová et. al, 2021). An exception is partly the Poľana Biosphere Reserve, which, through its representatives and the civic association Coordination Council Poľana Biosphere Reserve, has been actively participating since 2013 in the processes aimed at setting priorities and strategies for the development of municipalities within the Poľana Biosphere Reserve, which is why it is also an object of our research and a case of good practice in Slovakia.

Essential for the development of BRs is also a support of the government and the involvement of stakeholders falling directly within or outside the territory (Walk et al., 2019). The promoting the collection and integration of knowledge, expertise and experience from different stakeholders is a core of participative governance of the biosphere reserve and contribute to its development based on collaboration (Mehmood, et al., 2023). The added value of participative governance is also the appreciation of the importance of natural and cultural heritage for the development of the state, its policies, and its conservation, which contributes to ecological sustainability. Bridgewater (2002) states that "ultimately, information gained from scientific research must be incorporated into meaningful management practices, and management must have a greater influence on research priorities. Both research and management need to be people-centred and directly linked to policy formulation. Ecological sustainability is a human-created ideal and will only be achieved through appropriate human behaviour. Biosphere reserves, as special places for people and nature, are a key tool for developing a truly sustainable system."

2. DATA AND METHODOLOGY

The presented case study of Poľana Biosphere Reserve is based on the secondary data from the official statistical sources and officially published information on the website of stakeholders, municipalities within the BR. The source of primary data were personal unstructured interviews with representatives of the Poľana BR (manager and coordinator of biosphere reserve) and local stakeholders (local

entrepreneurs, local action group, members of civil association Coordination Council of the BR Poľana). The second part of primary data set were results of the questionnaire survey among citizens of Poľana BR aimed at the evaluation of the quality of life in the BR Poľana. Data collection was conducted from November 2022 to August 2023. The research sample consisted of 101 respondents from 19 to 60+ years. The survey was conducted electronically via Qualtrics Survey, shared via email, social media as well as personally. The research sample is representative by gender (Chi-square test - Asymp. Sig. = 0,136) and age (Chi-square test - Asymp. Sig. = 0,051). To process the collected data, we used basic mathematical and statistical methods. For testing and data analysis we used the Friedman test and Wilcoxon test through SPSS program and MS Excel application.

To systematize the gain data and evaluate them we used a SWOT analysis. It assesses the external and internal environment based on the expert assessment of 10 experts from the practice (-2 - weakest point, greatest threat, +2 - strongest point, greatest opportunity) who have professional competence and direct relationship with the researched biosphere reserve and the results of the questionnaire survey. These results were subsequently transformed into the TOWS synthesis.

The object of our research is the Poľana BR, which was declared the second biosphere reserve in Slovakia. It is located in the central part of Slovakia. The Poľana Mountain, the best-preserved tertiary volcano in Slovakia, has been protected since 1981 as part of the Poľana Protected Landscape Area with its director, what is also the head of the biosphere reserve. In 1990, the protected area was included in the UNESCO World Network of Biosphere Reserves for its exceptionally high natural and landscape value. Spanning an area of 24,158.23 hectares, it comprises a core zone of 1,333 hectares, a buffer zone of 7,930 hectares, and a transition zone of 11,097 hectares. With its pinnacle reaching 1458 meters and its base resting at 460 meters above sea level, the landscape bears testimony to its volcanic origins, boasting a diverse array of geological features including imposing rock formations, cascading waterfalls, and rugged lava flows. Blanketing 85% of the reserve's expanse are diverse forests, ranging from oak to spruce, while over 86% of the land is under the stewardship of Forests Slovakia. This unique landscape serves as an ideal backdrop for ecotourism, characterized by a patchwork of cultivated fields interspersed with meadows and pastures, often bordered by thickets of willows, brambles, and wild cherries. Traditional agricultural practices such as hand scythe mowing and sheep grazing lend a timeless charm to the region, complemented by quaint wooden settlements featuring distinctive structures like house, haylofts, and farm buildings. Adding to the allure of the landscape are intricately painted wooden crosses and a rich tapestry of folk-art traditions, deeply rooted in the region's folklore and customs, embodying the spirit of the local community (Vitálišová, Vavrúšová, Piscová, 2023). It includes 13 cadastral territories - municipalities Detva, Dúbravy, Hriňová in Detva district; municipality Očová as part of the Zvolen district; municipalities Hrochoť, Ľubietová, Poniky,

Povrazník as part of the Banská Bystrica district and Čierny Balog, Hronec, Sihla, Strelníky, Valaská in the Brezno district (Urban, 2016)

3. RESULTS AND DISCUSSION

In the research results, we focused on the evaluation of the partial potentials of the Poľana Biosphere. The first component of the potential is a natural-geographic potential, the so-called environmental identity of the Poľana BR. This component includes the potential of abiotic and biotic components of the territory and secondary landscape structure (Urban, 2016). The second component of the potential is the socio-economic potential of the Poľana BR. This component represents the socio-economic conditions of the area given by its unique location and territory, specific products, but also the social capital in the area. The third component of the potential is the socio-demographic potential of the Poľana BR. This component is formed by the possibilities and capacity of the human capital of the territory. The last, fourth component of the potential is the innovation potential of the Poľana BR. This potential represents research and education conditions and environment, cultural diversification, background for new ideas, innovations or third sector activities in the area. The evaluation of each potential is based on the average assessment by the representatives of the biosphere reserves as well as by the experts from practice.

Natural-geographic potential			
Strengths	EA	Weaknesses	EA
Variety and species richness of fauna	1,9	Overgrowth of selected animal species (brown bear)	-0,9
Unique surface shapes in the territory	1,8	Overexploitation of natural resources	-0,5
Unique topography of the territory	1,7	Loss of natural symbiosis (man and nature, reduction of grassland, change in natural habitat composition)	-0,3
Diverse forest system	1,7		
A large number of important animal species	1,7	Water pollution	-0,3
Opportunities	EA	Threats	EA
Possibility of drawing EU funds in partnerships and for joint development projects	1,4	Climate change	-1,3
Eco-forms of tourism development	1,3		
New practices in the care and preservation of fauna and flora	1	Damage to ecosystems and biodiversity from the negative impacts of human and animal activities.	-0,7
Lifestyle change focused in leisure time spent with the search for peace, relaxation	0,8		
Socio-economic potential			
Strengths	EA	Weaknesses	EA
Unique folklore and ethnography	2	Lack of promotion of the territory	-1,1
Exceptional food products	1,4	Undiversified range of services	-1
Agricultural and forestry opportunities	1,2	Small value attributed to the BR title (missed opportunities)	-0,9
Possibilities and conditions for hiking and sports and relaxation activities	1,2	Disappearance of traditional agricultural practices of farmers in the territory	-0,7

Easy access to the territory	0,6	Poor service infrastructure (restaurants, shops, health services, etc.)	-0,7
Opportunities	**EA**	**Threats**	**EA**
Possibilities of drawing EU funds in partnerships and for joint development projects	1,4	The outflow of the young generation	-1,4
Eco-forms of tourism development	1,1	Population ageing	-1,3
Activities of regional tourism organizations suitable for wider promotion of the territory and products	1	Lack of support at national level for the preservation of such ethnologically specific territories	-1
		High rise in cost of living, inflation, rising energy prices	-0,9
Completion of transport infrastructure of self-governing regions and at national level	0,9	Lack of interest of the young generation in traditions, traditional crafts	-0,8
Socio-demographic potential			
Strengths	**EA**	**Weaknesses**	**EA**
Knowledge of traditional product creation practices by locals	0,9	Outflow of young inhabitants from the territory	-1,6
Manually skilled population	0,7	Predomination of the elderly population	-1,2
Low population density	0,4	Low number of job opportunities in the territory	-0,9
Conditions and means for creating new jobs	0,3	Loss of interest in traditional crafts and lack of generational renewal	-0,7
Opportunities	**EA**	**Threats**	**EA**
Possibilities of drawing EU funds in partnerships and for joint development projects	1,4	Consumerist lifestyle	-1,4
Networking of entities leading to the development of partnerships	1,3		
New job opportunities through ecotourism development	1,3	Growing share of silver population	-1,1
Increasing the rate of promotion of the territory, leading to an increase in its integrity	1,1		
Development of dual education	0,8	High rise in cost of living, inflation, rising energy prices	-0,8
Changes in lifestyle preferences of potential residents and its promotion	0,7		
Innovative potential			
Strengths	**EB**	**Weaknesses**	**EB**
Existence and activities of representatives of the Poľana Protected Landscape Area and the Coordination Council of the BR Poľana	1,5	Lack of interest in BR	-1,4
		Lack of awareness among stakeholders	-0,7
Existence and implementation of the research projects in cooperation with the BR Poľana	1,2	Means and conditions for research and innovation in the territory	-0,1
Opportunities	**EB**	**Threats**	**EB**
Possibilities of drawing EU funds in partnerships and for joint development projects	1,5	Insufficient financial, capacity and legislative support for BR	-1,7
Possibilities of support of science, research, education through various domestic and foreign grant schemes	1,4		
Increasing the extent of stakeholder networking and taking advantage of the existence of the Poľana Biosphere Reserve	1,2		

Table 1 *SWOT analysis of the potential of Biosphere Reserve Poľana by expert assessment*

Secondly, we present the results of the analysis of the assessment of the quality of life in the Poľana BR by its inhabitants. The selected research results present figure 1.
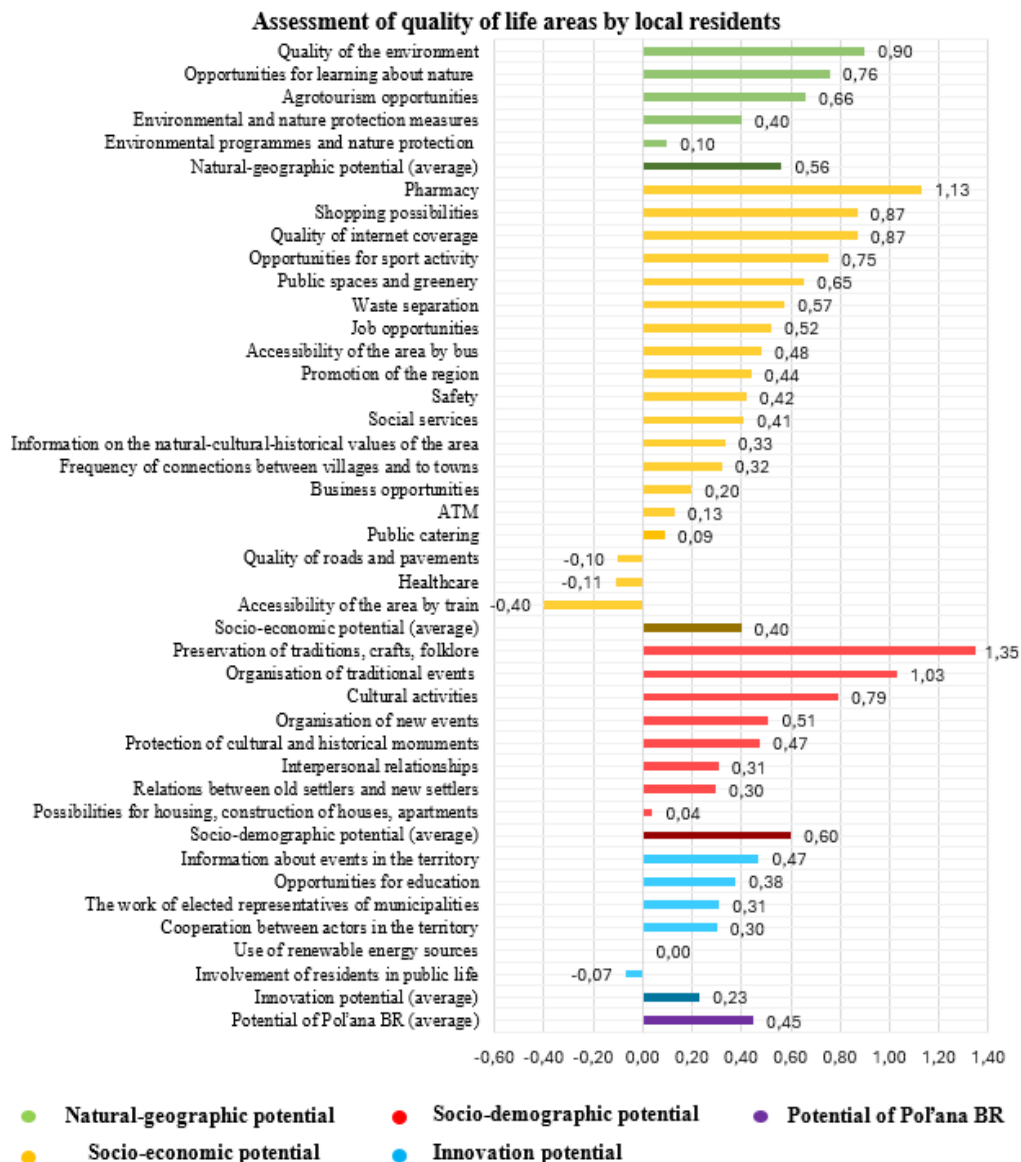
Figure 1 *Assessment of quality-of-life areas by residents*

The figure 1 illustrates the average scores of all respondents in each aspect of life in the area evaluated on a scale of -2 (dissatisfied) to +2 (satisfied). Within the natural-geographic potential, residents rated the areas of environmental quality (0,90), opportunities to explore nature (0,76), and the possibility of agro-tourism (0,66) as the highest quality of life. The least quality according to residents are programs in the area of environmental and nature protection. The top ranked quality of life area in socio-economic potential according to residents is pharmacy (1,13), followed by shopping options (0,87) and quality of internet coverage (0,87). Residents rank the area's accessibility by train (-0,40), health services (-0,11) and the quality of roads and sidewalks (-0,10) as the least quality of life. Regarding

socio-demographic potential, residents are most satisfied with the area of preserving traditions, crafts, folklore (1,35) and the organization of traditional events (1,03). They are least satisfied with the possibilities for housing, construction of houses, flats (0.04). On average, the respondents rate the socio-demographic potential with a value of 0,60. The last potential examined is the innovation potential, within which residents are most satisfied with information about events in the territory (0,47) and with opportunities for education (0,38). They are least satisfied with the residents' involvement in public life (-0,07). To conclude, the inhabitants are most satisfied with the areas of socio-demographic potential, which are mainly related to the preservation of traditions, crafts and folklore, or culture and the organization of traditional events in the territory. This is followed by the natural-geographical potential, which is dominated by the quality of the environment, and the socio-economic potential, which is also the area with which the inhabitants are most dissatisfied, in terms of accessibility, the quality of infrastructure and the quality of services in the territory. Nevertheless, the socio-economic potential exceeds the overall average rating for innovation potential. The overall evaluation of the potential is presented by the violet color as an average evaluation of all potential components.

The findings through the Friedman test showed that the residents of the Biosphere Reserve rank the preservation of traditions, crafts, folklore, shopping opportunities, cultural activities, opportunities to explore nature and the organization of traditional events among the areas with which they are most satisfied. The residents are least satisfied with the quality of roads and footpaths and the accessibility of the area. However, residents also ranked areas such as: frequency of connections between villages to towns, business opportunities, opportunities for housing, construction of houses and apartments, or promotion of the region, cooperation of actors in the territory and the work of elected representatives of towns and villages among these areas. They were also less satisfied with the following areas: public catering, ATM, job opportunities and information about the natural and cultural-historical values of the territory. The Wilcoxon test showed that the findings on satisfaction with the preservation of traditions, crafts and folklore and dissatisfaction with the accessibility of the territory by train can be statistically generalized to all inhabitants of the Poľana Biosphere Reserve.

Subsequently, based on the results of the questionnaire survey as well as the SWOT analysis of the potentials we elaborated the TOWS synthesis in figure 2.

TOWS synthesis of the Poľana Biosphere Reserve
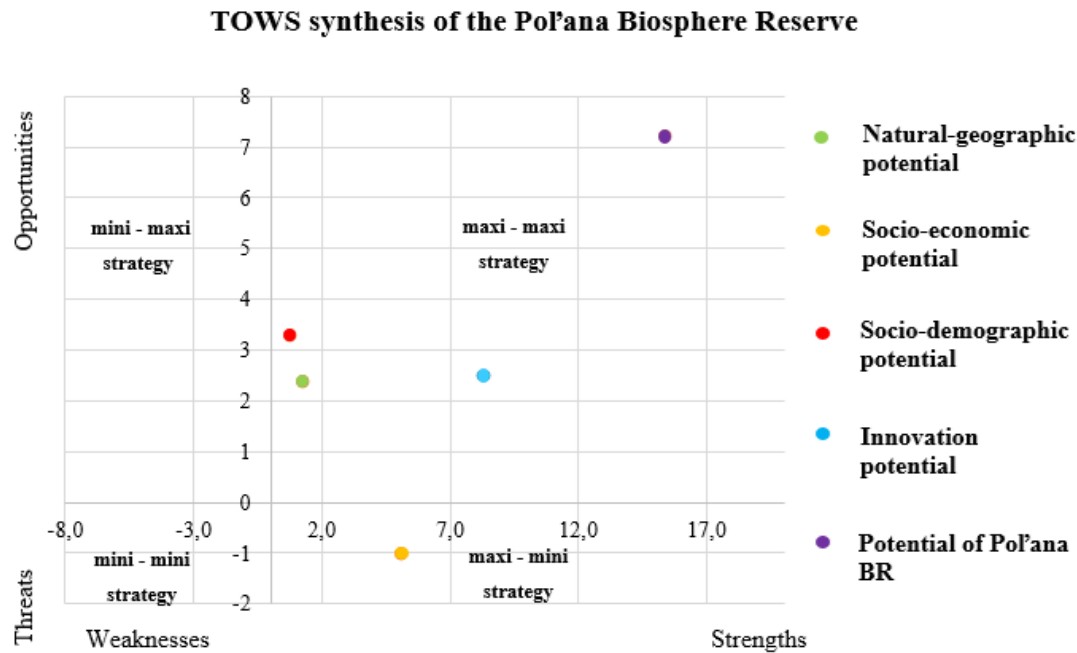
Figure 2. *TOWS synthesis of the Poľana Biosphere Reserve*

The summary assessment of the natural-geographic potential is located in quadrant 1. The area has several strengths, which are mainly represented by the diversity and species richness of the fauna and the unique surface formations. It also has strong opportunities, which in this case are the possibilities of drawing on EU funds in partnerships and for joint development projects or eco-forms of tourism development. Thus, the appropriate development strategy is the maxi-maxi strategy, based on developing strengths and maximizing the use of opportunities. The socio-economic potential of the biosphere reserve is in quadrant 4. It means that this potential has strengths but is dominated by threats, i.e., it is a maxi-mini strategy. The threats are mainly the outflow of the young generation from the area, the ageing of the population, or the lack of support at national level for the conservation of such an ethnologically specific area. Strengths are in particular the unique folklore and ethnography, the exceptional food products, the agricultural and forestry possibilities, and the opportunities and conditions for tourism and sports and leisure activities. In this case, the strengths should be exploited as much as possible, and the territory should try to avoid potential threats. They also influence the socio-demographic potential, which is located in quadrant 1, where we see strong opportunities but also strengths. The strongest opportunities within this potential are the possibilities to draw on EU funds in partnerships and for joint development projects, the networking of actors leading to the development of partnerships, new job opportunities, or an increase in the level of promotion of the territory leading to an increase in its integrity. The strengths of this potential are, in particular, the knowledge of traditional methods of creating products by local people, the preservation of traditions, crafts and folklore, the organisation of various traditional events and the manual skills of the population. Again, this is a maxi-maxi strategy, the essence of which should be to develop strengths

and maximise the use of opportunities. The innovation potential, as well as the natural-geographic potential and the socio-demographic potential, is located in quadrant 1, and thus the maxi-maxi strategy is recommended. There is a prevalence of strengths represented by the existence and activities of the representatives of the Poľana Protected Landscape Area and the Coordination Council Poľana BR, as well as the existence and implementation of the research projects in cooperation with the Poľana BR. Within this potential, we also have relatively strong opportunities, which are mainly formed by the possibility of drawing funds from the EU funds, the possibility of supporting science, research and education through various domestic and foreign grant schemes, or an increased level of networking of stakeholders and taking advantage of the existence of the reserve. The sum of the assessments was then used to identify an overall potential assessment, which is located in quadrant 1, which means that the Poľana Biosphere Reserve has a prevalence of strengths and opportunities, thus the recommended overall development strategy is the maxi-maxi strategy. Nevertheless, the prevalence of threats in the socio-economic potential and several weaknesses in the socio-demographic potential need to be taken into account.

The strategic planning framework of the Poľana BR use the methodology that reflects the recommendations of UNESCO (2021) and experts on the topic as Vaňová (2006); Vitálišová et. al, (2022); Urban, Miňová, (2024); Vitálišová et. al, (2021). The detailed analysis showed that there should be implemented a maxi-maxi strategy. However, this rather offensive strategy could mean a threat to the Poľana BR, which could be a threat to some of its strongest assets as richness of the flora and fauna. Therefore, the particularities and specificity of this environment should be respected. On the basis of the research findings or examples of good practice from abroad, we propose key recommendations of a strategy for the sustainable development of the Poľana BR. They are softer in nature and that support the sustainable development of the BR but do not threaten it.

Firstly, the common vision and aims for the strategical development of the Biosphere Reserve Poľana should be defined with active involvement of relevant stakeholders. Based on the research results, we can identify three main areas of development. The first one is the empowerment and opportunities for the local population with focus on the support for local producers, particularly craftsmen, farmers, and food producers, and by this way on promoting traditional agriculture and specific local products. Collaboration among regional trademarks brands could enhance marketing networks and promotion efforts. The Poľana BR has great agricultural land but faces challenges in lack of skilled workers and regular sels for its products. Collaborating with local farmers, restaurants, and schools to source and promote locally produced goods could enhance interest and strengthen the catering sector. A model from the Luberon Lure Biosphere Reserve in France, the 'From the farm to your canteen' project, demonstrates how connecting producers with school canteens can promote healthy eating with locally

sourced ingredients. Established in 2009, the project has enabled numerous municipalities to incorporate significant percentages of local and organic produce into their daily school meals. The second area is a support of the sustainable tourism development, particularly through ecotourism and rural tourism, ensuring harmony between tourist flow, environmental protection, and local well-being. BR boasts four main hiking trails, suitable for cycling, and potential for winter sports like cross-country skiing. Other attractions are traditional folklore festivals and culture presentation. The however, the society is struggling with several problems such as the migration of young people, the alienation of the population, the loss of interest in traditional agriculture, etc. Therefore, ecotourism represents the development of activities that are respectful of the unique nature, but at the same time create opportunities for the local population and for the empowerment of areas with which they are not satisfied. Through ecotourism, residents can find new jobs or new business opportunities in the newly offered services, or, by bringing back those that have disappeared, increase their income and standard of living. Addressing these weaknesses through ecotourism initiatives can enhance the area's appeal while preserving its natural beauty and benefiting local communities. The third area of recommendations is oriented on strengthening public awareness and partnership in the territory. Although the area has great potential, if it is not sufficiently promoted among inhabitants as well as for visitors. The promotional activities are done more or less as voluntarily by the administrator of the biosphere reserve, which is reflected in the range of activities. Educational initiatives, including workshops and conferences, are conducted by the Poľana Protected Landscape Area at a high professional level. The promotion of the biosphere reserve as an "ecotourism destination" should be enhanced through systematic collaboration with local actors and communities. Drawing inspiration from the Julian Alps Biosphere Reserve, creating a network of information points could improve visitor experience and educational outreach. Biosphere reserve managers play a crucial role in regional development, actively promoting economic and social activities while preserving the area's identity and culture. However, there is a need to raise awareness among the local population about the UNESCO Man and the Biosphere Programme and the role of the Coordination Council Poľana Biosphere Reserve. Despite efforts through various channels such as websites and social media, there is a perceived lack of information about the BR's natural and cultural values. Engagement of inhabitants is essential for the success of development activities in the reserve. Case studies from Italy highlight the importance of community involvement, which aligns with the positive perception of living within the biosphere reserve among residents and mayors (Mondino, Beery, 2019). Strengthening educational efforts, particularly among different age groups, can further enhance community engagement and support for the reserve's sustainable development goals.

CONCLUSIONS

The strategic development planning of the BR is an underdeveloped issue, which importance has increasing dramatically especially because of the great climatic changes. In the paper, we applied the strategical planning framework in the BR Poľana as a pilot, where we tested the methodology of analysis based on analysis SWOT and synthesis TOWS. The analysis was based on the evaluation of the BR potential - natural, geographic, socio-economic, socio-demographic and innovative. Based on the potential evaluation, we formulated the recommendations for the development activities. The synthesis TOWS indicates as the most suitable maxi-maxi strategy, leveraging strengths and maximizing opportunities. However, the delicate balance between development and environmental preservation must be maintained to safeguard the reserve's unique biodiversity and landscape.

Key recommendations include defining a common vision for development with stakeholder involvement, focusing on empowering the local population through support for traditional agriculture and ecotourism initiatives based on the uniqueness of the natural and socio-cultural wealth in the Poľana BR. The activities within these priorities could strengthen the interest in the territory, tourism, traditional agriculture, and help solving the problem of the outflow of young people from the territory, who would be motivated to stay and find a job, increase their income, skill level and standard of living, through the newly created job opportunities or the completion of the infrastructure that ecotourism will offer. (Vitálišová and Vavrúšová, 2023; Vitálišová et. al., 2023).

Effective collaboration among stakeholders, including biosphere reserve managers, local communities, and policymakers, is crucial for successful implementation. By aligning strategies with the reserve's unique attributes and addressing existing challenges, the Poľana BR can realize its full potential as a model for sustainable development while preserving its natural and cultural heritage for future generations.

The pilot testing of the methodology for the strategic planning of BR showed that it can a suitable approach for these specific territories. It meets the rules of UNESCO guidelines and brings the added value in looking for the stakeholders 'consensus in development activities. Moreover, it opens also the new research areas, as identification of the most suitable control mechanism, useful tools of participatory governance in BR or "correct" division of power and tasks among stakeholders in BR, etc.

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KNOWLEDGE MANAGEMENT CAPABILITY, INNOVATION MANAGEMENT CAPABILITY, QUALITY MANAGEMENT, AND SUSTAINABLE PERFORMANCE: DEVELOPING A CONCEPTUAL MODEL

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ABSTRACT

This research aims to develop a conceptual model regarding the relationship among knowledge management implementation capability, innovation management capability, quality management, with sustainable performance. Literature review is employed to develop the above-mentioned model. This research is novel in creating a holistic model to investigate these relationships and their effects on sustainable performance for the first time in literature. The study also aims to provide practical insights for managers to develop strategies that integrate knowledge management practices, innovation, and quality management to achieve sustainable growth, especially during economic, health, and geopolitical crises, maintaining competitiveness.

 The results indicated that: a) knowledge management implementation capability, innovation management capability, and quality management influence sustainable performance, b) knowledge management implementation capability has positive and important relationship with innovation management capability, and c) knowledge management implementation capability has positive and significant relationship with quality management.

Keywords: Knowledge Management Capability, Innovation Management Capability, Quality Management, Sustainable Performance, Literature Review, Conceptual Model.

INTRODUCTION

In today's era of the knowledge economy and society, and the 4th industrial revolution, the utilization of modern technologies, innovation development, and Knowledge Management (KM) are essential elements for the sustainable development of businesses, particularly in the service sector where organizations are knowledge-intensive and rely on it. Furthermore, the long-standing health, geopolitical, and economic crisis plaguing businesses and threatening their sustainability, constitutes a framework that further intensifies the necessity of implementing KM practices and innovation

development by businesses in order to gain comparative competitive advantages and maintain customer satisfaction and quality service, while achieving effective and efficient operation. However, taking into account the existing literature, it is observed that there is no relevant published study exploring the relationship between the critical concepts representing Knowledge Management Capability, Innovation Management Capability, Quality Management (QM), and Sustainable Performance. Therefore, the existence of the aforementioned research gap in conjunction with the necessity of investigating the relationship of the aforementioned concepts constitutes the impetus for this research, where the aim is to create the conceptual model that will depict and link the concepts of "Knowledge Management Capability," "Innovation Management Capability," "QM", and "Sustainable Performance" within a crisis management framework during the 4th industrial revolution where technological advancements and digitization are rapid and necessary for the sustainable development of businesses. The following sections present the literature review, the conclusion with originality, further research and practical contribution of this research.

LITERATURE REVIEW

Knowledge Management Capability

Knowledge Management (KM) Capability can be defined as: a) the organization's ability to collect critical knowledge for assimilation and exploitation (Miranda *et al.,* 2011), b) the processing and development capability of knowledge-based resources in combination with other resources and capabilities (Chang and Chuang, 2011), and c) a knowledge system that includes behaviors and abilities reflected in organizational processes, so that the organization can cope with market changes (Lukas and Ferrell, 2000; Tseng, 2016).

Specifically, the critical elements contained in Knowledge Management Capability are related to: a) organizational capability to exploit existing knowledge, b) continuous learning process leading to knowledge creation (Martinez-Conesa *et al.,* 2017), c) the promotion of continuous creation of the KM process cycle, as presented in a previous section (Bose, 2003). Additionally, Knowledge Management Capability represents the application of KM processes within an organization, and is characterized as "dynamic" due to its ability to manage organizational knowledge through the realignment of KM processes either within or outside the organization (Martinez-Conesa *et al.,* 2017; Lichtenthaler and Lichtenthaler, 2009). Specifically, Knowledge Management Capability can contribute to minimizing errors and excessive effort in searching for knowledge from the organization's external environment (Martinez-Conesa *et al.,* 2017). Therefore, Knowledge Management Capability represents the overall organizational ability for knowledge storage, dissemination, application, and creation (Alavi and Leidner, 2001; Gold *et al.,* 2001; Pee and Kankanhalli, 2016; Tanriverdi, 2005).

Finally, according to the literature, the most popular perception of Knowledge Management Capability includes two main elements (Gold *et al.,* 2001): a) infrastructure capabilities, which include the dimensions of technology, structure, and culture of the organization, and b) KM process capabilities, which include the systematic process of knowledge creation, storage, dissemination, and application (Alaarj *et al.,* 2016; Gold *et al.,* 2001).

Innovation Management Capability

Innovation Management Capability refers to the ability of the enterprise to manage its internal organizational structure and management, enhance its operational activities, and improve the culture and philosophy of the enterprise (Damanpour and Aravind, 2011). Additionally, international literature states that Innovation Management is based on three principles: it should be market-oriented, treated as a system, and have clear objectives within the enterprise (Arvanitis *et al.,* 2016). Furthermore, Innovation Management can focus on incremental innovation, small-scale innovation, and radical innovation (Akanmu *et al.,* 2022). Therefore, Innovation Management is a concept that focuses not only on technology but also on processes, functions, and business and managerial models (Szekely and Strebel, 2013) and is influenced by a plethora of internal and external factors.

Quality Management

Quality Management is a concept that involves the management of various critical factors of the organization with the aim of continuous improvement and customer satisfaction. Specifically, the critical elements of Quality Management are: process management, development of a continuous improvement philosophy, Benchmarking, quality measurement, information analysis, empowerment of human resources, commitment of top management, leadership, customer satisfaction and involvement, and training (Foster, 2007). Quality Management contributes positively to improving sustainable performance, customer satisfaction, organizational performance, employee productivity, service innovation, knowledge management improvement, and the education system (Akamnu *et al.,* 2022; Xanthopoulou *et al.,* 2023). Therefore, it is a concept that is a critical factor in gaining a competitive advantage for businesses that implement it and a means to improve their sustainable performance.

Sustainable Performance

The sustainable performance is a concept that includes three dimensions: the economy, the environment, and society (Brent and Labuschagne, 2004), which determine business success and sustainable development (Akanmu *et al.,* 2022). Specifically, economic sustainable performance is related to evaluating the return on capital, reducing organizational costs, achieving profit in terms of economic performance goals, and improving income. Social sustainable performance is related to

evaluating the organization in terms of education and training, human resource development, social commitment and participation, and developing a healthy work environment (Zhu *et al.*, 2012). Finally, environmentally sustainable performance refers to evaluating the business in terms of reducing the use of environmentally harmful materials, reducing hazardous emissions into the environment, and utilizing resources in an energy-efficient manner (Junquera *et al.*, 2012). Therefore, the combined assessment of the three dimensions yields the final result of the concept of sustainable performance.

The relationship among KM Capability, Innovation Management Capability, and Quality Management with Sustainable Performance

The literature review highlighted a lack of published research regarding the holistic investigation of the relationship between the concepts of "KM Capabilities," "Innovation Management Capability," "Quality Management," and their impact on the "Sustainable Performance" of businesses. While individual relationships between some of these concepts have been explored, there is limited research on their combined influence. Specifically, limited studies exist on the relationship between KM Capability and Innovation Management Capability and their impact on sustainable business performance (Shahzad *et al.*, 2020).

Few studies are available on the relationship between: a) KM Capabilities and Sustainable Performance (Permatasari *et al.*, 2022), b) Innovation Management Capability and Sustainable Performance (Pinzon-Castro *et al.*, 2021), c) Innovation and Sustainable Performance (Zhang *et al.*, 2022), d) QM and Sustainable Performance (Akanmu *et al.*, 2020), e) KM Capabilities and Innovation (Honarpour *et al.*, 2018).

Additionally, there is a lack of published articles documenting the interaction between KM Capabilities and Quality Management (Xanthopoulou, 2023), and limited publications investigating and confirming the positive interaction or unilateral effect between KM Capabilities and QM (Barber *et al.*, 2006; Choo *et al.*, 2007; Colurcio, 2009; Hung *et al.*, 2010; Jayawarna and Holt, 2009; Honarpour *et al.*, 2018; Molina *et al.*, 2007; Waddell and Stewart, 2008).

Based on the above, the proposed conceptual model that can be derived from the literature review presented above is as follows:
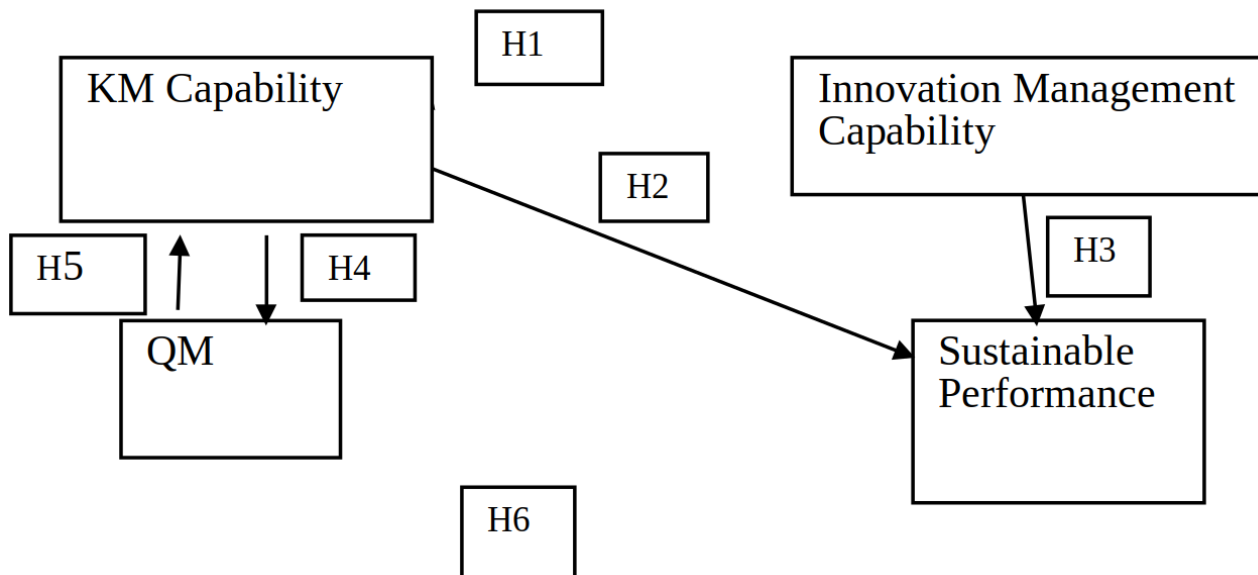
Figure 1. The conceptual model

Based on the provided description, the research hypotheses are as follows:

H1: "KM Capability" positively relates to "Innovation Management Capability."

H2: "KM Capability" positively relates to "Sustainable Performance."

H3: "Innovation Management Capability" positively relates to "Sustainable Performance."

H4: "KM Capability" positively relates to "Quality Management."

H5: "Quality Management" positively relates to "KM Capability."

H6: "Quality Management" positively relates to "Sustainable Performance."

CONCLUSION

This research proposed a conceptual model regarding the relationship among KM Capability, Innovation Management Capability, QM with Sustainable Performance.

The originality of this research lies in the following factor. It is the first attempt to create an integrated research model that will include and connect all concepts (Knowledge Management, Innovation Management, Quality Management, Sustainable Development) into a research model.

Additionally, the practical contribution of this research lies in transferring knowledge to managers of companies, so that they can immediately shape the appropriate strategy for exploiting and linking the application of Knowledge Management, Innovation Management and Quality Management practices to achieve a high degree of sustainable development during periods of deep economic, health, and geopolitical crises and to remain competitive.

Finally, this research could serve as the basis for the quantitative testing of the research model.

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THE IMPACT OF CRYPTO ASSETS ON THE EUROPEAN FOOTBALL INDUSTRY

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ABSTRACT

This research investigates the risks and challenges linked to the swift and unregulated integration of crypto assets into the European football ecosystem. Furthermore, it aims to develop a set of recommendations for more effective engagement. This paper applies a theoretical approach, by reviewing the existing literature on cryptocurrencies and blockchain technology to understand market dynamics and factors influencing their adoption and impact in football. The literature analysis revealed that integrating cryptocurrency trading within the football industry presents several significant challenges. These challenges encompass regulatory uncertainties, market volatility, and the necessity for robust cybersecurity measures. Furthermore, the industry must address the potential for financial mismanagement and consider the ethical implications associated with cryptocurrency use. Given the increasing interest in digital currency among European football clubs, this project holds significant relevance, as it has the potential to transform various facets of the sport, including economic and financial stability, fan engagement, and technological innovation. The findings offer valuable insights club executives, and policymakers, to make informed decisions regarding the adoption and management of crypto assets in the football industry.

Keywords: European Football; Blockchain technology; Crypto assets; Cryptocurrencies; Fan tokens; NFTs; Market volatility

INTRODUCTION

Football extends beyond being merely a sport or activity; it is a substantial business with significant financial influence (Buck and Ifland, 2022). Moreover, football is an integral part of society and acts as a progressive force for social good. For billions of people, it is woven into the fabric of their daily lives. Beyond athletic competition, football serves as a medium to strengthen culture and identities (Toma and Catana, 2021). The sport exhibits significant growth (Litvishko et al., 2021) and is arguably the most influential sport globally, deeply embedded with socio-cultural elements that directly impact people's everyday lives (Hamil, 2017).

The football industry is undergoing a substantial technological shift due to the recent emergence of crypto assets (Wang et al., 2021). The crypto industry is evolving quickly, and crypto assets are becoming increasingly significant within football. Cryptocurrencies are viewed as more efficient and transparent payment methods compared to traditional options, as they enhance transaction security by identifying users in each transaction. Blockchain technology ensures that payments are both authorized and secure (Kaplan, 2021).

Cryptocurrency platforms and companies have entered the football industry in large numbers, securing major deals. They view football as a unique and powerful medium to reach a broad audience, create brand awareness, and boost their sales and value (Naraine, 2019). Conversely, football is embracing digital currencies to enhance its revenue streams through innovative projects. Recently, UEFA signed a global licensing and regional sponsorship agreement with Socios.com, a well-known and reputable crypto exchange platform. Many prominent European football clubs have already issued their own tokens and digital cards to engage their fans through similar platforms. The integration of blockchain technology with club fanbases has gained significant importance in recent months, leading to a growing trend of more clubs entering agreements with digital currency companies.

The technology facilitates authentic engagement between teams and fans. The football fan community is essential to the sport, serving as one of the most influential forces in the industry (Asada et al., 2020). Without fans, football loses its appeal, as their presence significantly impacts both the financial and sporting success of clubs. Fan satisfaction is directly tied to club revenues (Yiapanas and Thrassou, 2022). To maintain this dynamic, clubs continually strive to attract and engage fans while increasing their revenues through various channels (Jaeger, 2021). The rise of fan tokens reflects clubs' growing recognition of the potential offered by cryptocurrencies and blockchain technologies, enabling new ways to monetize fan engagement that were previously unimaginable (Mazur and Vega, 2022). However, this trend has raised concerns about potential risks within the fan community. In early 2018, a Turkish club became the first club to acquire a player using bitcoin, and in July 2018 a club from Gibraltar was the first club that partially paid its players' salaries in cryptocurrency, through a specific platform. Soon, more clubs around Europe will utilize crypto exchange platforms for their transactions with their football players.

While cryptocurrency and blockchain technology offer significant benefits and opportunities to the football industry, they also pose potential disruptions. The current unstable global financial environment, coupled with the largely unregulated nature of crypto assets and the limited

understanding of these assets among key football industry stakeholders, could create a "perfect storm" (Matkovskyy and Jalan, 2022). Therefore, despite the surge in interest in crypto trading, football industry stakeholders should remain aware of the associated risks. Although crypto assets have experienced phenomenal growth, their value remains volatile, and the legal and regulatory landscape is still uncertain (Liu et al., 2022).

Aim and objectives

Building on the above points, this study aims to examine the impact, risks, challenges associated with the rapid and unregulated introduction of crypto assets into the football ecosystem. Additionally, it seeks to formulate a set of recommendations for more effective engagement.

To achieve the above aim, **three** objectives underpinning the problem are set to:

- **RO1:** reveal the crypto trading digital assets in the football industry.

- **RO2:** detect the general challenges of crypto trading in the football industry.

- **RO3:** introduce a set of contextual recommendations for better engagement.

Significance of the study

The European Union [EU] is currently striving to adapt to the digital age while addressing serious concerns and seeking regulatory solutions to prevent fraud and corruption (European Commission, 2020; European Parliament, 2022). The EU is in the process of developing legal frameworks to regulate investment activities and payment services, informed by ongoing debates within European institutions and guidelines issued by the European Securities and Market Authority and the European Banking Authority (Ferrari, 2020).

Given the growing interest in digital currency among European football clubs, this project is highly relevant. Studying the impact of crypto assets on the European football industry is significant due to its potential to transform various aspects of the sport, including economic and financial stability, fan engagement, and technological innovation. The findings of this research will offer a better understanding of the theory of crypto assets in the European football industry and provide contextual contributions to the industry stakeholders and policymakers.

Methodology

This paper adopts a theoretical approach to examine the impact of crypto assets on the European football industry. The focus is on exploring and understanding the underlying principles, frameworks, and models that explain the implications of crypto assets within football. The theoretical approach involves a review of the existing literature on cryptocurrencies, blockchain technology, and their applications in football. This approach allows for a deeper understanding of the market dynamics, and factors influencing the adoption and impact of crypto assets.

THEORETICAL BACKGROUND

Crypto assets are digital or virtual assets that use cryptography for security. They are typically decentralized and operate on blockchain technology, which is a distributed ledger that records all transactions across a network of computers (Aggarwal and Kumar, 2021). Blockchain technology underpins most crypto assets. A blockchain is a decentralized, immutable ledger that records transactions in a series of blocks. Each block contains a list of transactions, and once a block is added to the chain, it cannot be altered. This ensures transparency and security, as all participants in the network can verify the transactions (Ghosh et al., 2020).

Crypto trading in the football industry

The football industry has begun to explore the potential of crypto assets in various ways. Cryptocurrencies like Bitcoin and Ethereum offer decentralized, secure, and transparent payment methods, facilitating transactions such as ticket sales, merchandise purchases, and even player transfers. Fan tokens, a subset of crypto assets, enable football clubs to engage with their supporters in novel ways, allowing fans to participate in club decisions and access exclusive content (Scharnowski et al., 2021). NFTs provide unique digital collectibles, such as player cards and match highlights, creating new revenue streams for clubs and offering fans a way to own a piece of their preferred team's history. Blockchain technology, the backbone of crypto assets, ensures the security and transparency of these transactions, reducing fraud and enhancing financial management (Naraine, 2019). However, the volatile nature of crypto assets and the evolving regulatory landscape necessitate careful consideration and informed decision-making by all stakeholders (Liu et al., 2022). The integration of crypto assets and crypto trading in the football industry represents a significant shift in how clubs, players, and fans interact with the sport. This development encompasses various aspects, from fan engagement to financial transactions, and has the potential to reshape the industry in multiple ways (Borri et al., 2022).

Fan tokens

Fan tokens are a type of cryptocurrency that revolutionizes fan engagement in the football industry. Issued through blockchain platforms like Socios.com, these tokens allow fans to participate in club decisions, access exclusive content, and purchase merchandise. For instance, clubs such as FC Barcelona, Juventus, and Paris Saint-Germain have launched their own fan tokens, enabling supporters to vote on matters like jersey designs or matchday experiences (Scharnowski et al., 2021). This level of engagement fosters a deeper connection between fans and their clubs, transforming passive spectators into active participants. Additionally, fan tokens can be traded on various crypto exchanges, providing an investment opportunity for fans.

The value of these tokens can fluctuate based on the club's performance, news, and other factors, adding a dynamic financial element to fan engagement (Naraine, 2019). However, the volatility of cryptocurrencies and regulatory considerations must be managed carefully. Overall, fan tokens offer a novel way to enhance fan loyalty and interaction, while also opening new revenue streams for football clubs. This innovative approach is reshaping the traditional fan-club relationship, making it more interactive and financially engaging (Vidal-Tomás, 2024).

NFTs (Non-Fungible Tokens)

Non-fungible tokens (NFTs) have emerged as a significant innovation in the realm of football, offering new opportunities for fan engagement, revenue generation, and digital asset ownership. NFTs are unique digital assets verified using blockchain technology, ensuring their authenticity and scarcity. In football, NFTs can represent a variety of items, including digital collectibles, player cards, match highlights, and even virtual memorabilia. These tokens have revolutionized how fans interact with the sport, providing them with a new way to own a piece of their favorite team's history or a memorable moment from a match (Wang et al., 2021). One of the primary applications of NFTs in football is the creation of digital collectibles. Clubs and players can mint limited edition NFTs that fans can purchase, trade, and showcase in their digital wallets. These collectibles can range from digital player cards featuring statistics and achievements to unique artwork commemorating significant events. The scarcity and uniqueness of these NFTs make them highly desirable among fans and collectors, driving up their value in the secondary market (Schmidt et al., 2023).

Additionally, NFTs have opened up new revenue streams for football clubs and players. By selling NFTs, clubs can generate additional income that can be reinvested into the team, facilities, or community projects. Players can also benefit by creating and selling their own NFTs, providing them

with a new avenue for personal branding and income (Raman and Raj, 2021). Moreover, NFTs offer a new level of fan engagement. Fans can now own a digital piece of their favorite moments, such as a game-winning goal or a historic match. This ownership creates a deeper connection between fans and the sport, as they can relive and share these moments uniquely. Some clubs have even started to offer exclusive experiences or rewards to NFT holders, further enhancing the value and appeal of these digital assets (Wang et al., 2021).

NFTs are transforming the football industry by providing new ways for fans to engage with the sport, creating additional revenue streams, and offering unique digital ownership opportunities. As the technology continues to evolve, the use of NFTs in football will likely expand, bringing even more innovative applications and benefits to the sport (Raman and Raj, 2021).

Blockchain for Ticketing

Blockchain technology is increasingly being explored for ticketing solutions in the football industry, offering a range of benefits that address long-standing issues such as fraud, counterfeit tickets, and lack of transparency. By leveraging the decentralized and immutable nature of blockchain, football clubs and event organizers can create more secure and efficient ticketing systems (Zagała and Nicoliello, 2023). One of the primary advantages of blockchain-based ticketing is its ability to prevent fraud and counterfeit tickets.

Traditional ticketing systems are often susceptible to duplication and unauthorized resale, leading to significant financial losses and a compromised fan experience. Blockchain technology mitigates these risks by creating a transparent and tamper-proof ledger of all ticket transactions. Each ticket is issued as a unique digital asset on the blockchain, ensuring its authenticity and traceability. This makes it nearly impossible to produce counterfeit tickets, as each transaction is recorded and verifiable by all participants in the network (Schmidt et al., 2023).

Another significant benefit is the enhanced transparency and trust that blockchain brings to the ticketing process. Fans can verify the authenticity of their tickets and track their ownership history, providing peace of mind and reducing the likelihood of falling victim to scams. Additionally, blockchain can facilitate dynamic pricing and better data analytics, allowing clubs to optimize ticket sales and improve fan engagement strategies (Raman and Raj, 2021). Blockchain ticketing also offers advantages in the secondary market. Traditional resale platforms often lack transparency and can be plagued by inflated prices and fraudulent activities. Blockchain can create a more equitable and transparent secondary market by ensuring that tickets are resold at fair prices and that the original

sellers receive a portion of the resale value. This not only benefits fans but also provides additional revenue streams for clubs (Zagała and Nicoliello, 2023).

Player Transfers and Salaries

Player transfers and salaries in European football, have traditionally been conducted using conventional currencies. However, the advent of cryptocurrencies has introduced a new dimension to these financial transactions. Cryptocurrencies, such as Bitcoin and Ethereum, offer a decentralized and secure method of transferring funds, which can be particularly advantageous in the high-stakes world of player transfers (Berkani et al., 2024). The use of crypto in player transfers can potentially streamline the process, reducing the time and costs associated with traditional banking methods. For instance, international transfers often involve multiple banks and intermediaries, each taking a fee and adding to the time required to complete the transaction. Cryptocurrencies can bypass these intermediaries, allowing for near-instantaneous transfers with minimal fees (Newland and Carlsson-Wall, 2022).

Moreover, the transparency and security provided by blockchain technology can help mitigate issues related to fraud and financial mismanagement. Every transaction is recorded on a public ledger, making it easier to track and verify payments. This can be particularly beneficial in an industry where large sums of money are frequently exchanged, and the risk of financial discrepancies is high. Additionally, the use of smart contracts—self-executing contracts with the terms of the agreement directly written into code—can automate and enforce the terms of player contracts, ensuring that payments are made promptly and accurately (Ferrari, 2020).

However, the integration of cryptocurrencies into player transfers and salaries is not without challenges. The volatility of cryptocurrencies can pose a significant risk. The value of Bitcoin, for example, can fluctuate wildly within a short period, potentially affecting the agreed-upon transfer fee or salary. This volatility can make it difficult for clubs and players to budget and plan effectively. Furthermore, the regulatory environment surrounding cryptocurrencies is still evolving, with different countries adopting varying stances on their use. This can create legal and compliance challenges for clubs operating in multiple jurisdictions (Schmidt et al., 2023).

While the use of cryptocurrencies in player transfers and salaries in Europe offers several potential benefits, including reduced transaction costs, increased transparency, and enhanced security, it also presents challenges related to volatility and regulatory compliance (European Commission, 2020).

Sponsorship and Partnerships

Sponsorship and partnerships in football have long been a cornerstone of the sport's financial ecosystem, providing clubs with essential revenue streams and marketing opportunities. In recent years, the rise of cryptocurrency companies has introduced a new dimension to these sponsorship deals (Torrance et al., 2023). Cryptocurrency companies are increasingly seeking to leverage the global reach and passionate fan base of football clubs to enhance their visibility and credibility. These partnerships often involve significant financial investments and can include branding opportunities, such as featuring crypto company logos on team jerseys, stadiums, and digital platforms (Zagała and Nicoliello, 2023).

These sponsorships are mutually beneficial. Football clubs receive substantial financial support, which can be used to enhance their operations, invest in player acquisitions, and improve fan engagement initiatives. In return, cryptocurrency companies gain exposure to a broad and diverse audience, helping them build brand recognition and trust (Mazur and Vega, 2022). This synergy helps both parties achieve their goals and fosters a closer relationship between the football and crypto communities.

The integration of crypto assets and crypto trading in the football industry is a dynamic and evolving trend that offers both opportunities and challenges. Fan tokens, sponsorships, player transfers, NFTs, and blockchain ticketing are reshaping the industry (Naraine, 2019). As the football industry continues to explore and adopt these technologies, it will be essential to navigate the regulatory landscape, manage market volatility, and ensure the security of transactions to fully realize the potential benefits. By doing so, the football industry can create a more engaging, transparent, and financially inclusive environment for clubs, players, and fans alike (European Parliament, 2022).

RESEARCH FINDINGS

The adoption of crypto trading in the football industry presents a range of opportunities, from enhancing fan engagement to streamlining financial transactions. However, this integration is not without its challenges and considerations. As football clubs, players, and fans increasingly explore the potential of cryptocurrencies and blockchain technology, they must navigate a complex landscape fraught with risks and uncertainties (Liu et al., 2022).

Regulatory uncertainty

The integration of crypto assets into the football industry brings with it a host of regulatory considerations that must be carefully navigated to ensure compliance and maintain market integrity. As cryptocurrencies and blockchain technology continue to gain traction, the regulatory landscape remains complex and varies significantly across different jurisdictions. This complexity poses challenges for football clubs, players, and cryptocurrency companies involved in the industry (European Commission, 2020). One of the primary regulatory concerns is the classification of crypto assets. Different countries have varying definitions and regulations for cryptocurrencies, utility tokens, and security tokens. For instance, while some jurisdictions may classify fan tokens as utility tokens, others might consider them securities, subjecting them to more stringent regulatory requirements. Ensuring compliance with these diverse regulations is crucial to avoid legal repercussions and potential fines (Ferrari, 2020).

Anti-money laundering (AML) and know-your-customer (KYC) regulations are also critical considerations. The decentralized and pseudonymous nature of cryptocurrencies makes them susceptible to misuse for illicit activities, such as money laundering and fraud. To mitigate these risks, regulatory bodies require crypto trading platforms and football clubs to implement robust AML and KYC procedures. These measures include verifying the identities of users, monitoring transactions for suspicious activities, and reporting any potential violations to the relevant authorities (Kaplan, 2021).

Taxation is another significant regulatory aspect that football clubs and players must address. The tax treatment of crypto assets varies widely, with some jurisdictions imposing capital gains tax, while others may treat crypto transactions as income. Proper tax reporting and compliance are essential to avoid legal issues and financial penalties (European Parliament, 2022). Moreover, the environmental impact of blockchain technology, particularly energy-intensive mining processes, has attracted regulatory scrutiny. Some jurisdictions are considering regulations to address the environmental concerns associated with cryptocurrencies, which could impact the operations of football clubs and crypto companies (Mazur and Vega, 2022).

Regulatory considerations play a crucial role in the adoption and integration of crypto assets in the football industry. Navigating the complex and evolving regulatory landscape requires careful attention to classification, AML/KYC compliance, taxation, and environmental impact. By addressing these regulatory challenges, stakeholders can ensure a secure and sustainable integration of crypto assets into the football industry (Akartuna et al., 2022).

Market dynamics and volatility

Market dynamics and volatility are critical aspects of the cryptocurrency landscape, significantly influencing the adoption and impact of crypto assets in the football industry. Understanding these factors is essential for stakeholders, including football clubs, players, and fans, as they navigate the complexities of integrating cryptocurrencies into the sport (Vidal-Tomás, 2024). Market dynamics refer to the forces that impact the supply and demand of crypto assets, thereby influencing their prices. In the context of the football industry, the value of fan tokens and other crypto assets can be affected by various factors, such as the performance of the football club, player transfers, and broader market trends. For instance, signing a high-profile player or a significant victory can lead to a surge in the value of a club's fan tokens, driven by increased demand from enthusiastic fans. Conversely, poor performance or negative news can result in a decline in token value (Zagała and Nicoliello, 2023).

Volatility, on the other hand, refers to the degree of variation in the price of a crypto asset over time. Cryptocurrencies are known for their high volatility, with prices often experiencing significant fluctuations within short periods. This volatility can be attributed to several factors, including market speculation, regulatory developments, and macroeconomic trends. For football clubs and fans, this volatility presents both opportunities and risks. While price surges can lead to substantial gains, sudden drops can result in significant financial losses (Liu et al., 2022). The speculative nature of crypto assets further exacerbates market volatility. Investors often buy and sell cryptocurrencies based on market sentiment and short-term trends, rather than intrinsic value. This behavior can lead to rapid price swings, creating an unpredictable market environment. For football clubs, managing this volatility is crucial to ensure financial stability and maintain the trust of their fan base (Berkani et al., 2024).

Market dynamics and volatility are inherent characteristics of the cryptocurrency market, significantly impacting the football industry's adoption of crypto assets. Understanding these factors is essential for stakeholders to navigate the opportunities and risks associated with integrating cryptocurrencies into the sport. By carefully managing market dynamics and volatility, football clubs can leverage the benefits of crypto assets while mitigating potential downsides (Vidal-Tomás, 2024).

Security concerns

Security and risk management are critical considerations in the adoption of crypto assets and crypto trading within the football industry. As football clubs, players, and fans increasingly engage with cryptocurrencies and blockchain technology, ensuring the security of digital assets and transactions

becomes paramount. The decentralized nature of blockchain, while offering transparency and efficiency, also introduces vulnerabilities that must be addressed through robust security measures and effective risk management strategies (Schmidt et al., 2023). One of the primary security concerns in the crypto space is the risk of hacking and fraud. Cybercriminals often target crypto exchanges, wallets, and platforms, seeking to exploit weaknesses in security protocols. To mitigate these risks, football clubs and other stakeholders must implement advanced cybersecurity measures. This includes using secure wallets for storing crypto assets, employing multi-factor authentication, and conducting regular security audits to identify and address potential vulnerabilities. Additionally, educating users about best practices for securing their digital assets is essential to prevent phishing attacks and other forms of cyber fraud (Aggarwal and Kumar, 2021).

Risk management in the context of crypto assets also involves addressing the inherent volatility of cryptocurrency markets. The value of crypto assets can fluctuate widely, influenced by market demand, regulatory developments, and broader economic factors. This volatility poses financial risks for football clubs and investors, who may experience significant gains or losses based on market movements. To manage these risks, clubs should adopt strategies such as diversifying their crypto holdings, setting clear investment guidelines, and using financial instruments like futures and options to hedge against price fluctuations (Ante et al., 2023).

Regulatory compliance is another crucial aspect of risk management. The legal framework governing cryptocurrencies varies significantly across different jurisdictions, and non-compliance can result in legal repercussions and financial penalties. Football clubs must stay informed about relevant regulations and ensure that their crypto activities adhere to local laws. This may involve working with legal experts and regulatory bodies to navigate the complex regulatory landscape (European Commission, 2020).

Security and risk management are essential components of the successful integration of crypto assets in the football industry. By implementing robust security measures, managing market volatility, and ensuring regulatory compliance, football clubs and other stakeholders can mitigate risks and harness the potential benefits of cryptocurrencies and blockchain technology (Liu et al., 2022).

Crypto trading platform

Crypto trading platforms have become integral to the adoption and integration of crypto assets in various industries, including football. These platforms facilitate the buying, selling, and trading of cryptocurrencies, providing a user-friendly interface for both novice and experienced traders. In the

context of the football industry, crypto trading platforms play a crucial role in the issuance and trading of fan tokens, which have emerged as a novel way to enhance fan engagement and generate new revenue streams for clubs (Zagała and Nicoliello, 2023). One of the most prominent crypto trading platforms in the football industry is Socios.com. This platform partners with football clubs to issue fan tokens, which can be traded on the platform's marketplace.

Fan tokens allow supporters to participate in club decisions, access exclusive content, and purchase merchandise. The trading of these tokens introduces a dynamic financial element to fan engagement, as their value can fluctuate based on the club's performance, news, and other factors. This creates a more interactive and financially engaging experience for fans (Berkani et al., 2024). Another significant player in the crypto trading space is Binance, one of the largest cryptocurrency exchanges globally. Binance has also ventured into the football industry by sponsoring various clubs and events. The platform provides liquidity and market dynamics similar to traditional financial markets, allowing fans to trade fan tokens and other crypto assets associated with football clubs. This integration of crypto trading platforms into the football industry highlights the growing intersection between sports and digital finance (Vidal-Tomás, 2024).

However, the use of crypto trading platforms in football is not without challenges. Market volatility can lead to significant financial risks for both clubs and fans. Regulatory compliance is another critical concern, as the legal framework governing cryptocurrencies varies across jurisdictions. Ensuring the security of transactions and protecting user data are also paramount to maintaining trust in these platforms. Crypto trading platforms are pivotal in the adoption of crypto assets in the football industry. They provide the infrastructure for issuing and trading fan tokens, enhancing fan engagement, and creating new revenue opportunities. As the industry continues to evolve, addressing the challenges of market volatility, regulatory compliance, and security will be essential to fully realize the potential of crypto trading platforms in football (Ante et al., 2023).

Public perception and trust

Public perception and trust are critical factors influencing the adoption of cryptocurrency trading in the football industry. Cryptocurrencies, while gaining popularity, are often associated with volatility, speculation, and, in some cases, illicit activities (Kaplan, 2021). This association can create a significant barrier for football clubs and organizations looking to integrate crypto trading into their financial and operational frameworks. Fans, who are the lifeblood of any football club, may have doubts about the legitimacy and stability of cryptocurrencies. This uncertainty is often fuelled by media reports highlighting the risks and negative aspects of the crypto market, such as hacking incidents, fraud, and

dramatic price fluctuations. Consequently, football clubs must work diligently to build and maintain trust with their fan base when introducing cryptocurrency initiatives (Zagała and Nicoliello, 2023).

One of the primary concerns for fans is the security of their investments. The decentralized nature of cryptocurrencies means that transactions are irreversible, and if a security breach occurs, recovering lost assets can be nearly impossible. Football clubs must therefore invest in robust cybersecurity measures and educate their fans about safe practices to mitigate these risks. Transparency is another crucial element in fostering trust. Clubs need to be open about how they plan to use cryptocurrencies, the benefits they expect to gain, and the potential risks involved. Clear communication and regular updates can help demystify the technology and reassure fans that their interests are being safeguarded (Ante et al., 2023).

Moreover, the reputation of the football club itself can be at stake. Any association with a failed or fraudulent cryptocurrency project can lead to a loss of credibility and fan support. Therefore, clubs must conduct thorough due diligence before partnering with crypto firms and ensure that these partnerships align with their values and long-term goals. Engaging with reputable and well-established cryptocurrency platforms can also help in building trust. Additionally, offering incentives such as exclusive content, merchandise, or experiences to fans who participate in crypto initiatives can create a positive perception and encourage adoption (Vidal-Tomás, 2024).

While the integration of cryptocurrency trading in football presents exciting opportunities, it also requires careful management of public perception and trust. By prioritizing security, transparency, and fan engagement, football clubs can navigate these challenges and successfully incorporate cryptocurrencies into their operations.

Financial management

Financial management in the context of cryptocurrency trading within the football industry presents a unique set of challenges and opportunities. As football clubs explore the integration of cryptocurrencies into their financial operations, they must navigate a complex landscape that requires robust financial strategies and risk management practices. One of the primary challenges is the volatility of cryptocurrency markets. The value of digital currencies can fluctuate significantly within short periods, posing risks to the financial stability of clubs. Effective financial management must include strategies to mitigate these risks, such as diversifying investments and setting aside reserves to cushion against potential losses (Newland and Carlsson-Wall, 2022).

Another critical aspect is the integration of cryptocurrency transactions into traditional accounting systems. This requires updating financial reporting practices to accurately reflect the value and movement of digital assets. Clubs must ensure that their accounting teams are well-versed in the nuances of cryptocurrency transactions, including the recognition of gains and losses, tax implications, and compliance with financial regulations. This may necessitate additional training or the hiring of specialists with expertise in blockchain technology and digital finance (Glebova and Mihcail'Ova, 2023).

Liquidity management is also a significant concern. Unlike traditional currencies, cryptocurrencies can be less liquid, meaning they may not be as easily converted into cash without affecting their market value. Clubs need to develop strategies to manage their liquidity effectively, ensuring they have sufficient funds available for day-to-day operations while holding digital assets. This might involve maintaining a balance between cryptocurrency holdings and traditional financial assets to ensure operational stability (Ghosh et al., 2020). Furthermore, transparency and ethical considerations play a crucial role in financial management. Clubs must maintain transparency in their cryptocurrency transactions to uphold trust among stakeholders, including fans, investors, and regulatory bodies. This involves clear and accurate reporting of all digital asset transactions and adherence to ethical standards to avoid potential conflicts of interest or allegations of financial misconduct (Kaplan, 2021).

Financial management in the realm of cryptocurrency trading within the football industry requires a comprehensive approach that addresses market volatility, accounting integration, liquidity management, and transparency. By developing robust financial strategies and ensuring compliance with regulatory standards, football clubs can harness the benefits of cryptocurrencies while mitigating associated risks (European Parliament, 2022).

Ethical considerations

The adoption of cryptocurrency trading in the football industry brings with it a range of ethical considerations that must be carefully addressed to ensure the integrity and fairness of the sport. One primary concern is the potential for financial inequality. Cryptocurrencies can create significant wealth for those who invest early or have the means to engage in trading, potentially widening the gap between affluent clubs and those with fewer resources. This disparity could undermine the competitive balance that is essential for the sport's integrity. Additionally, the association of cryptocurrencies with illegal activities, such as money laundering and fraud, poses a reputational risk for football clubs. Engaging in crypto trading without stringent due diligence and compliance

measures could inadvertently expose clubs to legal and ethical violations, damaging their public image and trustworthiness (Carlsson-Wall and Newland, 2023).

Transparency is another critical ethical issue. The decentralized and often opaque nature of cryptocurrency transactions can make it difficult to ensure full transparency and accountability. Football clubs must implement robust mechanisms to track and report all crypto-related activities to maintain trust among stakeholders, including fans, sponsors, and regulatory bodies. Furthermore, the environmental impact of cryptocurrencies, particularly those that rely on energy-intensive mining processes, raises ethical questions about sustainability. Football clubs, which often position themselves as community leaders and advocates for social responsibility, must consider the environmental footprint of their crypto activities and explore more sustainable alternatives (Manoli et al., 2024).

Fan engagement and protection also present ethical challenges. While cryptocurrencies offer innovative ways to engage fans, such as through digital collectibles and tokens, there is a risk of financial exploitation. Clubs must ensure that their crypto initiatives are designed with the best interests of fans in mind, providing clear information and safeguards to prevent financial harm. This includes educating fans about the risks associated with cryptocurrency investments and ensuring that any crypto-related products or services are accessible and fair (Schmidt et al., 2023).

The ethical considerations surrounding crypto trading in football are multifaceted and require careful navigation. Clubs must balance the potential benefits of cryptocurrency adoption with the need to uphold ethical standards, ensuring that their actions do not compromise the integrity, transparency, and social responsibility that are fundamental to the sport.

Theoretical framework | The challenges of crypto trading in the football industry

The analysis of the literature revealed that the integration of cryptocurrency trading within the football industry presents several challenges that have significant implications. These challenges include regulatory uncertainties, market volatility, and the need for robust cybersecurity measures. Additionally, the industry must consider the potential for financial mismanagement and the ethical implications of cryptocurrency use. Strategic planning and careful consideration are essential to navigate these complexities effectively. By addressing these issues, the football industry can better integrate cryptocurrency trading into its financial operations, ensuring both compliance and security.

The introduced theoretical framework outlines the multifaceted challenges that the football industry faces in adopting cryptocurrency trading (Figure 1), highlighting the need for careful consideration and strategic planning.

Figure 1: The challenges of crypto trading in the football industry

Ethical Considerations
- **Fair Play and Integrity**: Ensuring that the use of cryptocurrencies does not compromise the integrity of the sport or lead to unfair advantages.
- **Transparency**: Maintaining transparency in cryptocurrency transactions to uphold ethical standards and avoid potential conflicts of interest

Financial Management
- **Accounting Practices**: Integrating cryptocurrency transactions into traditional accounting systems can be complex and require new practices.
- **Liquidity Management**: Managing the liquidity of cryptocurrency assets to ensure operational stability can be challenging.

Public Perception and Trust
- **Reputation Management**: The association of cryptocurrencies with illegal activities and market speculation can affect the public image of football clubs.
- **Fan Acceptance**: Gaining the trust and acceptance of fans, who have doubts about the use of cryptocurrencies, is crucial for successful adoption.

NFTs
Fan tokens
Blockchain for Ticketing
Football Industry
Sponsorship and Partnerships
Player Transfers and Salaries

Regulatory Uncertainty
- **Legal Compliance**: Navigating the complex and often unclear legal landscape surrounding cryptocurrency can be challenging for football clubs and organizations.
- **Tax Implications**: Understanding and managing the tax obligations associated with cryptocurrency transactions can be difficult due to varying regulations across different jurisdictions.

Market Volatility
- **Price Fluctuations**: The highly volatile nature of cryptocurrencies can pose financial risks for clubs and investors.
- **Investment Risk**: The potential for significant losses due to market swings may deter clubs from adopting crypto trading.

Security Concerns
- **Cybersecurity Threats**: The risk of hacking and fraud in cryptocurrency transactions can undermine trust and lead to financial losses.
- **Asset Protection**: Ensuring the security of digital wallets and assets requires robust technological solutions and expertise.

Crypto trading platform
- **Infrastructure Requirements**: Implementing the necessary technology for secure and efficient crypto trading can be resource intensive.
- **Technical Expertise**: A lack of in-house knowledge and expertise in blockchain and cryptocurrency technologies can hinder adoption.

The regulatory environment surrounding cryptocurrencies is still evolving, with different countries adopting varying levels of oversight and legal frameworks. This inconsistency can create legal and compliance risks for football clubs operating in multiple jurisdictions. On the other hand, the volatility of cryptocurrencies can lead to financial instability for clubs and investors, as the value of digital assets can fluctuate dramatically in short periods. This unpredictability can affect sponsorship deals, player transfers, and overall financial planning. Also, security concerns, such as the risk of hacking and fraud, pose significant threats to the integrity and trustworthiness of cryptocurrency transactions within the industry. Likewise, the lack of widespread understanding and expertise in cryptocurrency trading, technology among football industry stakeholders can lead to poor decision-making and potential financial losses.

Furthermore, public perception is also affected, as the link with cryptocurrencies may lead to skepticism and distrust among fans and stakeholders who are cautious of the risks and regulatory

uncertainties involved. In addition, it complicates financial management practices, as clubs must navigate the volatility and regulatory uncertainties associated with digital currencies. Finally, ethically, the volatility and speculative nature of cryptocurrencies can lead to concerns about the integrity and transparency of financial transactions and the potential for exploitation. These challenges necessitate careful consideration and robust regulatory frameworks to ensure that the adoption of cryptocurrency trading in football is conducted responsibly and transparently.

Recommendations

The integration of crypto assets into the football industry presents a unique opportunity for clubs, players, and fans to engage in innovative ways. To maximize the potential of this technology, several recommendations can be made to enhance engagement and ensure a smooth transition.

Firstly, regulatory compliance must be a key consideration. The legal landscape surrounding cryptocurrencies is continually evolving, with different jurisdictions adopting varying approaches to regulation. Clubs should stay informed about the latest regulatory developments and work with legal experts to ensure compliance with relevant laws and regulations. This includes understanding the tax implications of crypto transactions, adhering to anti-money laundering (AML) and know-your-customer (KYC) requirements, and obtaining any necessary licenses or approvals. By proactively addressing regulatory concerns, clubs can avoid potential legal issues and operate with greater confidence.

Secondly, partnerships with established crypto platforms and experts can provide valuable support and credibility. Collaborating with reputable cryptocurrency exchanges, blockchain developers, and financial advisors can help clubs navigate the complexities of the crypto landscape. These partnerships can also facilitate the development of tailored solutions, such as club-specific tokens or blockchain-based ticketing systems, that enhance fan engagement and streamline operations. For example, fan tokens can be used to grant supporters exclusive access to events, voting rights on club decisions, and other unique experiences, thereby fostering a deeper connection between the club and its fanbase.

Thirdly, implementing robust security measures is crucial to protect against cyber threats and ensure the integrity of crypto transactions. Clubs should adopt best practices in cybersecurity, such as multi-factor authentication, encryption, and regular security audits. Additionally, working with blockchain experts to develop secure smart contracts can help automate and enforce agreements, reducing the risk of fraud and ensuring that transactions are executed as intended. By prioritizing security, clubs

can build trust with their stakeholders and demonstrate their commitment to safeguarding their assets.

Fourthly, education and awareness are paramount. Football clubs should invest in educational programs to inform players, staff, and fans about the benefits and risks associated with crypto assets. This can include workshops, seminars, and online resources that explain how cryptocurrencies work, the principles of blockchain technology, and the potential applications within the football industry. By fostering a well-informed community, clubs can mitigate the risks associated with misinformation and ensure that all stakeholders are equipped to make informed decisions.

Fifthly, fostering innovation through pilot projects and experimentation can help clubs identify the most effective uses of crypto assets. By starting with small-scale initiatives, such as accepting cryptocurrency payments for merchandise or launching a limited number of fan tokens, clubs can test the waters and gather valuable feedback from their stakeholders. These pilot projects can provide insights into user preferences, potential challenges, and areas for improvement, allowing clubs to refine their strategies before scaling up their efforts.

Lastly, engaging with the broader crypto community can provide valuable insights and opportunities for collaboration. Participating in industry conferences, joining blockchain consortia, and engaging with crypto enthusiasts on social media can help clubs stay abreast of the latest trends and innovations. This engagement can also foster a sense of community and shared purpose, as clubs and their supporters explore the potential of crypto assets together.

In conclusion, by prioritizing education, forming strategic partnerships, implementing robust security measures, ensuring regulatory compliance, fostering innovation, and engaging with the crypto community, football clubs can effectively integrate crypto assets into their operations and enhance engagement with their stakeholders. As the technology continues to evolve, these recommendations can help clubs navigate the complexities of the crypto landscape and unlock new opportunities for growth and fan engagement.

CONCLUSIONS

The integration of crypto assets and crypto trading in the football industry represents a transformative development with significant implications for clubs, players, and fans. By understanding the theoretical background of crypto assets, blockchain technology, and crypto trading, we can better appreciate the opportunities and challenges associated with this emerging trend. Fan tokens,

sponsorships, player transfers, and NFTs are just a few examples of how crypto assets are being used to enhance fan engagement, streamline financial transactions, and create new revenue streams in the football industry. However, the volatility of crypto markets, regulatory considerations, and security concerns must be carefully managed to ensure the successful adoption and integration of these technologies. As the football industry continues to explore and embrace crypto assets and trading, it will be essential to navigate the regulatory landscape, manage market dynamics, and implement robust security measures. By doing so, the football industry can create a more engaging, transparent, and financially inclusive environment for all stakeholders.

Implications

The impact of crypto assets on the European football industry has been multifaceted, influencing various aspects of the sport. One significant implication is the introduction of fan tokens, which allow supporters to engage more directly with their favorite clubs. These tokens often provide voting rights on minor club decisions, enhancing fan involvement and loyalty. Additionally, the adoption of cryptocurrencies for transactions, such as ticket sales and merchandise, offers a more streamlined and secure payment method, potentially reducing transaction fees and increasing global accessibility. Sponsorship deals involving crypto companies have also become more prevalent, providing clubs with new revenue streams and financial stability. However, the volatility of crypto assets poses risks, as fluctuations in value can impact the financial health of clubs relying heavily on these assets. Regulatory challenges also arise, as the legal framework surrounding cryptocurrencies varies across European countries, necessitating careful navigation to ensure compliance. Furthermore, the environmental concerns associated with crypto mining could affect the public perception of clubs endorsing these assets. Overall, while crypto assets present opportunities for innovation and financial growth in the European football industry, they also require careful consideration of associated risks and regulatory landscapes.

Research limitations

When examining the impact of crypto assets on the European football industry, several research limitations must be acknowledged. Firstly, the relatively recent adoption of cryptocurrencies in this sector means that there is limited historical data available for comprehensive analysis. This scarcity of long-term data can hinder the ability to draw robust conclusions. Additionally, the rapid technological advancements in blockchain and cryptocurrency can quickly render findings outdated, necessitating continuous updates to the research. Regulatory variability across different European countries further

complicates the generalization of findings, as each nation has its own set of rules and guidelines governing cryptocurrency use.

Market volatility is another significant limitation, as the inherent fluctuations in cryptocurrency values introduce considerable uncertainty into financial analyses and projections. Ethical and social considerations also pose challenges, as the complex implications of cryptocurrency use in sports may not be fully captured in the research. The limited number of football clubs currently utilizing crypto assets restricts the breadth of case studies available for analysis, potentially impacting the generalizability of the findings. Potential bias is another concern, as research may be influenced by the perspectives and interests of stakeholders within the football industry, leading to skewed interpretations of results. Lastly, ongoing developments in cybersecurity measures mean that current assessments may not fully account for future risks and vulnerabilities. Acknowledging these limitations is crucial for providing a balanced and nuanced understanding of the impact of crypto assets on the European football industry.

Further research directions

The findings pave the way for numerous avenues of future research on the impact of crypto assets on the European football industry to explore several key areas and provide a comprehensive understanding of this emerging phenomenon. First, it is essential to investigate the regulatory landscape across different European countries, as varying legal frameworks can significantly influence the adoption and integration of crypto assets. Comparative studies could highlight best practices and potential pitfalls, offering valuable insights for policymakers and industry stakeholders. Second, the financial implications of crypto assets on football clubs' revenue streams warrant detailed examination. This includes analyzing how cryptocurrency sponsorships, fan tokens, and blockchain-based ticketing systems affect clubs' financial health and sustainability. Researchers should also consider the volatility of crypto markets and its potential impact on clubs' financial stability.

Third, the role of fan engagement and performance in the context of crypto assets is a critical area for exploration. Understanding how fans perceive and interact with crypto-related initiatives can provide insights into the effectiveness of these strategies in enhancing fan loyalty and participation. Surveys and case studies of clubs that have already implemented crypto initiatives could offer valuable data. Fourth, cybersecurity and fraud prevention are paramount concerns. Research should focus on identifying vulnerabilities in the adoption of crypto assets and developing robust security protocols to protect clubs and fans from potential threats. Lastly, ethical considerations, such as the environmental impact of blockchain technologies and the potential for financial exclusion, should be addressed. By

examining these aspects, researchers can provide a balanced view of the benefits and challenges associated with crypto assets in the European football industry, guiding future developments in a responsible and sustainable manner.

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BOOK OF CONFERENCE ABSTRACTS

SUCCESSFUL FUND ACQUISITION FROM BUSINESS ANGELS: EMPOWERING START-UP ENTREPRENEURS

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ABSTRACT

The present research aims to examine how start-up entrepreneurs can be better able to acquire and secure funds from business angels in the context of Thailand. Business angel funds are one of the most important funding sources for start-ups, especially without historical financial records, start-ups face difficulties in convincing financial institutions to grant them loans. They experienced highly challenging circumstances in investing in start-ups because of high levels of risk and uncertainty (Scheela and Jittrapanun, 2012) as well as a low success rate of obtaining angel funds. Prior research has shown that Thai business angels have decided to invest by co-investing with family members and government agencies to reduce perceived risk. by closely monitoring them after investing (Scheela and Jittrapanun, 2012). Business angels need to have a comprehensive understanding of business angels' investment decision-making and behavioural criteria related to entrepreneurial teams, communication skills and networking (Mason et al., 2016). Past studies indicate a high failure rate among start-ups in obtaining sufficient capital from business angels (Harrison et al., 2015; Capentier and Suret, 2015). Behavioural decisions are based on individual 'gut feeling' (Huang and Pearce, 2015) as opposed to the rational economic evaluation model (Baker and Ricciardi, 2014). Credibility assessment includes the level of trust in firms, which relies on the expertise of the management team and the statistical record of the firm, e.g., repayment ability, profitability, financial history. Business angels focus on rate-of-return and the expected rate is approximately 30–40 % within a three- to five-year period. Entrepreneurs must be able to identify the exit point for investor (Harrison et al., 2015; Mason et al., 2016).

Data were collected using the in-depth interview technique, allowing the study to investigate what influences business angels in funding new start-up entrepreneurs and how behavioural credibility factors are associated with their investment decisions. The research instrument is through a semi-structured interview questionnaire with semi-structured and open-ended questions. A total of 16 Thai individuals participated in the study through purposive sampling, i.e., the researchers personally contacted business angels in Thailand, as there are no readily available sampling frames. Of the total 16 individuals, 12 business angels and four start-up entrepreneurs agreed to be interviewed. Four start-up entrepreneurs/founders participated in this research and obtained funding from business angels. Business angels are defined as "high net worth individuals who invest their own

money, along with their time and expertise, directly in unquoted companies in which they have no family connections, in the hope of financial gain" (Harrison et al., 2015: p.527). In addition, business angels should obtain a personal liquidity at a minimum liquidity of 30 million Thai baht ($1,000,000) (Mason, 2005). Start-up entrepreneurs are founders of start-ups who have successfully received business angel funding. Thematic analysis was performed, and inter-rater reliability was constructed to ensure the quality of data abstraction. The data analysis shows six themes of behavioural credibility: perceived trustworthiness, perceived expertise, perceived entrepreneurial spirit, socio-demographic background, social capital, and gesticulation. Perceived trustworthiness emerges as a pivotal determinant influencing business angels' investment decision. Factors such as self-investing, transparency, integrity, and personal relationships significantly impact the perceived trustworthiness of start-up entrepreneurs. Business angels prioritize entrepreneurs who exhibit a high level of commitment and honesty, while also valuing recommendations from trusted industry experts. Both business angels and start-up entrepreneurs emphasize the importance of first impressions, effective communication, and confidence in presentation delivery as essential elements in securing investment. This study contributes to the entrepreneurship literature by addressing a research gap between business angels and start-up entrepreneurs.

Keywords: Trustworthiness, Social capital, Gesticulation, Transparency, Integrity, Referral networks

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TOWARDS BEHAVIORAL TRANSFORMATION INSPIRED BY PANDEMICS

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ABSTRACT

Consumers tend to repeat behaviors that have given positive results in the past. The generally slow transformation of the behaviors sometimes can be influenced by drastic changes in the environment, leading consumers to change their usual behaviors to respond to new conditions (Zwanka and Buff, 2021). Therefore, periods in which consumers are facing drastic environmental changes offer an opportunity to analyze the factors and mechanisms that trigger behavioral transformations. The COVID-19 pandemic is a good example of such a sudden consumer behavioral transformation that resulted in significantly increased online buying and a reduction in offline buying (Hansson *et al.*, 2022). However, though many of the factors contributing to this change (e.g., social distancing, fear of being infected) have almost disappeared, online buying keeps the same volume or even increases (Alwan *et al.*, 2023). This justifies that the period of the pandemic may suggest valuable insights into sustainable behavioral transformations, which include both consumers who had or had not experienced purchasing online before the pandemic (Zwanka and Buff, 2021).

During the pandemic, a distinct group of health threats related situational factors and the implementation of social distancing measures emerged (Hansson *et al.*, 2022). These factors acted as barriers to offline buying, simultaneously making the online buying option not only more convenient but sometimes even the only possible (Pantano *et al.*, 2020). Furthermore, the consumers' shift toward online buying was additionally encouraged by growing awareness of the benefits of online buying, such as its convenience and safety.

The noticeable shift from offline to online buying during COVID-19 gives an ideal opportunity to reveal the situational factors that explain lasting mechanisms of behavioral transformation, going beyond the period of the pandemic and performing more generalized modeling of behavioral transformations. This study focuses on the factors that can be conceptualized as barriers to "old" behavior (i.e., buying offline) and opportunities for "new" behavior (i.e., buying online). In addition, some factors can be viewed as facilitators or distractors to the shift from old to new types of behavior. All these factors are analyzed in the context of the Theory of Planned Behavior (TPB), which is often used as a general tool for explaining human (including consumer) behaviors and helps to explain online buying (Bhati *et al.*, 2022).

Additionally, this study proposes that behavioral transformation is impacted by personal priorities, influenced by either prevention or promotion-focused motivations, as suggested by the Regulatory

Focus Theory (RFT). Based on this, key aspects of the Regulatory Focus Theory are integrated into the framework of TPB to reflect buyers' behaviors that have occurred because of barriers and opportunities of the pandemic period. Consideration of the regulatory focus helps to disclose how much the behavioral transformation is influenced by promotion focus (emphasis on the benefits of online buying) versus prevention focus (avoiding the threats and complying with restrictions of the pandemic period). Extension of this concept helps to develop a more generic theoretical model of behavioral transformation that goes beyond the period of pandemics and applies to a much broader set of transformations, thus starting to build a Theory of Behavioral Transformation. This model must include previous ('old') and novel ('new') behaviors. The typical TPB model considers just one type of behavior; therefore, to model transformation towards a new behavior, all elements of the TPB model (attitude, subjective norms, perceived behavioral control, intention, and behavior) must be linked only with the new behavior. Also, not always important factors can be strictly categorized into barriers and opportunities. Rather than that, opportunities could be integrated with facilitating factors that could be conceptualized broader than in the model for the COVID-19 period. This is justified by the fact that facilitating factors may capture both personal aspects and external (contextual) elements. The same is suggested for barriers that could include distracting factors of personal and external (contextual) nature (see Figure 1).

Figure 1. Model of Behavioral Transformation.
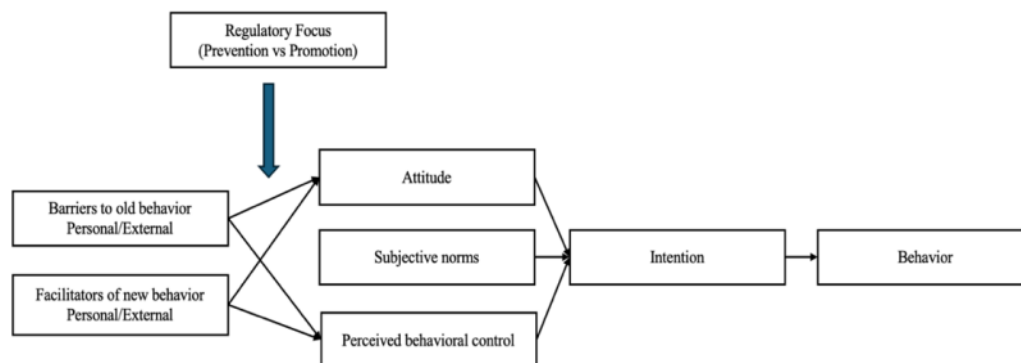
This study is based on an extensive literature review and employs a context-based approach. It raises several contributions to the theory. First, it highlights and groups together specific factors and provides a theoretical mechanism for the behavioral shift from offline to online buying during COVID-19. Second, and most importantly, it develops a broader model of behavioral transformation that applies to conditions beyond the situational specificities of the COVID-19 period and explains the overall mechanism of behavioral transformations in various fields of business. The developed model is entirely theoretical, however, it offers an important springboard for further research. The research questions are: do barriers to old behavior always positively impact attitude and perceived behavioral control towards the new behavior? Do facilitators of new behavior always positively impact attitude

and perceived behavioral control towards the new behavior? Do prevention/promotion regulatory focus significantly moderate the impacts of barriers and facilitators towards attitudes and perceived behavioral control?

This research also raises implications for practice, since it helps businesses in various fields to understand the motivating factors behind the consumers' shift from 'old' to 'new' behavior (for example, sustainable behavior). Based on this knowledge businesses can implement different marketing strategies allowing them to attract new customers or maintain existing ones.

ACKNOWLEDGMENTS

Keywords: COVID-19, behavioral transformation, TPB, Regulatory Focus Theory.

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CHARACTERISTICS OF AGRICULTURAL LAND AND MARKET PRICES: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

1. INTRODUCTION

The land market plays a crucial role in the economy of every country, directly influencing food production and security, environmental sustainability and poverty alleviation (Deininger and Byerlee, 2011; Muraoka *et al.*, 2018; Petrescu-Mag *et al.*, 2019). The growing concerns about soil degradation, desertification, and biodiversity loss (Lal, 1994) underscore the delicate balance that must be maintained to ensure sustainable land use practices. Despite its fundamental importance, the land market is often overshadowed by urban real estate, neglecting the crucial role of land in human sustenance. The shift of land from agricultural to non-agricultural uses, coupled with land abandonment, has strained the supply of cultivable land. A considerable interest arises from the 17 Sustainable Development Goals (SDGs) outlined in Agenda 2030 which address various challenges to promote sustainability in the agriculture sector (United Nations, 2015). Moreover, safe and fair access to land must be ensured (Weitz *et al.*, 2014).

In recent years, farm real estate values have reached unprecedented levels, with values across much of the United States standing at record highs in both real and nominal terms (Borchers et al, 2014). From 2009 to 2023, the average value of U.S. irrigated and non-irrigated cropland increased by 107% (USDA, 2023). In the European Union countries, the unit price of arable land is increased by 3% from 2021 to 2022 (Eurostat, 2024).

The continuous demand for land-based products, such as food and bioenergy, is generating a growing competition for the land (Haberl *et al.* 2014).

Nevertheless, the real estate market is still characterized by a lack of transparency and scientifically rigorous data, especially regarding agricultural land transactions, which often lack precise information (Festa *et al.*, 2021; Gholipour *et al.*, 2023).

The value of agricultural land depends on the economic, social, political, and institutional context (inflation, economic and demographic development, fiscal policy, etc.), which explains the variation in values over time and across large geographic areas. It also depends on specific characteristics (topographical, physico-chemical, hydrological, structural, etc.) that explain the variability of land values at the same moment and in the same area (Gallerani *et al.*, 2011).

The goal of this research is to identify all intrinsic and extrinsic characteristics contributing to the formation of agricultural land market prices or values, since "many of the factors that help explain the variation in farmland values across the country are parcel-specific" (Nickerson *et al.*, 2012), carrying out a Systematic Literature Review (SLR) to compile all works by authors who have explored this topic over the years. This SLR was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement 2020 (Page *et al.*, 2021).

2. METHODS

The SLR presented in this study was conducted using the PRISMA flow diagram, reported in Figure 1. The data were extracted from the Scopus and Web of Science (WoS) research databases, which are two of the most widely used for bibliometric analysis (Singh *et al.*, 2021), by implementing the Boolean algorithm. After establishing the terms more relevant to the research objective, a query was built and adapted to the "Advanced Search" of both Scopus and WoS.

The search query used in Scopus was: *TITLE-ABS ((agricultural-land* OR land* OR farmland*) W/5 (price* OR valu* OR appraisal) AND (characteristic* OR factor*)) KEY (land-price* OR land-market OR land-value* OR agricultural-land-price* OR agricultural-land-valu* OR farmland-valu* OR farmland-price* OR assess* OR valuation*) SUBJAREA (econ OR agri).*

The search query used in WoS was: *TI=((agricultural-land* OR land* OR farmland*) NEAR/5 (price* OR valu* OR appraisal) AND (characteristic* OR factor*)) OR AB=((agricultural-land* OR land* OR farmland*) NEAR/5 (price* OR valu*) AND (characteristic* OR factor*)) AND KP=(land-price* OR land-market OR land-valu* OR agricultural-land-price* OR agricultural-land-valu* OR farmland-valu* OR farmland-price* OR assess* OR valuation*) AND SU=(Econ* OR Agri*).*

Initially, during the identification phase, queries were set to find key terms in titles and abstracts. Subsequently, the search was refined by adding terms identified like keywords, *KW* (Fig.1) and subject areas, *SA* (Fig.1), focusing on economic or agricultural sciences. Records not in English were excluded and no temporal limit has been set up. At this point, the screening phase was started and, after removing duplicate records and considering the reports not retrieved, one researcher read the title and abstract of the records found during the identification phase to assess their eligibility by relying on the following exclusion criteria: i) Off-topic; ii) Land for non-agricultural uses; iii) Territorial and not parcel-level surveys. After detecting records suitable for eligibility, three researchers - who worked separately - read the full texts and dealt with the data collection on a previously created matrix in Excel that contains the following items: Authors; Year of publication; Paper type (Research paper, Conference paper or Working paper); Journal; Journal ranking; Publisher; Country (under investigation); Research

objective; Data type and source; Sample size; Methodology; Characteristics (parcel-level and macro-level characteristics).

Additional exclusion criteria were defined for the second part of the screening phase. In particular, some studies did not deal with the characteristics affecting land prices or values. Other studies considered macro indicators or socio-economic factors only. Moreover, a few studies dealt with land rent, credit, leasing or auction markets and therefore they were not linked with the farmland sales market dynamics. Finally, there also were studies in which land for non-agricultural uses such as residential, urban and industrial were investigated. Therefore, all studies belonging to the above-mentioned categories have been removed.
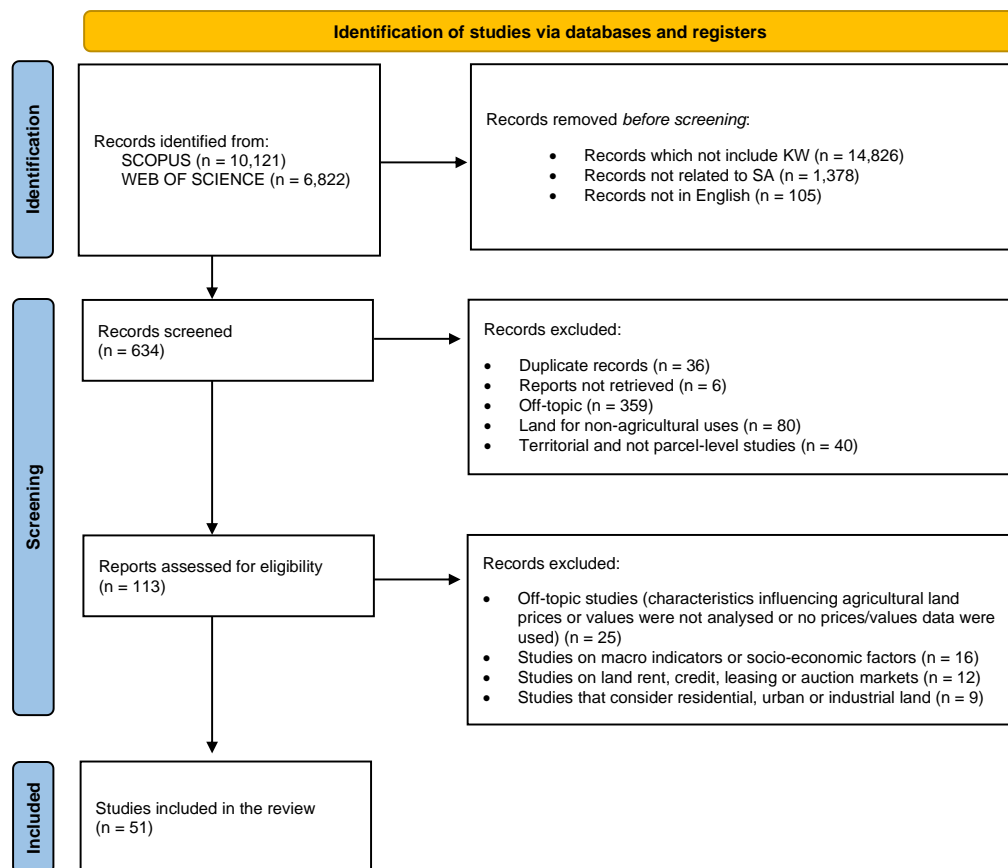
Figure 1. PRISMA 2020 flow diagram

3. RESULTS

The results obtained in each step of the SLR were recorded on the PRISMA 2020 flow diagram (Fig. 1). The first step, called "identification", returned 10,121 and 6,822 records in Scopus and WoS respectively. After the exclusion of the records which did not include *KW* (no. = 14,826), not related to *SA* (no. = 1,378) and not in English (no. = 105), the records screened were 634 (no. = 465 for Scopus and

no. = 169 for WoS). Out of these 634, 36 records were duplicates, i.e. present in both databases and 6 reports could not be retrieved. The reading of the titles and abstracts showed that 359 records were off-topic. Moreover, according to the exclusion criteria adopted and above listed, a number of 80 and 40 records were removed because they dealt with land for non-agricultural uses or were territorial and not parcel-level studies, respectively. After this screening, 113 reports were assessed for eligibility. From the reading of the full texts, it emerged that 25 studies were off-topic (about 23% of the total), meaning that these studies did not address the characteristics influencing agricultural land prices or values. Furthermore, 16 studies had considered only macro indicators or socio-economic factors in their analyses (14% of the total), 12 were studies addressing land rent, credit, leasing or auction markets (about 10%), and 9 were those that dealt with residential, urban or industrial lands (about 8%). Therefore, the final number of studies included in the SLR dropped to 51.

It is hoped that the final version of this research can contribute to increasing interest from public and private stakeholders in the land market and the crucial role that it has and will play in the coming years.

Keywords: land, price, value, market, characteristics, appraisal, farmland, agricultural land.

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USING WEB SCRAPING FOR BUSINESS MARKET RESEARCH IN THE TRAVEL INDUSTRY

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ABSTRACT

The travel industry is highly competitive, and businesses within this sector require up-to-date data to attract customers and stay ahead. Web scraping has emerged as a valuable tool for acquiring data from various online sources, including travel websites, hotel booking platforms, airline websites, and review sites. This thesis explores the usage of web scraping in business market research within the travel industry. It examines web scraping applications, the global market size and forecast, growth drivers, challenges, and ethical and legal considerations.

Additionally, it explores the role of data-driven decision-making, big data, marketing, market research, and business intelligence in the context of web scraping. The methodology section outlines the research approach, participants, data collection, and analysis techniques. The research concludes with a discussion of the applications of web scraping in market research within the travel industry, alternative ways of data extraction, best practices, challenges, and recommendations. Overall, this research provides insights into the benefits and implications of utilizing web scraping in business market research in the travel industry, offering guidance for organizations looking to leverage this technology effectively.

INTRODUCTION

Web scraping is a valuable tool used in various industries, including travel and hospitality. It allows businesses to gather large amounts of data from websites, enabling them to stay competitive and make informed decisions. The travel industry relies on up-to-date information about customer preferences, flight availability, hotel options, and other factors influencing travel choices. Web scraping automates the data collection process, saving time and effort. It enables businesses to collect data from multiple websites simultaneously and extract it in real-time or at regular intervals. "Web scraping bridges the gap between human-understandable and machine-readable data and opens up a new world of data to researchers by automatically extracting structured data sets from human-readable content" (Mitchell, 2018). Web scraping has many benefits, including faster and easier tasks than by hand, low maintenance and operational costs, targeted advertising, learning about product pricing data, market dynamics, predicting trends, finding out how competitors are doing and their problems, researching public opinion, getting real-time data with less time, money, and effort, and giving companies a clear

market edge (Kasereka, 2020). Web scraping tools also offer customization options for data formats and centralized storage, making data integration easier. Furthermore, web scraping enhances decision-making by providing accurate and timely insights (Almaqbali *et al.*, 2019; Khder, 2021).

DATA COLLECTION METHODS FOR MARKET RESEARCH

Web scraping is data extraction from websites using automated techniques, benefiting various fields like research, business, e-commerce, and education. It offers advantages such as efficient task execution, low maintenance costs, targeted advertising, and competitive analysis. The global market for web scraping, driven by e-commerce growth, is projected to reach USD 16 billion by 2035 (Verma and Singh, 2023). Despite challenges like manpower and data accuracy, web scraping is widely used in business intelligence, AI, data science, and cybersecurity. While applying web scraping, ethical and legal guidelines should be considered (Cresswell, 2021; Khder, 2021; Verma and Singh, 2023).

Table 11: Comparison of web scraping with other data collection methods (Han and Anderson, 2021)

	Scraped data	Commercial web scraping service	API	Survey
Cost	Low	Medium	Low/Medium	High
Sample frame	Website users	Website users	Website users	Flexible
Customizability of variables	Medium	Low	Low	High
Ease of frequent collection	Easy	Moderate	Easy	Hard
Data type	Behavioural	Behavioural	Behavioural	Attitudinal
Limitations	Time and programming skills	Data may not be suitable to the researcher's need in terms of variables or content.	Limited availability	Time and programming skills

METHODOLOGY

The methodology of this study follows a qualitative research approach to investigate the usage of web scraping in business market research within the travel industry. The study utilized snowball sampling to select participants who are experts in the field of market research and web scraping. Data collection was conducted through qualitative interviews, gathering participants' insights and perspectives. We've identified more than 54 experts using our personal network, LinkedIn, online business & tech communities. Overall, 14 experts agreed to interviews; 12 experts were interviewed, and two dropped out during the interview phase due to health issues. Semi-structured interview questions were used, and the transcribed interview data formed a dataset of over 50,000 words. The collected data was analyzed using appropriate techniques to identify key themes and patterns. This enables a

comprehensive exploration of web scraping applications, challenges, and best practices in travel industry market research.
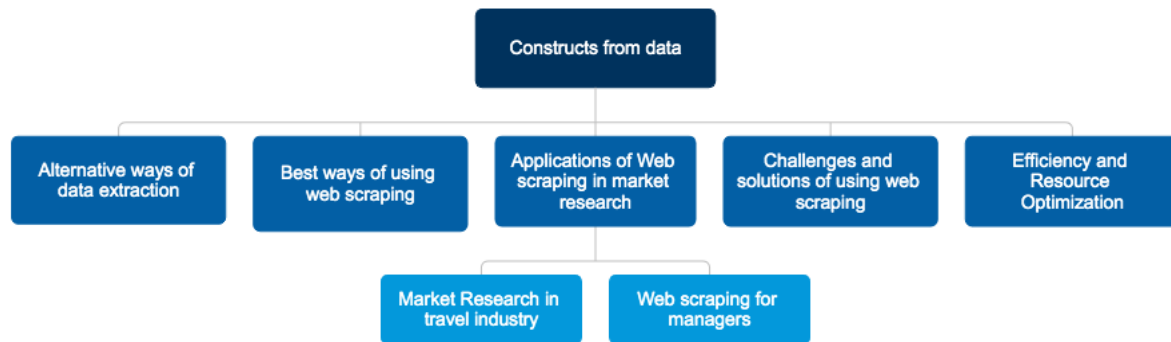
Figure 2: Coding constructs determined from the interview data

DISCUSSION AND CONCLUSION

It was found that web scraping can be a valuable tool for managers in various ways. A main benefit mentioned by experts during the interview is that web scraping can provide market insights to managers. However, it necessitates cleaning and building presentations from scraped data. Experts concluded that web scraping in this context might provide flexibility in the format and structure of data. It means a person can extract data in the format they need, and data can be utilized for presentations and diagrams, enhancing decision-making. This aligns with Khder's (2021) and Vording's (2021) findings. Besides market trend analysis, competitor analysis, product price monitoring, and customer sentiment analysis, based on two new applications of web scraping were identified: training AI models and threat detection. All experts from this study panel were using Python for scraping. They revealed the reason are features like: proxy support and distributed scraping, and it can be programmed to follow links and implement delays to prevent server issues. Another finding of the study Scrapy framework of Python is the most used tool for web scraping among the interviewed panel of this study, and the experts consider it very useful. A solution was identified for the change in source challenge to allocate resources, with triggers or alerts in place and investigating and troubleshooting issues that arise during the scraping process.

Interview data shows that web scraping may have legal and technical drawbacks. Legal difficulties may require verifying that the data collection procedure is legal and does not break any laws or regulations. Failure to follow legal requirements might lead to a business closure. Additionally, aggregated data use may be limited. Aggregating data for statistical purposes may limit its availability to customers. Aggregating, evaluating, and releasing data may need legal compliance (Krotov et al., 2020). While web scraping can provide valuable insights for competitive analysis, pricing trends, and

customer sentiment, it also raises concerns related to data accuracy, legality, and ethical considerations (Eaton, B, 2021). According to the study, web scraping's technical issues include source limits, dependency on other systems, need for constant maintenance, source blocking, and bogus data. Acknowledging Gheorghe et al. (2018) about dependency on other sources, it is identified that dependence on other systems can lead to potential issues such as website shutdowns or legal issues where web scraping or passing of content is permitted. A new idea was presented: It may be crucial to create systems to make you aware of potential changes and may avoid relying on such systems, as they may not always be updated or protected.

The study has limitations regarding participant diversity, subjectivity in qualitative analysis, and focus on the travel industry. Future research may explore technological advancements in other industries, and conduct longitudinal studies to gain a comprehensive understanding of web scraping in market research. Overall, the study provides valuable insights for leveraging web scraping effectively in market research within the travel industry.

Keywords: Web scraping, Global market research, Digital transformation, Travel industry, Data-driven decision-making, Big data, Marketing, Market research, Business intelligence, Data collection methods

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DRIVERS OF THE ADOPTION OF CIRCULAR ECONOMY PRACTICES AMONGST TOURISTS IN A MATURE NATURE-ORIENTED DESTINATION: CASE STUDY ON THE ARCHIPELAGO OF MADEIRA

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ABSTRACT

BACKGROUND

This paper focus on the topic of ´Tourism and Sustainable Economic Development´, is one of the most debated issues in the literature, but still poorly understood or practised in many instances. Within the framework of sustainable development, the concept circular economy offers the tourism sector a business and ecological oriented approach to ensure environmental sustainability. The literature on the topic is quite extensive, with a few good examples of successful applications of the concept (Manniche et al., 2021; Ranta et al., 2018; Rodríguez-Antón and Alonso-Almeida, 2019; Rodriguez et al., 2020; Sørensen et al., 2020). Operators and local government have been a busy working to establish commercial and political strategies in this regard, with a focus on the so-called green and environmentally sustainable products and services. This is an issue that causes universal concern in destinations welcoming increasing number of visitors in small areas lacking strategic resources such as water and local food production. However, the central role to be played by tourists in the production of environmentally sustainable tourism experiences cannot be ignored. Quite often the sector persuades only the convinced failing reach the ones who remain sceptical.

PURPOSE

This study discusses how tourists' practices may be enhanced by emphasises changes that tourists prefer and are willing to welcome and pay for it. To determine which tourist practices might support a circular economy, we used a quantitative approach to elicit the impact of attitudes, daily practices, and practical preferences at the hotel of choice, in terms of facilities, room service, restaurant food and beverages.

METHODOLOGY

Based on multivariate statistics and SEM analysis we identify the impacts of readily available information such as socio-demographics, nationality, type of hotel and travel arrangements to identify the most enthusiastically engaged segments of visitors.

FINDINGS AND DISCUSSION

Our findings reveal several potential drivers can help operators to identify the best tourist practices aiming at developing business models anchored in the circular economy paradigm. The results suggest that the gap between intentions and real behaviours is rather small. Moreover, besides showing up a consistent behaviour, most visitors are ready to pay a premium and check before hand for the hotel's credentials in the environmental area. However, while being ready to adopt measures that increase the level of energy and resource management efficiency, measures that affect them personally (e.g. daily cleanness of the room) are not welcomed to the same extent.

CONCLUSION AND IMPLICATIONS

This study also suggests a number of recommendations and practical measures to persuade visitors to adopt more environmentally sustainable behaviours. Hotels have free rein to implement energy and resources efficient measures that save resources, foodstuff, electricity, and water, and any other form of action and architectural transformation that would imply a more sustainable operational business model, that is not literally seen or physically perceived by visitors. As elsewhere, Madeira is facing critical shortages of critical resources such as space and a pro-tourism attitude among residents. Therefore, these results are good news to hotel managers and DMO officials that need to communicate changes of routines and a green-oriented business model to visitors. As most visitors are looking for pristine landscapes and to a welcoming and reassuring ambiance, is just a matter of fine tuning the message.

Keywords: Circular economy; Tourism sector; Nature destination; Island destination; Economic sustainability; Environmental sustainability; Sustainable tourism.

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A SYSTEMATIC REVIEW OF THE DIVERSITY OF BEHAVIORAL FACTORS INFLUENCING SUSTAINABLE CONSUMPTION AT THE NEXUS WITH IMPULSIVE BUYING BEHAVIOR

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ABSTRACT

This article outlines the findings of an extensive literature review examining the intersection of impulsive buying behavior (IBB) and sustainable consumption. Responding to a significant academic call for investigating predictors of sustainable consumption (White *et al.*, 2019), the research serves as a pioneering effort to explore this juncture, highlighting behavioral factors that expand the scope of sustainable consumption and introduce a novel path for research linked to impulsive buying behavior.

Previous literature review confirmed that we cannot consider economic growth without considering its adverse consequences, such as resource scarcity, climate crisis, loss of biodiversity, and social inequalities (Akbulut *et al.*, 2019). The practical implementation of resilience actions, such as sustainable consumption, is relatively new to academic research and lacks a well-structured framework with fluid boundaries (Vergragt *et al.*, 2014). Economics academic research adopted the terms "weak" and "strong" sustainable consumption (Hobson, 2013), where the latter calls for serious cutting on consumption, and both consider customer behavior modification. Current research refers to myriad types of sustainable consumption offered, such as responsible, green, ethical, voluntary simplicity, and so on (Haider *et al.*, 2022). However, the "attitude-behavior" gap is a hot research topic where individuals who regard themselves as environmentalists and conscious consumers still make unsustainable choices (Chitnis *et al.*, 2013). Furthermore, academic research suggests that up to 90% of consumers are impulsive purchasers, and up to 80% of individual consumption is based on impulsive buying behavior (IBB) when "a consumer experiences a sudden, often powerful and persistent urge to buy something immediately" (Wang *et al.*, 2022; Khan *et al.*, 2015). The literature review reveals a complex interplay between sustainable consumption and IBB, reflecting three distinct trends.

The study undertook an extensive, two-stage process to identify relevant extant research and filter the corresponding papers based on explicit extraction criteria. Over 300 factors influencing sustainable consumption at the nexus with IBB have been identified. The pertinent and significant sources were then systematically analyzed to reach theoretical and practical value findings comprehensively incorporated into a single provisional theoretical framework

encompassing factors like self-control, moods, emotional intelligence, psychological safety, and emotional engagement. Testable research propositions are presented for empirical validation.

Theoretical contributions feature a Three-pillar Model of Sustainable Consumption and a Preliminary Conceptual Framework on behavioral factors. Practical contribution outlined by the Iceberg Model for Marketing Actions Related to Sustainable Consumption. This review enriches theoretical understanding and practical application by examining behavioral drivers impacting sustainable consumption. Furthermore, it presents actionable guidance for managers seeking to align their brands with sustainability principles.

Keywords: sustainable consumption, green consumption, degrowth, voluntary simplicity, ethical consumption, impulsive buying behavior, factors influencing sustainable consumption

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SHAPING NEW PATHWAYS: INNOVATION AND PERFORMANCE IN SMES

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ABSTRACT

Nowadays, innovation is recognized as one of the main drivers of SMEs' growth *(Audretsch et al.,* 2014; Arcuri *et al.,* 2023) playing a crucial role in reshaping their competitive advantage (Arcuri *et al.,* 2023; Montani *et al.,* 2023) and becomes an entrepreneurial opportunity for firms to gain benefits (performance) through creating unique and distinctive offering as well as becoming the key source of a firm's long-term entrepreneurial success (Schumpeter, 1934), making on one hand innovation invaluable for enhancing individual success and on the other hand, SMEs driver for the national competitiveness (Albis Salas *et al.,* 2023; Antenozio *et al.,* 2023; Audretsch, 2002). Being promoters of innovation, SMEs often find themselves reinventing their activities (Albis Salas *et al.,* 2023; Antenozio *et al.,* 2023) demonstrating a heightened sensitivity to external technological and innovation changes (Montani *et al.,* 2023).

Internal innovation activities are enabled to have high-performance outcomes (Arcuri *et al.,* 2023; Matricano, 2023) distinguish SME from the others. For example, innovation activities like R&D investment positively impact innovation (Albis Salas *et al.,* 2023; Arcuri *et al.,* 2023) and productivity of SMEs (Albis Salas *et al.,* 2023), while intellectual property serves as a measure of novelty (Athreye *et al.,* 2021) and provides legal protection crucial for innovative SMEs' transformation (Matricano, 2023). Additionally, human capital emerges as a key factor fostering SMEs to have a competitive advantage (Kiefer *et al.,* 2022) and higher profits (Xu & Li, 2019) than others being positively associated with firms' earnings, and operating efficiency (Xu and Li, 2019; Kiefer *et al.,* 2022).

In the relationship between innovation activities and performance, significant attention is paid on gender diversity at the top management team that contributes to innovation (Xie *et al.,* 2020; Lee and Chung, 2022; Talke *et al.,* 2010), to firm performance (Yang *et al.,* 2019; Talke *et al.,* 2010), and to strategic orientation (Talke *et al.,* 2010). However, recent studies show that firms with more women in the top management team generate fewer impactful and cumulative innovations in the world (Lee and Chung, 2022), considering that these firms may take fewer risks than firms with more male directors (Yang *et al.,* 2019).

Despite the growing interest in innovation and SMEs, there is still a lack of studies to understanding the necessary innovation activities and their intersection for high-level performance in women-led SMEs. Drawing on this research gap, this study poses the following research question: Does

innovation activities affect female-SMEs performance? What paths of innovation activities are relevant to have performance in female-SMEs?

In this study, we focus on the Innovative Italian SMEs ranging from 10 years (2013-2022) to explore the interdependence of multiple innovation activities of female-led SMEs vis-à-vis non female-led SMEs on financial performance outcome trough novel approach of fs-QCA (Pappas & Woodside, 2021; Ragin, 2008) that is well suited to exploring possible configuration of conditions on a focal outcomes and can reveal equivalent paths that result in the same outcome (Pappas & Woodside, 2021; Ragin, 2008). According to Ragin (2008), first we calibrated the conditions (R&D investment, human capital and intellectual property) and outcome variable (financial performance measured by ROS). Second, we consider the necessity analysis by evaluating the relevance of the conditions that alone produce high-level of SMEs performance and finally, we also consider the truth table and sufficient analysis to understand how the intersection of innovation activities produces an elevated outcome. For the sufficient conditions analysis, the intermediate solution is evaluated. Finally, robustness analyses were performed by modifying the calibration thresholds.

Our results underline an interesting relation between innovation activities and financial performance as outcome and suggest that the theoretical proposition is supported for both female and non-female-led SMEs. For these inputs (R&D investment, human capital, and intellectual property), the two clusters don't show specifically differences in terms of necessary and sufficient conditions and the gender of the leadership does not appear to influence the relationship between these conditions and financial performance as measured by ROS. On one hand, no one of innovation activities alone can explain high-level of performance and at the contrary, R&D investment is a condition that is very inefficient on its own; on the other there are two pathways for each cluster that one combined R&D investment with human capital and other combined human capital with intellectual property. In this way both female and non-female Innovative SMEs can achieve an optimum outcome.

The two main theoretical implications of this study refer, on one hand, to the evolution of the traditional measure of innovation input as R&D investment as, today, this variable is to be considered insufficiently explanatory of innovation especially in innovative SMEs. Accordingly, we have proposed other variables useful that assess that phenomenon, that can be used in future empirical studies to evaluate innovation in Innovative SMEs, contributing to RBT and the understanding of internal strategic resources for innovation. On the other hand, we propose to study innovation in SMEs with a novel methodological approach as fs-QCA.

Furthermore, this study aims to offers also several managerial implications related to SMEs innovation and performance. First, it suggests that SMEs investments in R&D is no longer sufficient on its own to improve the ability of both female and non-female SMEs to generate an important level

of performance. Second, from a strategic perspective, SMEs could benefit by not only focusing on R&D investment but also going in-house to implement human capital and intellectual property.

Keywords: Innovation, SMEs, Innovative SMEs, fs-QCA, Innovation activities, Performance, Innovation inputs, Female entrepreneurship

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SUSTAINING SUSTAINABILITY: WHAT MAKES IT DIFFICULT FOR CONSUMERS TO SUSTAIN SUSTAINABLE FOOD PRACTICES

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ABSTRACT

Food waste at consumer level poses a great sustainability challenge. Reducing food waste can help in decreasing the carbon footprint and GHGs (WRAP, 2011) and can assist in enhancing global food safety (Parfitt et al., 2010; Dou et al., 2016). Therefore, halving global per capita food waste by 2030 is target 12.3 of the SDGs (Munir, 2022, United Nations, 2017).

According to existing studies, consumers' attitudes and behaviour play a significant role in mitigating food waste (Derqui & Fernandez, 2017; Schanes et al., 2018; Principato et al., 2018). However, despite the increasing need for consumers to adopt more sustainable food consumption practices and reduce waste (at home or other contexts, such as hospitality), recent research suggests that consumers resist sustainable food practices, e.g. due to habit (Thompson et al., 2020), reconfiguration challenges (Gonzales-Arcos, et al., 2021) and even maladaptive behaviours (Block et al., 2016). Nevertheless, research that attempts to explore underlying factors that prevent consumers from maintaining their sustainability practices (or makes them give up and move back to the unsustainable practices) needs further exploration.

Habit Theory (Wood & Rünger, 2016) suggests that people engage with the same (sustainable or unsustainable) behaviour without making a conscious effort to do so. These behaviours are comprised of an automatic component, picked up by repetition and prompted by a cue (Duhigg, 2013; Lally & Gardner, 2013) which then generate a resistance to change (Orbell & Verplanken, 2010). Thus, individuals who attempt to change their habitual (unsustainable) food consumption behaviours may find it difficult to sustain the newly adopted (more sustainable) practices, as trying to maintain a new practice may cause tensions, stress and negative emotions. On the other hand, supporting more sustainable "habits" (e.g. instead of conscious decisions) may prove to be a useful tool in promoting more sustainable behaviours.

Nevertheless, habit-related tensions can distract, discourage, and demotivate consumers from maintaining sustainable food consumption practices, as they limit feelings of freedom, enjoyment and other affective structures associated with food consumption. For instance, in the context of this study, attempting to reduce food waste when in a restaurant, e.g., by restricting choice or searching for smaller portions, may be time consuming, reduce enjoyment, and lead to stress and negative

emotions, due to habitual norms and behaviours. These tensions may therefore be linked with a complex mix of cognitive, affective, and behavioural aspects that go beyond the reported resistance to adapt sustainable practices (Gonzales-Arcos, et al., 2021).

Using the hospitality industry as our context, we build on habit and social practice theories (Reckwitz, 2002, Shov et al., 2012), to explore: a) the role of habit in maintaining sustainable consumption practices or reversing to previous (less sustainable) ones, b) the factors that affect habitual norms and consumer behaviours in the hospitality sectors and c) strategies to manage the effect of habit to support consumer food waste reduction behaviours.

The data for the study will be gathered by employing a sequential mixed method study consisting of an exploratory qualitative phase and an experimental quantitative phase. It is expected that the findings of the study will contribute to the existing limited body of knowledge on food waste by understanding factors (individual and contextual) that makes it difficult to sustain the sustainability practices in the consumption contexts of hospitality.

Keywords: Sustainable consumption, Habit theory, Consumer behaviour, Hospitality, Food waste

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INFLUENCER MARKETING: NECESSARY CONDITIONS ANALYSIS

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ABSTRACT

The proliferation of social media users continues to surge, a trend projected to persist until at least 2027 (Wong, 2023). Influencers wield growing influence, shaping the attitudes, preferences, and decisions of their audience (Joshi et al., 2023). What once may have been a pastime for some has transformed into a full-fledged profession, attracting many aspiring influencers (Joshi et al., 2023). Consequently, alongside traditional marketing methods, brands are exploring influencers as a novel avenue to promote their offerings. Thus, the integration of influencers into marketing campaigns is becoming commonplace (Joshi et al., 2023), giving rise to influencer marketing as a prominent strategy for businesses to adopt (Vrontis et al., 2021). Global spending on influencer marketing is poised to continue its upward trajectory, with 2023 witnessing a 29% increase over the previous year's expenditures (Geyser, 2023). In the literature, discussions predominantly centre on the source's characteristics, content attributes, and their impact on consumers (Vrontis et al., 2021). Source characteristics, including authenticity (Zniva et al., 2023), credibility (Sokolova and Kefi, 2020), and brand-influencer congruence (Janssen et al., 2022), are extensively scrutinized. Similarly, the outcomes vary, with certain aspects of influencer marketing influencing brand-related metrics as brand attitudes (Martínez-López et al., 2020) and purchase intentions (Ren et al., 2023), as well as factors related to the influencer themselves, as credibility (Wang et al., 2017).

PURPOSE

The literature predominantly examines the sufficiency logic, neglecting the necessity logic, which delves into what must be present for another variable to exist (Dul, 2016). It's crucial to explore not just what influences but what is indispensable for an effect. Interestingly, despite various methodologies, none have employed Necessary Conditions Analysis (NCA), aimed at identifying and studying indispensable conditions (Dul et al., 2023). Recognizing the potential of hypotheses on necessary conditions across disciplines, the authors advocate for research questions framed and analysed through the necessity lens, enhancing academic and practical insights (Dul et al., 2023; Dul et al., 2021). They also propose identifying and empirically probing more necessary conditions in marketing research (Dul et al., 2021). This study aims to determine if X is a necessary condition of Y,

bridging a methodological and theoretical gap. Specifically, it investigates the causal necessity relationship between influencer marketing characteristics and key outcomes.

METHODOLOGY

According to Dul et al. (2023), the NCA, which emerged in 2016, is increasingly used in different disciplines in the business and management area, including marketing. Nevertheless, in marketing communication, necessary conditions are discussed but not always empirically proven (Dul et al., 2021). Thus, a quantitative survey will be conducted through a questionnaire, which will be based on studies that have proven the existing relationships between certain characteristics and results, and which will be distributed online. The target population of this study will be social media users who follow at least one influencer of two specific areas (Beauty/Fashion or Travelling/Leisure), assuming a non-probabilistic convenience sampling, which is ideal for collecting a large amount of information in a short space of time (Bhardwaj, 2019).

FINDINGS

This study identifies crucial influencer characteristics for attaining high credibility, driving consumer purchase intentions, and fostering positive brand attitudes. Credibility hinges on non-commercial messaging, autonomy from brand influence, and alignment with brand values. Factors like follower count, reliability, expertise, and attractiveness also shape credibility. These attributes not only impact credibility but also influence consumer attitudes and purchase intentions towards brands. Trustworthiness, expertise, and congruence enhance brand attitudes, while attractiveness and authenticity stimulate consumer interest in purchases. The synergy between influencer traits and authentic messaging is pivotal in effective marketing campaigns. Upholding these attributes empowers influencers to positively influence consumer behaviours, reinforcing their role in brand communication and marketing strategies.

DISCUSSION AND IMPLICATIONS

The study will contribute not only to the literature of influencer marketing, as it will be pioneering in the analysis of necessary conditions in this area, introducing also, for this purpose, a new methodology, but also help brands and companies themselves, providing important data on those characteristics of the influencer and his content that will be mandatory to obtain positive results from these partnerships.

Keywords: Digital Marketing; Influencers; Influencer marketing characteristics; NCA methodology; Influencer credibility; Purchase intentions; Attitudes towards the brand

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SATISFYING HOTEL CUSTOMERS ACCORDING TO THEIR CULTURE: AN ANALYSIS OF ONLINE REVIEWS

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ABSTRACT

CONCEPTUAL BACKGROUND

In today's interconnected world the strength of electronic word of mouth (e-wom) is higher than ever especially in tourism where online reviews affect online purchase decisions and customer satisfaction (Kim et al., 2016; Athanasopoulou & Giovanis, 2023). Consumer-generated content, in the form of online reviews, is becoming an increasingly important source of information for shoppers affecting 20–50% of online purchase decisions (Mathwick & Mosteller, 2016). Furthermore, research shows that online reviews affect customer satisfaction (e.g. Berezina et al., 2016; Kim et al., 2016; Athanasopoulou & Giovanis, 2023) and ultimately, hotel sales and profitability (Kim et al., 2015).

However, different hotel service attributes are expected to have asymmetric effects on customer satisfaction (Mikulic & Prebežac, 2008; Kim et al., 2016) according to customer culture (Min et al., 2018; Zhang et al., 2020). Tripadvisor reports that the ratings given by customers differ substantially according to their region of origin (Banerjee & Chua, 2016). Therefore, there is a need to investigate further the role of culture in the effect of different service attributes on customer satisfaction (Guan et al., 2022; Mariani et al., 2020). The purpose of this study is to determine the role of customer culture in the effect of different hotel service characteristics on customer satisfaction by analysing online reviews.

METHODOLOGY

We analyse 6.500 online reviews from Booking.com for 42 4- and 5-star hotels in Athens, Greece in terms of the overall hotel score and individual service characteristics (cleanliness; location/access; personnel quality; installation quality; room quality; food quality; service process quality, and perceived value) for 1 year (2022). We first use netnography to analyse review comments and assign

each comment to a relevant service feature and then categorize it either as positive or negative. Next, we use penalty-reward contrast analysis (PRCA) (Mikulic & Prebežac, 2008), and the three-factor theory of customer satisfaction (Matzler & Sauerwein, 2002) to investigate the asymmetric impact of different service attributes on customer satisfaction. Finally, the culture categorization of Rosen & Shankar (2013) (11 cultures) is used to analyse data according to culture (Latin Europe, East Europe, Latin America, Near East, Arab, Far East, Confucian Asia, Anglo, African, Germanic and Nordic).

RESULTS

Cleanliness, process quality and perceived value are frustrators overall and do not lead to high satisfaction if increased. However, hotels can increase process quality to delight East Europeans and use perceived value to increase the satisfaction of Latin Europeans since this factor is a hybrid for this culture and affects satisfaction symmetrically. Location/access is a delighter for Asians., a satisfier for Arabs and Nordics and a dissatisfier for Anglo and Germanic cultures. This finding shows that Anglo and Germanic customers consider location to be a basic factor that will dissatisfy them if missing but will not increase satisfaction if increased. On the contrary, Asians are delighted, and Arabs and Nordics are very satisfied by good location but will not be dissatisfied if it is missing. Installation quality, food quality and room quality are dissatisfiers in the overall sample. However, food quality is a hybrid for East and Latin Europeans and installation quality is a hybrid for Arabs and Latin Europeans. Therefore, hotels can affect customer satisfaction/dissatisfaction by changing the level of service in these attributes since they have symmetric effects on customer satisfaction.

MANAGERIAL IMPLICATIONS

The results of this study can serve as a guide for customizing hotel services according to customer culture to increase satisfaction, prevent dissatisfaction and enhance overall hotel performance. The value of this study is the identification of the different service attributes that are important for customer satisfaction in each culture so that hotels can differentiate their service offer to maximize the satisfaction of each customer and improve online ratings. An improvement in online ratings can affect hotel performance significantly. Therefore, the effective customization of the service mix based on information mined from online reviews can help hotels enhance customer satisfaction, their reputation and their relationships with customers and ultimately increase their profitability.

LIMITATIONS-SUGGESTIONS FOR FURTHER RESEARCH

This study is based on the analysis of reviews of hotels in one city for 1 year. Future research can

expand the sample of reviews to whole countries or economic areas, analyse comments qualitatively to provide detailed information on the service attributes that are most important for each type of customer or on the sentiments experienced by each customer. Finally, future research can examine the effect of service attributes on customer satisfaction according to hotel class, or star rating.

Keywords: culture, consumer-generated content, hotels, customer satisfaction, online reviews, asymmetric effects, three factor theory

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SEGMENTATION OF THE ITALIAN E-MOBILITY MARKET. AN APPLICATION OF THE THEORY OF PLANNED BEHAVIOR

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ABSTRACT

The pressing need to reduce worldwide greenhouse gas (GHG) emissions is pushing governments to plan the phase-out of internal combustion engine vehicles (ICEVs) in the coming years, encouraging consumers to switch to zero emission vehicles. In 2023, the EU parliament voted to ban on the sale of CO_2 emitting vehicles by 2035. Electric vehicles (EVs), which have zero tailpipe emissions, are deemed to contribute to the GHG emission reduction in the transport sector that accounted for 24% of the EU's total CO_2 emissions (Faria et al., 2019; Europe Commission, 2023; European Parliament, 2023). Despite the support from governments, the EV uptake is still low in some EU countries such as Italy (ACEA, 2023).

In this context, the analysis of the e-mobility consumer market is fundamental. The literature has largely investigated EV purchase intention highlighting that demographics, beliefs, knowledge, moral and social norms, perceptions, and behavioural factors underlie the adoption (Ivanova and Moreira, 2023). Psychographics, socio-demographics, and behavioural factors were also used as bases for the market segmentation. However, there are few studies concerning the e-mobility market segmentation despite that profiling consumers would help car manufacturers and policy makers to implement more suitable and differentiated measures to endorse the EV uptake. The classification of EV consumers is still underexplored (Mohamed et al., 2016; Morton et al., 2017; Jaiswal et al., 2022).

Given the scarcity of segmentation works and the low EV uptake in Italy, this work aims to segment the Italian e-mobility market. The segmentation will allow for the identification of groups of consumers that can be targeted by tailored marketing and governmental actions.

The acknowledged complexity of the EV consumption suggests adopting the Theory of Planned Behaviour by Ajzen (1985), which is the most widely used model in the literature and whose predictiveness is extensively proven (Mohamed et al., 2016; Yegin and Kram, 2022), to identify the psychographics used as segmentation bases.

According to the original model, the individual's behaviour is predicted by behavioural intention, which is in turn explained by three determinants:

-        Attitude: the degree to which a given behaviour is positively or negatively valued;

-        Subjective norms: the individual's perception concerning the social expectations to adopt or not to a given behaviour;

-        Perceived behavioural control: the individual's perception about how easy or difficult it is to perform a given behaviour.

In addition to attitude, subjective norms, and perceived behavioural control, we add further determinants extending the original model. These determinants are moral norms, which are the personal feelings of moral obligation to perform/refuse or not to a given behaviour (Ajzen, 1991) and EV knowledge that expresses how much respondents know, and how up-to-date on e-mobility the are (Augurio et al., 2022).
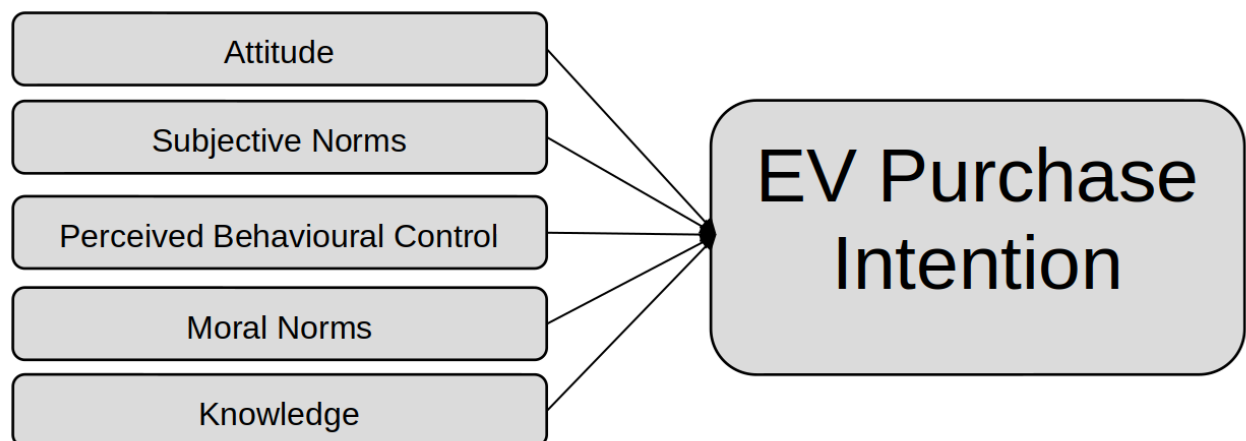
Figure 1. Theoretical framework – Factors Influencing EV Purchase Intention

Items from the TPB model were selected from those mostly cited in the literature. "Knowledge" was measured by asking respondents how much they know about technical and economic aspects of e-mobility. "Purchase intention" was measured by asking respondents to rate on a scale from 0 to 100 the likelihood of purchasing an EV in the near future.

The research sample consists of 1100 individuals stratified by gender, age, geographical area, and education to be representative of the Italian population. Respondents were asked to answer an online questionnaire distributed by Toluna Company, which offers professional research services.

At the current stage of this research, factor analysis is being performed to reduce the items referring to attitude, subjective norms, perceived behavioural control, and moral norms. The resulting components from the factorial analysis will be used with knowledge and purchase intention as segmentation bases.

Keywords: e-mobility, electric vehicles, segmentation, theory of planned behavior,

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UNLOCKING NGO SUCCESS: THE STRATEGIC ROLE OF MULTISENSORY MARKETING IN A DYNAMIC GLOBAL ENVIRONMENT

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ABSTRACT

The current living paradigm is significantly different than it was a four years ago. There are various reasons for this. One reason was the pandemic, another was the global fiscal crisis, the Ukraine war, and Israel - Palestine war. All these circumstances contributed to the enhancement of an already existing global and ethical crisis. This overall societal crisis has created various problems such as the struggle for survival and for success for many businesses and even more for NGOs (Prasad, 2020; Lins & Aquino, 2020; Laato et al., 2020; Tallon, 2020). NGOs are facing tremendous challenges especially since 2019, in the age where the consumer has so many alternatives but also financial difficulties.

Hence, in a market overloaded with information and options for the consumer, there is a trend but also a need to view consumers from an experiential, hedonistic lens and to examine the role of emotion in regard to receiving aesthetically pleasing, satisfying, and hedonic experiences. That is very important, as the suffering loss of a valued consumer to a competitive business or organization, can have significant consequences on profitability and on survival. Both companies and non-profits must face the dynamism and competitiveness of today's paradigm. Consequently, the trend is to shift the focus from consumer "acquisition" to consumer retention. Hence, the focus on the current living paradigm leads towards two words: satisfaction and engagement (Nikolinakou & King, 2018). It is crucial to understand how consumers behave and respond in relation to the reception of different stimuli, and in relation to how this affects consumer actions and decisions.

In order to better stimulate consumers, it is important to comprehend the context in which the consumer exists. Thus, it is important to point out that the online environment and online buying, even before the pandemic, were already present and flourishing, due technology, social media and virtual reality and AI. This contributed to a big consumer shift towards online buying which altered the previous buying paradigm (Douce et al, 2022). As a result, there was already an increasing trend towards online buying, but since the pandemic appeared, almost everything turned online globally. This was something that had never happened before, and this changed completely how consumers act and behave. Hence, there is a new paradigm of consumer behavior which needs to be explored within

the construct of SM, and it is necessary to identify how the valuable, promising but underexplored tool of SM can assist both consumers, companies, and NGOs, in order to communicate better and attain to their goals. Therefore, it is necessary to fill this gap first in knowledge and then apply findings into practice (Petit, 2019; Douce et al, 2022). As scholars' point, there is an impending need to redefine online consumer behavior and to utilize sensory marketing optimally, aiming to comprehend the hedonic aspect of consumer behavior and to increase online consumer pleasure and satisfaction.

Studying online and offline sensory marketing as separate research foci is essential for gaining a comprehensive understanding of how sensory cues influence consumer perceptions and emotions in different environments (Rathee & Rajain, 2017; Hussain, 2019; Petit et al., 2019; Worfel et al., 2022). The differences in sensory cues, contextual factors, and the increasing significance of online channels in marketing practice emphasize the need for separate examination of online and offline sensory marketing to advance the field of sensory marketing research. Therefore, online and offline sensory marketing, due to the different nature of sensory experiences in these environments should be studied separately. So far in the online environment there is still sensory deprivation which can limit the availability of sensory stimuli and impact consumer experiences, leading to the need to explore how sensory imagery can compensate for the lack of direct sensory experiences online. On the other hand, research in the offline environment has focused on understanding how actual sensory experiences can influence consumer perceptions, emotions, and behaviors (Hamacher & Buchkremer, 2022). Thus, NGOs need to transform their practices and use the valuable tools of Sensory marketing, so that they adjust to the new online paradigm, in order first to survive and then to thrive.

METHODOLOGY

The methodology which will be applied aims to address the gap in understanding within the field of sensory marketing the factors which can contribute to its optimal application. Recognizing the recent emergence and potential of sensory marketing, the research will utilize systematic and narrative literature reviews to consolidate existing knowledge. Drawing on the established benefits of systematic reviews, such as minimizing bias and ensuring transparency, the research employs a structured eight-step process (Elliot et al., 2017; Xiao & Watson; 2019).

This process includes defining research questions, setting standards, literature searching, screening for relevance, assessing source quality, extracting and coding data, synthesizing findings, and reporting results. By meticulously following this methodology, the present research aims to comprehensively explore and evaluate existing literature while contributing new insights both in theory and in practice

to the field of sensory marketing (Staples & Niazi, 2007; Nightingale, 2009; Xiao, Watson, 2019; Shaffril et al., 2021).

THEORETICAL CONTRIBUTION

This research represents a significant theoretical advancement in the field of sensory marketing by integrating insights from cinematography into the conceptual framework. By elucidating the previously unidentified linkages between sensory stimuli and cinematographic techniques, the study enriches the understanding of how various elements influence consumer engagement and perception. Through a systematic exploration of sensory marketing principles and their manifestation in visual storytelling on digital platforms like YouTube, present research contributes to the development of a more comprehensive theoretical model and fills theoretical gaps stated by scholars in the field. Furthermore, the incorporation of deductive qualitative analysis, coupled with an inductive element, facilitates the identification of novel categories and subcategories, thereby expanding the theoretical discourse surrounding sensory marketing and online consumer behavior.

MANAGERIAL CONTRIBUTION

From a practical standpoint, this research offers invaluable insights for marketers seeking to optimize their online sensory marketing strategies, particularly within the nonprofit sector. By delineating the specific cinematographic techniques that enhance sensory engagement and drive video virality, the study provides actionable guidance for crafting compelling narratives that resonate with target audiences. Moreover, the development of an evolved sensory marketing model tailored to the idiosyncratic needs of NGOs empowers practitioners to create impactful viral video campaigns that effectively communicate their mission and values. Through the application of these findings, marketers can harness the power of sensory stimuli and cinematography to elevate their digital marketing efforts, ultimately fostering greater awareness, engagement, and support for nonprofit organizations operating in the digital landscape.

ANTICIPATED FINDINGS

Based on the present research aim, and the preliminary research which lead to the below suggested framework, it is expected via both further theoretical and empirical research, to identify specific color/s and specific cinematographic techniques, which if incorporated on NGOs' videos on YouTube, the videos will become extremely engaging and popular, with low cost.

PRELIMINARY ONLINE SENSORY MARKETING FRAMEWORK
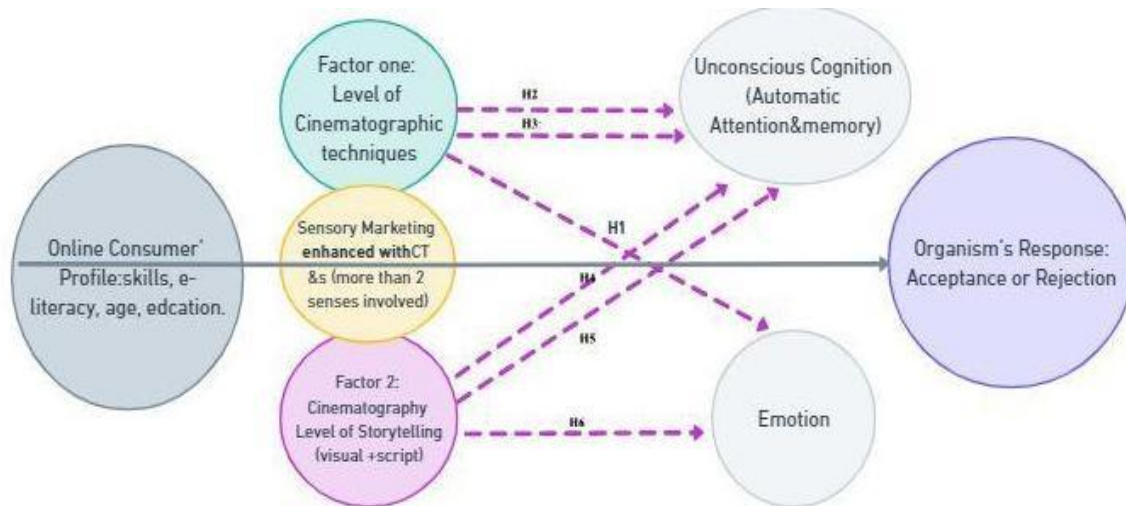
OSM Framework: 3 models SOR, LC4MP (Limited capacity of mediating processing), OCBM

Keywords: Sensory Marketing, Online Multi–Sensory Stimulation, Consumer Behavior, Cinematography, Enhanced Sensory Marketing, Virality, Online Consumer Behavior, YouTube, Consumer Cognition, Experiential Marketing.

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NUDGING HEALTHCARE PROFESSIONALS' PRESCRIBING PRACTICE THROUGH THE EFFECT OF PARTITION DEPENDENCE

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ABSTRACT

OBJECTIVES

Continuous improvement and adaptation are crucial for healthcare organizations. In particular, Evidence Based Medicine (EBM) is used to achieve the conscious, explicit and judicious use of all available recent research evidence to enable optimal decisions in medical practice and patient care. Despite evidence to support up-to-date, informed decision making, established habits of health professionals can prevent them from making optimal decisions. This is partly due to the fact that EBM creates a tremendous overload of information. During a study in a tertiary care hospital in the USA, approximately 3700 pages of national guidelines were identified concerning the treatment of just 18 patients in 24 hours (Allen and Harkins, 2005). In this study we explore nudging using partition dependence as an alleviation to EBM implementation problems, in terms of applying clinical pathways and protocols as consistently as possible while also encouraging the prescription of generic over brand name drugs to reduce the cost of care provided. The application of this intervention can lead a health system towards practices that are potentially more cost-effective without causing at the same time a reduction in the level of service provided. The 'nudge' paradigm for behavior modification is utilized to promote alignment between clinical practices and desirable standards, based on the belief that behavior can be willingly adjusted by making certain choices more naturally appealing. As for the definition, nudge is essentially every kind of choice architecture which affects the individual behavior in a predictable manner, without excluding any possible relevant choice or significantly altering the financial incentives. Nudges allow healthcare professionals to maintain their autonomy, as they don't limit their freedom of choice (Thaler and Sunstein, 2008). Nudging finds its theoretical background in Behavioral Economics. The essence is that people think through two primary but interrelated processes, as suggested by the so-called Dual Process Theory (Evans, 2003). This theory analyses the operation of system 1 (automatic, fast and involuntary, essential in stressful, time lacking or critical survival situations) and system 2 (rational, involves slow, thoughtful thinking and deliberate decision making, used by humans only). System 1 is characterised by the use of heuristics, which essentially reduce the complexity of analysing probabilities and possible outcomes (Tversky and Kahneman, 1974). Heuristics help health professionals in particular to take immediate

decisions without delay to avoid errors, which is extremely useful in assessing cases or administering treatments when there is pressure or time constraints. However, heuristics can lead to systemic errors or biases. Segmenting options into arbitrary categories has been demonstrated to influence decisions regarding the distribution of choices or resources among those options. This phenomenon, known as partition dependence, is closely linked to diversification bias, where individuals tend to evenly distribute limited resources across a range of alternatives, often resulting in choosing a specific set of options even if they do not truly align with our preferences (Sonnemann *et al.*, 2013**).** Few published studies explicitly employ nudge theory, and are diverse in terms of settings, objectives, and outcomes. Previous studies utilizing commitment messages and peer comparison had the objective of investigating the effect of nudging on the reduction of antipsychotic agents prescribing for indications not supported by evidence and low value prescribing of antibiotics **(**Sacarny *et al.*, 2018) (Östervall, 2017). In another study conducted in the USA, the use of defaults –that is, pre-set courses of action that take effect if nothing is specified by the decision maker- in the electronic order search resulted in the rise of the proportion of generic drugs prescribed from 39.7% pre-intervention to 95.9% post-intervention (Malhotra *et al.*, 2016). In the greater Chicago area, prior research on which our study was based, with a sample consisting exclusively of primary care providers, documented an average 11.5%-point reduction across 7 clinical vignettes in the prescription of certain types of drugs, when these treatment options were presented in groups rather than individually (Tannenbaum *et al.*, 2014**).** In our research we examine the effect of nudging by grouping (partitioning) therapeutic options on the provider's treatment choice in 8 different clinical cases (vignettes) while incorporating the element of prescribing generics over their brand-name counterparts in order to save resources in the provision of healthcare services, using data collected from the medical personnel in health care facilities of the 3rd Regional Health System in Northern Greece.

METHODS

The study is based on a convenience sample. The questionnaires included eight clinical vignettes describing symptoms of common infections. In antibiotic inappropriate vignettes (acute non-bacterial pharyngitis, acute bronchitis, acute nasopharyngitis and gastroenteritis) the prescription choices were divided into over-the-counter and prescription drugs while in antibiotic appropriate vignettes (otitis media, urinary tract infection, acute sinusitis, and cellulitis), into narrow/ broad-spectrum or generic/brand name drugs. Logistic regression was performed separately on each clinical case to assess the effect of clustering on the probability of prescribing "undesirable" treatments (prescription drugs, broad-spectrum antibiotics, brand-name drugs) by physicians. Statistical analysis was performed using SPSS.

RESULTS

Partitioning in the e-prescribing system influences the choices of physicians with an average reduction of 22%, across 8 clinical vignettes in choosing "undesirable" treatments (prescription drugs, broad-spectrum antibiotics and brand name drugs). The scale of this reduction varies by clinical case, with more pronounced reductions in clinical cases requiring antibiotic administration (25% reduction on average), compared to clinical cases not requiring antibiotic administration (19% reduction on average). More specifically, in the clinical case of acute non-bacterial pharyngitis, 48% of the physicians selected prescription drugs when those were presented as separate options while only 16% of the physicians selected prescription drugs when those were presented in a grouped manner. Clearly, grouping had some effect, whether small or significant, in all instances of nudging physicians towards desirable outcomes across various clinical cases.

CONCLUSIONS

Given the widespread use of e-prescribing, the grouping in treatment options interface may have a significant impact in guiding a prescribing system in meeting certain health policy goals regarding effectiveness and efficiency. In our study, in addition to the application of 8 clinical cases in various health care settings (hospitals, health centers, local health care teams), we also examined whether the grouping of treatment options encourages physicians to prescribe generic drugs. As the research is being carried out in a southern European country with limited resources in the healthcare sector, we believe that nudging in the electronic prescribing system can bring significant savings to both private and public hospitals as generic drugs cost about 80-85% less than their brand name counterparts. This kind of intervention apart from the cost saving aspect, can also complement the measures against over-prescribing, which is detrimental to the health of patients individually and collectively, given the increased likelihood of the development of antibiotic-resistant bacteria. Grouping treatment options can be a powerful tool in the hands of health care facilities management to achieve the most rigorous implementation of clinical guidelines and pathways, saving resources and optimising care.

Keywords: e-prescribing, nudging, partition dependence, behavioral economics

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INCLUSIVE CULTURAL EXPERIENCES: AN EXPLORATORY INVESTIGATION OF METAVERSE ENHANCING EXPERIENCES FOR CUSTOMERS WITH DISABILITIES

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ABSTRACT

The United Nations (2006) defined disabled individuals as "those who have long-term physical, mental, intellectual, or sensory impairments". Also, disability hinders their ability to access public facilities and participate in daily activities (Bhogal-Nair *et al*., 2023; Tuli *et al*., 2023). Advancements in 21st-century technology have fostered discussions on accessibility and inclusion (Longo and Faraci, 2023) addressing a global social challenge for people with disabilities, who make up about 15% of the world's population (World Health Organization, 2021; Tuli *et al*., 2023). In particular, metaverse is emerging as a potential avenue for enhancing social and cultural implications (Dwivedi *et al*., 2023). This technology has created impacts across various disciplines like marketing, where emphasis is placed on customer experience (Gursoy *et al*., 2022) and individual well-being.

Given that technological advancements, like the metaverse, are intended to enhance human life, it is essential to evaluate how they are adopted by all individuals, despite their relative novelty (Aburbeian *et al*., 2022). Scientific research has advanced the understanding of Technology Acceptance Model (TAM) (Davis, 1989) among various groups, including able-bodied individuals and those with specific disabilities (Iftikhar *et al*., 2023). However, based on existing literature and our knowledge, TAM has not been applied to assess the acceptance of metaverse across all types of disabilities. By understanding how the metaverse fosters accessibility and inclusion, this study seeks to fulfill museums' commitment to openness, accessibility, and public education (Poria *et al*., 2009). Removing physical, economic, and social barriers, the metaverse facilitates the integration of disabled individuals, empowering them to feel included (Vaz *et al*., 2020; Iftikhar *et al*., 2023). Despite recognition of the importance of including customer with disabilities (CwDs) in arts activities by both institutions and scholarly literature (European Commission, 2021; Lu *et al*., 2022), there remains a notable gap in the research understanding of the role that metaverse has for CwDs. Due to the relevance of the above topics, this work-in-progress paper aims to explore how art-related spaces such as museums can enhance accessibility and inclusion for CwDs through the metaverse, with the ultimate goal of pinpointing a set of strategies (Buhalis *et al*., 2023; European Commission, 2021; Lu *et al*., 2023; Tuli *et al*., 2023). So, the following research question will be investigated:

RQ1. How can museums benefit from the implementation of the metaverse to enhance accessibility and inclusion for CwDs?

Based on preliminary research regarding the integration of the metaverse within museums, we intend to gather data from worldwide museums actively engaged in promoting accessibility, as mentioned on their websites. The exploratory nature of our research necessitated the adoption of a qualitative approach following the Gioia methodology (Gioia et al., 2013) through a multiple-case study design. This approach will enable us to delve into the phenomenon within its real-world context and extract specific cases to generate broader insights. Such a methodology will be ideal for exploring and analyzing complex and emerging social and business phenomena (Yin, 2017), thus bolstering the reliability of our empirical findings (Eisenhardt & Graebner, 2007). Specifically, our analysis will focus on three museums that have implemented metaverse, employing semi-structured interviews as the primary method of data collection. Further details regarding the sample, where the museums are termed adopting Greek alphabet terms to ensure confidentiality, are provided in Table 1. Furthermore, for the collection of primary data, the authors will employ data triangulation, seeking the participation of different museum employee, to mitigate the limitations of relying solely on a single data source (Jack and Raturi, 2006). Moreover, secondary data from the museums' websites will be included in the data collection for a comprehensive analysis.

Table 1. Analysis sample profile

MUSEUMS	THE DATE OF INTRODUCTION OF THE METAVERSE	COUNTRY
A	2023	USA
B	2023	UK
Γ	2022	USA

As the research progresses, it is anticipated that several theoretical and practical implications will emerge from the results, alongside the originality of the study. From a theoretical perspective, it will deal with synthesizing the current body of knowledge regarding the use of the metaverse,

particularly within art-related contexts where the convergence of social issues and technology is garnering heightened interest among scholars and practitioners. Then, the research will contribute to the existing literature on metaverse application by extending it to CwDs without focusing on any specific disability, and consolidating knowledge on its impact. The focus on the metaverse as technology enrich its scientific comprehension, acknowledging the significance of continued substantial advancements (Dwivedi *et al.*, 2023). Furthermore, the theoretical model derived from TAM with the integration of disabilities, that will be developed and tested in our study, will have the potential for future exploration in in other contexts and industries. Differently, practical implications will include the need to promote diversity through staff training, but also to foster inclusive practices among cultural operators as expanding accessibility to all customers can provide a competitive advantage over those who do not prioritize it. Additionally, the engagement of local authorities and political support will emerge as crucial for acquiring necessary resources, recognitions, and investments. Finally, this commitment will lead to the improvement of the reputation of artistic environments, directly contributing to the local economy.

Keywords: Disabilities; Customers with Disabilities (CwDs); Accessibility; Inclusion; Technologies; Technology Acceptance Model (TAM); Metaverse; Museums; Qualitative Approach; Multiple-case study; Gioia Methodology.

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AGENCY AND STEWARDSHIP PERSPECTIVES: EVALUATING THE IMPACT OF PROMOTER AND NON-PROMOTER DIRECTORS' PAY ON FIRM PERFORMANCE

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ABSTRACT

We examine the impact of remuneration paid to promoter directors and non-promoter directors on corporate financial performance for a sample of Indian non-financial firms. Extending empirical support to the agency theory, our findings suggest that promoter director remuneration affects firm performance positively. Our results also lend credence to the 'tunneling hypothesis' in an emerging market context since the positive impact of promoter director remuneration on profitability is found to be less pronounced for group-affiliated firms than non-affiliated firms. Further, our findings show that the positive effect of promoter director remuneration on profitability is stronger for firms that are characterized by CEO duality. In addition, our results do not provide conclusive evidence for a relationship between non-promoter director remuneration and firm performance, thereby highlighting the relevance of stewardship theory since remuneration alone does not seem to be a motivating factor for non-promoter directors to contribute towards firm profitability and wealth creation.

Keywords: Board remuneration, firm performance, emerging market, business groups, CEO duality JEL Classification Codes: G30, G32

INTRAPRENEURIAL DYNAMIC CAPABILITIES AND DIVERSIFICATION: A MULTILEVEL ANALYSIS.

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ABSTRACT

INTRODUCTION

COVID-19 has been a trigger for diversification for many companies worldwide (Tokbolat and Le, 2022). American multinationals such as General Motors and Ford, for example, began manufacturing respirators. The literature on diversification has focused on the degree of diversification, the more or less related nature of activities (Benito-Osorio et al, 2012) and the link between business diversification and performance (Sohl et al, 2022). So far, little work has focused on contingency factors such as the modalities of development towards new activities and the management of diversification strategy implementation.

Intrapreneurship or Corporate entrepreneurship represents important activities within existing companies, enabling continuous innovation that translates, into the development of new products and services as well as new markets (Marques et Marques, 2019). Intrapreneurship also refers to the process by which companies engage in diversification through internal development. This diversification requires new combinations of resources to expand the company's activities into related or unrelated areas (Sohl et al, 2022). Intrapreneurship and diversification cannot be considered as two totally distinct concepts (Antoncic and Hisrich, 2003). Thus, the diversification of an established company into new activities in terms of products/markets can be considered intrapreneurial activities, since they represent a change from the initial orientation (Antoncic and Hisrich, 2003).

Intrapreneurship is a bottom-up, multi-level concept that can affect different organizational levels (individual, team, and organization) (Petra et al, 2019). The first step in an intrapreneurial process is identifying the opportunity. The second step is implementing the intrapreneurial idea and exploiting the opportunity (Kraus et al, 2019). It involves reconfiguring resources around an opportunity.

Indeed, little is known about the mechanisms by which intrapreneurial capability develops and influences organizational outcomes such as product/market diversification strategy. Hence, it is important to develop an integrative framework of these different levels to better understand the antecedents of intrapreneurship and the link with diversification.

In this paper, we integrate Teece's (2007) perspective of dynamic capabilities (the ability to identify, seize and reconfigure) with the concept of intrapreneurship, and highlight the major role played by intrapreuneurial dynamic capability - the ability to identify an opportunity, seize it internally and reconfigure - in the product/market diversification strategy. This study focuses on the behavior of individuals and/or small collectives, processes and structures understood as micro-foundations (Felin et al., 2012). The basic motivation of this approach is to decompose theoretical constructs at the macro level into actions and interactions at the level of organizational members (Felin et al, 2012). Indeed, the literature distinguishes two types of antecedents to intrapreneurship: (1) organizational factors related to organizational culture and management practices that foster knowledge sharing, creativity, innovation and change; and (2) individual factors mainly related to attitudes and skills that drive innovation and change (Marques et Marques, 2019). From all these insights, we can advance the conceptual model, which details the microfoundations of diversification entrepreneurial orientation.

Figure 1: An integrative microfoundations model of dynamic intrapreunarial capacities and the link with diversification
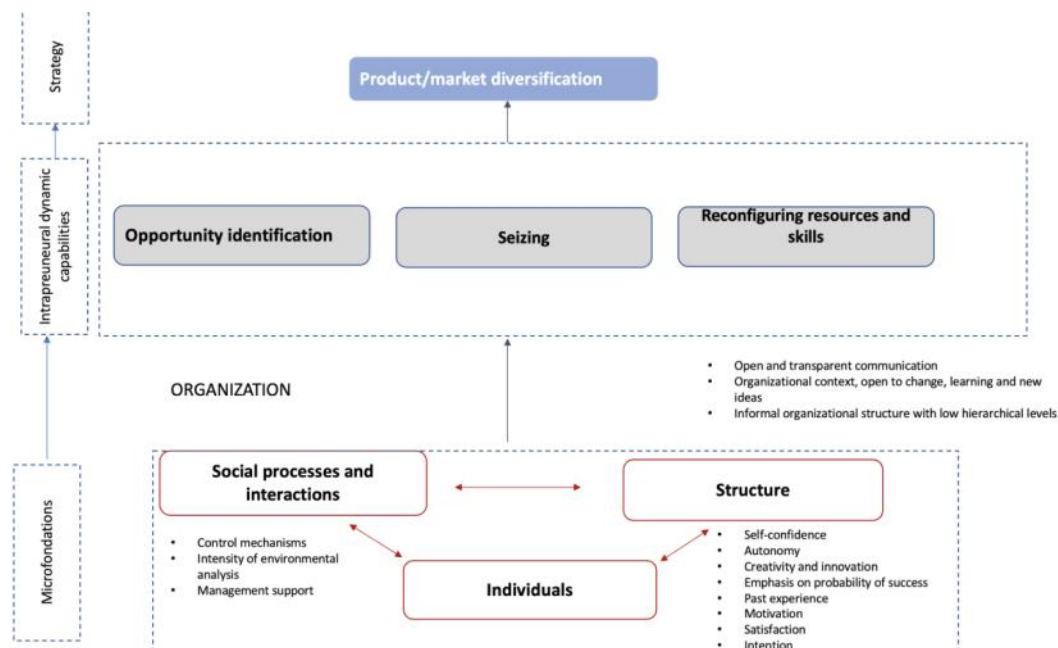
DISCUSSION AND CONTRIBUTIONS

Our conceptualization effort responds to calls from several authors to improve our understanding of the antecedents of intrapreneurship (Petra et al 2019) and diversification (Benito-Osorio et al, 2012). Dynamic capabilities view help to explain the dynamics of intrapreneurship activity within established organizations. It also complements the literature on diversification strategy, which has focused on the contributions of Resource Based View (Wernerfelt, 1984), in particular to study the business relatedness (Harrison, 1999).

Moreover, the two concepts of intrapreneurship and product/market diversification are cited in the literature as synonymous (Burgelman 1983; Antoncic and Hisrich, 2003), whereas our work highlights how dynamic intrapreneurial capabilities facilitate diversification.

Also, and in contrast to dominant works that focus either on the organizational level of intrapreunarial antecedents (Alpkan et al. 2010; Lages et al, 2017), or on the individual level (Petra et al 2019; Goosen et al. 2002), our approach allowed to integrate in the same theoretical framework processual, structural and individual dimensions to influence intrapreunarial dynamic capabilities that facilitate diversification strategy. Finally, our research also contributes to opening up the field of corporate entrepreneurship (Burgelman 1983; Antoncic, 2007) to the diversification strategy literature (Sohl et al, 2022), microfoundation approaches (Felin et al, 2012), as well as dynamic capabilities (Teece, 2007).

Our conceptual model can help executives and managers better understand the link between intrapreneurship and diversification, and the antecedents of this relationship at individual, process and structural levels. The links between these two concepts lead to a dyadic effect: fostering the conditions for intrapreneurship within an organization is also likely to improve diversification.

Our study contributes to the literature on coopetition (Bouncken and Kraus 2013) by paving the way towards alternative approaches to classic works that study the nature of the relationship and the associated value creation. Also, it answers the call towards more work focusing on the particular case of collaboration between startups and large mature companies (Chappert et al, 2023; Bouncken et al. 2015). Secondly, this work responds to several calls in strategic management to better understand the microfoundations of dynamic capabilities (Palmié et al, 2023).

Our qualitative approach has enabled us to study this phenomenon in depth. This work opens the way to designing structures, processes and interactions between individuals, enabling large mature organizations and small technology startups to compete in order to innovate.

Keywords: Diversification, corporate entrepreneurship, microfoundations, dyanamic capabilities

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THE KNOWLEDGE SUSTAINABILITY MODEL

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ABSTRACT

Sustainability is a key area of scientific research and our everyday lives. Different scientific disciplines, both separately and in combination, are trying to define sustainability criteria. At the same time, the issue of sustainability of knowledge, which is the basis for all further research, is being overshadowed. The theoretical research aims to develop a sustainable knowledge management model. It goes beyond the typical expectations of sustainability (such as the protection of the environment, the necessary use of renewable energy sources, etc.). It thinks at a scale that seeks not only to create the physical conditions and theoretical possibilities but also to imagine the conditions for an innovative future, while also achieving organisational well-being (happiness). It is based on the GNH of Business assessment methodology, first used in the Kingdom of Bhutan (and since then adopted in many other countries). It provides tools for the economy and society to identify appropriate (parallel and continuous) development directions. The model takes a holistic approach to the synergy between organisational well-being and knowledge sustainability.

Keywords: trust; sustainable knowledge; artificial intelligence; model; knowledge management, GNH of Business

FINANCING OPPORTUNITIES FOR FIRMS: DO SUSTAINBILITY AND DIGITALIZATION- RELATED ISSUES MATTER?

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ABSTRACT

In the evolving financial landscape, the integration of Environmental, Social, and Governance (ESG) factors into investment decisions and financial analyses has become increasingly paramount (Ng and Rezaee, 2015; Eliwa *et al.*, 2021; Serafeim and Yoon, 2023). This integration marks a paradigm shift from a traditional approach predominantly focused on financial metrics to a more holistic one, where non-financial factors are acknowledged as critical determinants of a firm's long-term viability and risk profile. Accordingly, over the years, financial intermediaries and capital markets participants have increasingly paid attention to ESG scores to make informed decisions, determine risk propensity, and assess the standing of a company compared to its peers (EBA, 2019; La Torre *et al.*, 2021; D'Apolito *et al.*, 2024). In light of these considerations, understanding whether and how higher ESG performance influences a company's access to financial markets, as well as the cost of funding is critical for all market stakeholders, including capital providers, borrowers, and policymakers.

A growing body of research has started to empirically examine whether banks and capital markets participants assign any monetary value to firms' commitment to ESG issues. Many studies show that efficient implementation of ESG practices enhances corporate financial performance, resulting in lower cost of debt (e.g., La Rosa *et al.*, 2018) and cost of equity (e.g., Ng and Rezaee, 2015) relative to firms with low ESG scores. Nevertheless, other scholars find no evidence of this relationship (e.g., Menz, 2010; Hoepner *et al.*, 2016), suggesting that financial markets may not consistently recognize or assign monetary value to firms' commitment to ESG objectives.

Hence, the literature suggests that higher ESG performance can either benefit or harm the company's access to financial markets (Ali *et al.*, 2023; Li *et al.*, 2024). Yet, to date, there is a distinct lack of research regarding the conditions through which better ESG performance facilitates a company's access to funding.

We seek to contribute to this line of research by examining when high firms' ESG performance facilitates a company's access to funding. In this respect, we focus on corporate digital efforts as a key contingency factor of the relationship between firms' ESG performance and the cost of funding. Digital technologies are revolutionizing how companies innovate, operate, and engage with stakeholders, offering them a competitive edge (Wang *et al.*, 2023) that could extend to enhanced ESG performance and financial outcomes (Hilali and Manouar, 2020; Broccardo *et al.*, 2023). By leveraging digital

technologies, corporations can indeed enact transformative changes in their operational processes, organizational structures, and business models, thereby significantly enhancing their ability to implement effective ESG practices (Lu *et al.*, 2023). Furthermore, enhanced digital engagement tools can foster stronger relationships with investors and the community, positively affecting the company's reputation (Asif *et al.*, 2023) and possibly its access to funding. Hence, based on the considerations above, we posit that digitalization acts as a significant contingency factor of the relationship between firms' ESG performance and the cost of funding.

Empirically, we test our hypotheses on a sample of listed Italian non-financial firms over the period 2017–2022. Data on ESG performance come from Refinitiv Eikon, hosted by Thomson Reuters, while the economic and financial variables were gathered from both the AIDA (Bureau Van Djik) and Refinitiv databases. Qualitative, nonfinancial information regarding the sustainability of the firms' business models was hand-collected from public business documents (annual reports, non-financial statements and corporate governance reports). Finally, to measure companies' digitalization efforts we developed an index by identifying and analyzing digitalization-related keywords in the annual reports and non-financial disclosures of firms. Notably, starting with the creation of a keyword lexicon, which includes terms closely associated with digital technologies and innovations (e.g., artificial intelligence, machine learning, blockchain, big data, among others), we proceeded to extract these keywords from corporate documents. The number of occurrences of these keywords was then divided by the total number of pages of the reports in order to assess the intensity of digitalization efforts within the firms.

This study aims to contributes to the literature in different ways. Firstly, we aim to enriches the understanding of the dynamics between firms' ESG profile and their funding by examining the influence of corporate digital efforts on this relationship. Thereby, we provide first empirical evidence on when higher ESG performance influences a company's access to funding. Secondly, our research sheds light on the underexplored area of how digitalization can support the implementation of sustainable practices within firms (e.g., Hilali and Manouar, 2020; Broccardo *et al.*, 2023). Particularly, by examining the interaction effects of digitalization on sustainability implementation, we provide a more comprehensive understanding of the digital pathways that can enhance ESG performance and, by extension, influence a company's financial and market positioning.

Keywords: Sustainability, ESG, digitalization, funding, cost of capital

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TOP MANAGERS' LEADERSHIP AND ARTIFICIAL INTELLIGENCE: INSIGHTS FROM A BIBLIOMETRIC AND CONTENT ANALYSIS

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ABSTRACT

1. RESEARCH POSITIONING AND RESEARCH QUESTION DEVELOPMENT

Around four decades ago, Holloway (1983, p. 89), advanced the prediction of a supercomputer that "could share or usurp the functions of a company CEO". Such a sophisticated computer system, identified as a thinking robot, would express functions traditionally thought to be exclusively human until that time (Pereira et al., 2023). The COVID-19 pandemic, in the early 2020s, also acted as a catalyst, compelling businesses to face an unprecedented challenge: digital transformation (Bresciani et al., 2021; Makarius et al., 2020). As a result, this era is characterized by continual technological progress leading to a comprehensive revolution in how companies operate and manage their resources (Kraus et al., 2023). At the heart of this transformation lies artificial intelligence (AI), one of the driving forces of this paradigm shift (Enholm et al., 2022). The significant role of AI, thanks to the capacity to analyze extensive data, automate complex tasks, and provide predictive insights, promises to unlock new opportunities, and enhance operational efficiency in the business environment (Pereira et al., 2023). However, the successful implementation and use of AI rely not solely on the technology itself, but above all on the top managers' leadership to adapt to new paradigms and lead organizations toward digital maturity (Berente et al., 2021). Therefore, business leaders play a crucial role in fostering the organizational implementation of AI, thereby promoting a digital culture, allocating resources, and managing human resources (Fernandez-Vidal et al., 2023). The Upper echelons theory (Hambrick & Mason, 1984) has provided insights into the impact of top managers' competencies and skills on organizational performance and strategies, yet few studies have investigated digital and AI implications (Firk et al., 2022; Doornenbal et al., 2022). Indeed, despite the growing attention garnered by this emerging research field in recent years (Kraus et al., 2023; Chowdhury et al., 2023), the literature remains fragmented.

Therefore, as Secundo et al. (2020) suggested, a systematic literature review (SLR) is performed based on three research questions.

RQ1. What are the bibliometric trends of AI leadership research?

RQ2. Which research areas have been explored in the literature?

RQ3. What are the future lines of research in the field?

2. RESEARCH DESIGN

In response to the advanced research questions, the SLR employs bibliometrics (most influential authors, articles, and journals) and content analysis to examine how prior studies have addressed the influence of AI on top managers' leadership. Therefore, the authors conducted a keyword search on the Scopus database of paper titles, abstracts, and keywords using the following search string: ("top manager*" OR "senior executive*" OR "leader*" OR "digital leader*" OR "virtual leader*") AND ("artificial intelligence" OR "digital transformation" OR "AI" OR "machine learning" OR "deep learning"). This search yielded 6386 documents, which were then refined by filtering for document type, research area, and language. The data extraction process identified 63 peer-reviewed articles.

3. FINDINGS

Three research themes emerged from the bibliometric analysis of the sampled articles, providing a basis for the content analysis: (1) the disruptive impact of AI on top managers' competencies and skills (Larson & DeChurch, 2020; Firk et al., 2022), (2) determinants influencing top managers' choices regarding AI adoption within enterprises (Enholm et al., 2022; Doornenbal et al., 2022), (3) strategic use of AI to gain competitive advantage and improve organizational performance (Chowdhury et al., 2023; Kraus et al., 2023).

4. THEORETICAL CONTRIBUTIONS AND IMPLICATIONS FOR PRACTITIONERS

The study will offer its contribution by clarifying and systematizing how AI has revolutionized top managers' leadership in business processes. This will be of interest both to practitioners and academics. Firstly, our research contributes to the expanding body of literature exploring the intersection between managerial actions, particularly those related to top manager leadership, and the ongoing digital transformation process driven by AI in companies. Secondly, we aim to provide a contribution to the Upper Echelons Theory by Hambrick and Mason (1984), upon which this study is based. Indeed, a thorough review of the academic literature on this theory reveals that studies exploring the role of top managers have rarely considered the impacts of digitization, overlooking the influence of AI on the leadership of top managers. Finally, future lines of research will be outlined to further explore this domain.

Keywords: Leadership, Top Managers, Digital Transformation, Artificial Intelligence; Upper

Echelons Theory

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SOCIAL MEDIA'S ROLE IN FOSTERING RESPONSIBLE AND SUSTAINABLE BEHAVIOUR AMONG YOUNG PEOPLE OF GENERATION Z

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ABSTRACT

1. INTRODUCTION

In recent decades, the advent of social media has revolutionised the global social fabric, radically changing human culture and communication patterns, information dynamics, behavioral patterns, and inevitably transforming social interactions (Das, 2023; Tang e Chan, 2020; Ye, 2023). According to Statista's 2024 report, the social media phenomenon globally involves 5.04 billion of people (62.3 per cent of the world's population), an involvement due to the possession and use of a social profile whose average daily global usage is estimated at 143 minutes (Statista, 2024). The main beneficiaries of this digital revolution are young people, who, having grown up in the age of social media, have readily integrated the use of such tools into their daily routines, suffering the social influence effects (Sijtsema et al., 2009; Sun e Tang, 2011; Simpkins et al., 2013).

An acknowledged role of social media, as noticed by several authors (Takahashi et al., 2017; Han and Cheng, 2020), concerned its ability to raise awareness of environmental and social issues among the population, particularly the younger population. Takahashi et al. (2017), showed how media can keep people informed about environmental issues, encouraging them to engage in environmental citizenship and act more sustainably. In particular, as Han and Cheng (2020) find, this effect is greater for social media. In particular, social media influence pro-environmental behaviour by reinforcing the demonstration effect of interpersonal communication that occurs on social media and by disseminating information that can increase awareness and vigilance on these issues. In contrast, there are few studies on the effects of social media in fostering more sustainable behaviour among the younger generation, particularly Generation Z (Chen and Madni, 2023; Morris, 2020). In light of this, with the intention of filling this gap, this study aims to assess the impact of social media campaigns in fostering the adoption of sustainable behaviour among young people of the Generation Z and in promoting an increase in their awareness and sensitivity to these issues. It also aims to evaluate the extent to which environmental knowledge can play a mediating role in fostering greater environmental awareness and engagement.

2. LITERATURE REVIEW

Several studies assessed how the use of social media and the consequent exposure to environmental information are effective, for example, in raising awareness of these issues, in fostering the intention to adopt pro-environmental behaviors or in encouraging the purchase of 'green' products (Jacqmarcq, 2021; Xu et al., 2020; Scherman et al., 2021; Pittman et al., 2021). Huang (2016) found how frequent use of online and traditional media is positively related with environmental beliefs and environmental self-efficacy, factors that can foster the environmental activism. In particular, as Shah and co-authors (2021) emphasized, individuals exposed to social media information about environmental pollution develop a fear of victimisation, which can promote the adoption of sustainable behaviour. These pro-environmental behaviours can also be reflected in the choice of sustainable products due to the significant impact of social media on purchase intention that is reinforced by the environmental concern fostered by access to environmental information as emerged in the study of Chi (2021).

Furthermore, many studies have identified environmental knowledge as an important factor in promoting pro-environmental behaviour (Zsóka, 2013; Vicente, 2013). Liu et al. (2021), for example, identified how the use of the internet and social media also indirectly influences pro-environmental behaviour through the positive mediating effects of environmental knowledge. This result is consistent with Awan and co-authors (2022) study that identified how the acquisition and dissemination of environmental knowledge through social media are one of the mechanisms underlying the process to foster the adoption of sustainable behaviour by web-users.

3. METHODOLOGICAL APPROACH AND RESEARCH MODEL

In order to be able to analyse the phenomenon that links the use of social media to the adoption of sustainable behaviour among young people of the Italian Generation Z, a questionnaire was developed organized into six sections. The first section acquired information on the respondents' level of social involvement when exposed with a plastic pollution campaign using the scale proposed by Schivinski et al. (2016). The second section of the questionnaire investigated respondents' emotional engagement with the pro-environmental social campaign (Chen et al., 2008; Alsaad et al., 2023). The third section aimed to assessing the respondents' attitude to adopt pro-environmental behaviour using the scale proposed by Lee (2011). The fourth and fifth sections acquired information, respectiviely on the respondents' environmental activism (Awan et al., 2022) and on the respondents' environmental knowledge (Xiao and Hong, 2010). The final section collected the socio-demographic characteristics of the sample under study (age, gender, level of education and city of residence). After being tested by a control sample for completeness, clarity and comprehensibility, the questionnaire was shared on social media platform obtaining a total of 205 responses. The sampling method used is snowball

sampling, a method that exploits interpersonal relationships between individuals in order to obtain the largest number of participants.

4. RESULTS AND DISCUSSION

The results obtained partly confirm the findings of previous empirical studies. This study found that the social campaigns in favour of the environment leads to an involvement of respondents with the topics discussed, but limited to certain forms of reaction. This would suggest little interest in more meaningful actions of generation Z web-users. In contrast, concerning the emotional involvement from viewing a pro-environmental campaign, results show a strong awareness of respondents regarding environmental issues displayed through social media campaigns. This tends to create an increase in predisposition to commit to the environment and, in particular, take responsibility for one's actions as previously emphasized by Alsaad and colleagues (2023). But the transition from the predisposition to commit to the environment to the actual implementation of such actions is favored or limited by certain factors. In fact, the data show how, on the one hand, active commitment often tends to clash with the lack of sustainable alternatives, with needs or limitations in one's private sphere. On the other, how this is favored by the relationships that bind environmental activism to the simplification of a specific action, from economic savings or from the mediation of psychological and cognitive factors. This finding is confirmed in the study of Meng et al. (2023), who identify perceived pro-environmental behavioural control and pro-environmental attitude as factors favouring the intention to adopt pro-environmental behaviour. With regard to the data on the respondents' assessment of the level of environmental knowledge, it emerges that this is mostly diffused, among users, in those aspects that are most covered by the media, both classical and digital. Based on the results obtained, these would suggest an impact of environmental knowledge derived from social media in encouraging direct involvement with environmental issues. This data are, partially, according to which in line with the findings of Liu et al. (2021) and Simionescu et al. (2020) who find that the environmental knowledge acquired through social media platform can contribute to the protection of the environment, promoting the individuals involvement and willingness to adopt pro-environmental behaviors. These support the thesis that sees environmental knowledge, in particular that acquired through social media platform, as an extremely important factor in the processes of raising public awareness of environmental issues and the adoption of more responsible and sustainable behaviours. Ultimately, the data show a strong emotional involvement of Generation Z with the environmental issues discussed on social media. This, however, results in limited social reactions, as if the majority of young respondents do not want to become active participants in the process of raising awareness on environmental issues. With regard to active engagement in the

environmental field on the part of Generation Z, this comes up against factors that tend to limit or favour it such as, for example, actions performed by friends on social networking sites that influence, and thus favour, the implementation of the same actions. Finally, with regard to environmental knowledge, specifically that derived from social media, this appears to play an important role in the processes of raising awareness and increasing responsibility towards the environment.

5. CONCLUSIONS

This study investigated the complex relationship between the use of social media and the adoption of responsible and sustainable behaviour in the Italian Generation Z. The results show that social media have become extremely important in fostering greater awareness and sensitivity among young people towards environmental issues. Young Italians of Generation Z, in particular, are very emotionally involved with pro-environmental campaigns on social media, but mostly show passive forms of participation. Despite the high attitude of the participants to adopt more responsible behaviour and the high emotional involvement with the issues dealt with, these aspects do not always result in forms of active participation in protecting the environment. Finally, in relation to environmental knowledge, this was found to be fairly widespread among the participants, mainly in the aspects most discussed in social media, suggesting a definite influence of this in fostering greater involvement with the issues and the adoption of more sustainable and responsible behaviour on the part of the Italian Z generation.

This research contributes to enriching the literature on the role of social media as a tool to promote pro-environmental behaviour among individuals. Compared to previous empirical findings, the present study investigates the effects of exposure to pro-environmental social campaigns on the adoption of sustainable and responsible behaviour in Generation Z. Furthermore, the study investigates the ability of the environmental knowledge variable in influencing attention to these issues and the adoption of sustainable and responsible behaviour.

Understanding the influence of social media on the environmental attitudes and intentions of Generation Z is essential to develop targeted actions and effective strategies on social media to promote more responsible behaviour. Furthermore, the study and understanding of behavioural patterns related to environmental awareness through the use of social media is relevant to fostering a greater culture of responsibility and awareness in the digital world that encourages concrete actions aimed at protecting the environment. Given the in-depth knowledge and ease of use of social media by young people, it is important to involve them in the process of developing policies and initiatives

based on the use of social media. In this way, it will be possible to use social media to safeguard one of the most important common goods we possess.

Keywords: responsible behavior, environmental protection, pro-environmental attitude, awareness, environmental knowledge, social influence.

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GREENWASHING PRACTICES AND CROWDFUNDING CAMPAIGNS

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ABSTRACT

Crowdfunding serves as a crucial alternative financing avenue (Battisti et al., 2024). Through online platforms, businesses can access funds from a broad spectrum of backers via public offerings (Ferreira et al., 2022). While global crowdfunding platforms and their financial contributions continue to expand, they often grapple with the challenge of long-term sustainability (Belleflamme et al., 2015). Against the backdrop of escalating economic, environmental, and social concerns, environmental sustainability has emerged as a cornerstone of corporate social responsibility (CSR) (Fosu et al., 2024). Moreover, commitments to environmental initiatives play a pivotal role in cultivating robust customer relationships, fostering loyalty (Dagger et al., 2011). Given these dynamics, it appears enticing for companies to spotlight their environmental commitments and endeavors on crowdfunding platforms. However, does this practice align with reality?

Upon reviewing the literature, it becomes evident that scholars hold divergent views regarding the allure of environmental commitment and action. On one hand, Pursiainen et al. (2024) found that projects with environmental commitments garnered fewer supporters. Conversely, Bhuiyan et al. (2021) observed that independent boards of directors are more inclined to endorse environmentally focused investments, potentially alleviating conflicts of interest among stakeholders. These findings imply that while environmental commitment theoretically enhances investment appeal, practical outcomes may vary. Additionally, public support emerges as a crucial lever for firms to actualize environmental commitments (Benito-Hernández et al., 2022). Nevertheless, some companies may embellish the actual impact of their environmental initiatives to gain a competitive edge, thereby engaging in what is termed as greenwashing (Parguel et al., 2015; Zhang, 2023).

On crowdfunding platforms, greenwashing behaviors can potentially influence firms' fundraising success and impact consumer trust and engagement. Consequently, this study addresses the following research questions: i) To what extent do firms' environmental commitments or actions affect the success rate of crowdfunding projects? ii) How does greenwashing behavior influence the crowdfunding success rate of projects that make environmental claims? iii) What is the significance of supporter trust in the relationship between greenwashing and crowdfunding success rate?

This study employs a quantitative research methodology, analyzing data from companies that conducted fundraising on major crowdfunding platforms between 2018 and 2023. It focuses on comparing companies that have made environmental commitments with those that have not issued

any environmental statements, then takes an assessment of the impact of environmental commitments on fundraising success within these platforms. Data collected include fundraising amounts, number of backers, project descriptions, frequency of updates, and other relevant metrics related to environmental commitment projects. A logistic regression model will be employed to analyze the relationship between the presence of environmental commitments and project success rates, while trust indicators will be utilized to measure backers' trust in the project.

From a theoretical standpoint, this study offers empirical evidence regarding the influence of environmental sustainability within the crowdfunding domain by systematically examining the relationship between environmental commitment and crowdfunding success. While previous research has shown that substantial environmental claims within crowdfunding campaign narratives positively correlate with campaign success, this relationship is noted to vary across different project categories (Rossolini et al., 2021; Defazio et al., 2021). However, empirical evidence on the relationship between greenwashing and crowdfunding success remains scarce and inconclusive.

Moreover, through the exploration of greenwashing and crowdfunding success rates, this study aims to develop trust indicators to evaluate the impact of backer trust on this relationship.

In terms of practical implications, the findings of this study can assist crowdfunding platforms in identifying and regulating potential greenwashing behaviors, thereby bolstering the credibility and appeal of these platforms. By leveraging these insights, crowdfunding platforms can devise more robust policies to promote genuine and transparent environmental commitments. Additionally, enterprises stand to benefit by comprehending the specific impact of environmental commitments and actions on crowdfunding success rates. This understanding can inform their marketing strategies and corporate social responsibility initiatives, enabling them to make informed environmental investments that enhance fundraising efficiency and public perception.

Keywords: Greenwashing; Crowdfunding success rate; Crowdfunding platform; Environment commitment.

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DIGITAL TRANSFORMATION: UNVEILING THE IMPACT OF DIGITAL SHOPPING ON EMPLOYEE COMMITMENT

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ABSTRACT

Textile retailers have established online services, e.g., live-stream shopping events (Baersch et al., 2022) due to global challenges, like the COVID-19 pandemic. This led to an increase in online sales (Handelsverband Deutschland, 2023). Numerous studies deal with the testing of technologies in stores for consumers, like smart mirror fashion technology (digital fitting of clothing) (Ogunjimi et al., 2021). So, "new technologies, which are expected to profoundly change the stationary retail's service" (Meyer et al., 2020, p. 21) are of paramount importance for both consumers and frontline employees (FLEs). However, the perspective of the FLEs has been nearly forgotten. Since the COVID-19 pandemic, the number of applicants decreased significantly (EHI Retail Institute, 2021). Moreover, it is becoming more and more challenging for companies to retain FLEs, which is very important (Ali and Anwar, 2021) since retention management is somehow replacing recruitment in the war for talent.

This paper is built on acceptance research models (Kollmann, 1998; Lucke, 1995) and the unified theory of acceptance and use of technology – UTAUT2 (Venkatesh et al., 2012). In the field of medicine and in companies (with a focus on e-learning), studies deal with the acceptance of technology in employees' day-to-day work (Solbrig and Honekamp, 2022; Stiller and Wager, 2023). Based on the results of the studies, we assume that it is important to involve FLEs in textile retail at an early stage in the process of digital transformation in order to achieve a high level of technology acceptance. Thus, we investigate how the digital transformation affects employee commitment. Existing studies focus on the acceptance of technologies like service robots by FLEs (e.g., Meyer et al., 2020). These robots are understood as new colleagues in the store while our analysis focuses on relocating the business to an online environment, which probably also enables more spatial as well as time flexibility for FLEs. Thus, inspired by the analysis of Meyer et al. (2020), who additionally called in this regard for quantitative analysis, we strive for quantitatively analyzing the impact of digital shopping events on variables related to FLEs, representing the gap. Thus, the following research question is raised:

RQ: How does the introduction of digital shopping affect the affective commitment of FLEs?

In order to answer the research question, a conceptual framework will be developed, based on the UTAUT2 as well as the Job Demands-Resources Model which explains the nexus between resources (like technology) and FLE motivation as well as demands (e.g., necessity to use technology) and

strains, like stress (Bakker and Demerouti, 2007). Thus, the UTAUT2 will be enhanced by including the following additional constructs: Digital stress (Fischer et al., 2021), employee satisfaction (Spector, 1985) and affective commitment (Allen and Meyer, 1990) According to Whang and Dabas (2022), it is important to examine stress, as there are stress factors that have a positive and those that have a negative effect on FLEs. Affective commitment affects the turnover intention of employees negatively (Mathieu et al., 2016). Derived from the enhancement of the UTAUT2, hypotheses were developed, constituting the conceptual framework. This will then be analyzed by using partial least squares structural equation modeling (PLS-SEM) (Hair et al, 2022). The sample focuses on FLEs, i.e., the nearly forgotten perspective. This finally enables us to close the research gap, as the FLEs' perspective as well as the effects on FLEs-related constructs will be analyzed quantitatively.

Regarding the results of the analysis, it is expected that the introduction of digital shopping technologies will have a negative impact on the commitment of FLEs. In addition, insights are given into how FLE stress and satisfaction are affected. Moreover, due to the inclusion of digital shopping technologies, FLEs can probably work flexibly which again is beneficial for retention management (Tirrel, 2023; Tirrel et al., 2021). This study, therefore, provides an important contribution both, in theory and in practice, as companies can based on the analysis understand how, f.i., FLE loyalty is affected. Thus, we underline that the FLEs' perspective is as important as the consumers' perspective.

Keywords: digital transformation, digital shopping, retail, employee perspective, acceptance research, employee commitment, PLS-SEM, textile retail, technology, frontline employees

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FROM FARM TO FUTURE: DIGITALIZATION AND SUSTAINABILITY IN ITALY'S AGRI-FOOD SECTOR

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ABSTRACT

Radical innovations and paradigm shifts have occurred rapidly over the last decades (Baldwin, 2018). Among the phenomena that have characterized this recent era are the rapid technological development of human society and the simultaneous exponential increase in the effects of anthropogenic impact on ecosystems (Lynas et al., 2021).

Since its introduction by the German government during the Hannover fair in 2011, Industry 4.0 and its consistent part of digitalization have experienced great success, receiving the utmost attention from European national and regional institutions (Salkin et al., 2018). Furthermore, the business world and academia have embraced this paradigm widely (Massaro et al., 2021). From the business perspective, digitalized technologies and strategies seem to be an opportunity to innovate business models and processes along and within the value chain, so it is necessary to make the firm work more effectively and efficiently. According to the European Union, one of the main contributions of enabling digital technologies is to foster a transition to a sustainable, human-centric, and resilient European industry (Müller, 2020). Indeed, sustainability plays a central role in the international debate about the preservation of the planet and the future of human society. Also, the UN's Sustainable Development Goals (SDGs) and regulations like the EU's Directive 2014/95 underscore the importance of integrating sustainability into business operations. On their side, companies have increasingly recognized the role of sustainable practices in securing long-term profitability (Pucci et al., 2019), and responding to consumer demands for environmentally friendly products.

The sustainability impacts of digital transformation are increasingly gaining attention (Ghobakhloo, 2020) as well as the opportunities for more sustainable manufacturing thanks to the Industry 4.0 processes innovation, despite the impact of Industry 4.0 on economic, environmental, and social sustainability is not clear among the academia. To summarize, on one hand, radical innovation processes could foster efficiency and guarantee better economic and environmental performances, with a more positive impact than before, especially when a strategy to manage the interactions of workers and machines within the industrial context is present (Pucci et al., 2023). On the other side,

increasing production could bring negative social externalities, including the deployment of raw materials, over-use of energy, and waste production, along with unemployment due to mechanization and automation (Pilgrim, 2017).

The aim of this work is then to highlight the co-evolution of those two macro trends and their interactions. To do that, we collected data from 102 Italian agri-food SMEs in the period November 2021 – December 2023. Italy holds a prominent position in Europe's agri-food sector, contributing 15% to the continent's added value and standing fifth in employment. In 2022, the country's agri-food exports surged to a new high, exceeding €58 billion, showing continued growth into 2023 (Intesa Sanpaolo, 2023). In add, considering SMEs as investigation unit is particularly relevant since, as Tick et al. (2022) note, entrepreneurs in small and medium enterprises are aware of the importance of adhering to 4.0 and sustainability paradigms and the resulting benefits in terms of business ethics, consumer demand, reputational, and greater efficiency, but often lack effective implementation tools.

The data gathering was performed submitting a structured survey with 84 questions based on Schuh (2020) and Annunziata et al. (2018), used to assess the companies' technological maturity and orientation to sustainability. The information collected for each company included: age, number of employees, turnover, technological resources and competencies, sustainable practices and competencies. The preliminary results of our study showed a medium adherence to the Industry 4.0 paradigm of the analyzed companies, a predominance of the environmental dimension on the social one, with a positive relationship between digitalization and environmental sustainability, as well as no relevant short-term effect on financial performance due to digitalization processes. The idea is now to apply a PCA, a cluster analysis to group companies that share similar digital and sustainable dimensions. This approach is ideal for classifying observations into similar groups and developing a taxonomy.

NOTE

Keywords: digitalization, sustainability, SMEs, agri-food sector, social innovation.

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THE ROLE OF PERFORMANCE MEASURES IN BALANCING RESILIENCE AND SUSTAINABILITY: INSIGHTS FROM LOGISTICS IN A LARGE-SCALE RETAIL COOPERATIVE

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ABSTRACT

Supply chain sustainability and supply chain resilience have been investigated separately for the most part (Negri et al., 2021; Redman, 2014; Ivanov, 2018; Fahimnia et al. 2019). The literature on supply chain sustainability has been increasing remarkably all over the last decade, while supply chain resilience has attracted the interest of scholars and practitioners only recently, because of the numerous massive supply chain disruptions that occurred in recent years, starting from the COVID pandemic, and followed by others of multiple nature (Nikookar and Yanadori, 2022), such as a scarcity of critical resources impacting on various industries, international conflicts, and economic inflation. Supply chain sustainability is pursued through strategies aimed at improving performance under the economic, social and governance pillars (Hassini et al. 2012). Within the management accounting field, research on supply chain sustainability, largely focuses on the development of management and measurement frameworks for environmental-related aspects (Beske-Janssen et al., 2015; Shi et al., 2012; Shaltagger and Burrit, 2014), while there is still a lack of research for what concerns the social and governance perspectives (Ahi and Searcy, 2015; Fahimnia and Jabbarzadeh, 2016).

Multiple studies in supply chain management have supported the view that dynamic capabilities theory serves as a sound theoretical framework for examining the creation and adaptation of cross-organizational capabilities to adequately react to market or environmental changes. Even more recent is the interest of scholars on the interconnections between sustainability and resilience. The pursuit of sustainability and resilience in supply chain is synergic, under some perspectives, but it is controversial at the same time, which motivate the interest to deepen the research by adopting an integrated vision of the two concepts. Both sustainability and resilience initiatives involve a set of managerial capabilities needed to reduce risks, change, react, and improve, which largely are common. On the other side, the achievement of sustainability goals may reduce the resilience capacity of a supply chain and vice-versa. For example, sustainability initiatives, may aim at eliminating or reducing redundant resources (volumes of safety stocks, number of inventories, etc.) that are a potential source of waste or inefficiency, but which conversely assume a strategic importance in case of a sudden lack of availability. Supply chain resilience can help the analysis because it is the capability of an organization

to introduce changes in response to disruptions that alter a current state of equilibrium. Wieland and Durach (2021) consider resilience as an expansion of the risk management practices that are appropriate for a supply chain, given the abundance and unpredictability of the sources of risk that may threaten its equilibrium.

Similarly, improvements in sustainability should be pursued along the entire supply chain, consequently, companies should strengthen their partnership only with those suppliers that are really motivated and sensitive to sustainability issues. On the opposite, side, maintaining relationships with multiple alternative suppliers for the same good allows the company to buy the needed resources also in case of unavailability of one or more suppliers.

A resilient supply chain is a process designed to survive in a changing and turbulent environment. Consequently, a deeper understanding across multilevel initiatives is interesting to study and highlight the possible trade-offs between sustainability and resilience on the supply chain. In the literature, the number of studies integrating sustainability and resilience of supply chain is still limited (Fahimnia and Jabbarzadeh, 2016; Hiebl, 2024)). Moreover, a qualitative research approach seems coherent with the aim of the paper, which can be summarized with the following research questions:

RQ1: With turbulences or disruptions (risk reduction; sustainability development; logistics efficiency improvement), what are the distinctive proactive and reactive resilience attributes that shape dynamic capabilities useful for members and managers involved in logistics?

RQ2: How does PM (performance measures) support logistics managers in introducing sustainability initiatives?

RQ3: What is the role of PM (performance measures) in balancing tradeoffs between resilience and sustainability in logistics?

To favor an exhaustive exploration of this topic, the research is based on empirical evidence collected through a longitudinal case study (Yin, 2009). The case study analyzed in this paper concerns a supermarket chain structured as a cooperative. The stores of this Large-Scale Retail Cooperative are owned by entrepreneurs who are members of the cooperative itself. The Large-Scale Retail Cooperative is then an example of a "business cooperative" (Patmore et al., 2021), that is composed by a community of SME that cooperate to protect their competitiveness, while at the same time, they compete to increase their economic and social goals by taking advantage from the services supplied by the cooperative headquarter. The case investigated is interesting for that purpose, because it represents a context where multiple actors share common objectives, initiatives, and resources through cooperative collaborations. Moreover, relevant competitive dynamics occur between the cooperative and its members.

Furthermore, the Large-Scale Retail Cooperative operates in a turbulent environment where the pursuit of sustainability is only one of the several factors that impose the development of resilience capabilities, together with disruptive shocks due to the Covid pandemics, international conflicts, or scarcity of resources in several critical industry, only to make a few examples.

In this peculiar environment, the tradeoffs between sustainability and resilience are exacerbated, because sustainability is a pillar in the mission of the cooperative, while the members prioritize the financial performance of their stores and are aligned with the introduction of reactive resilience initiatives.

Consequently, the misalignment of strategic priorities between the cooperative and its members can create tensions in the achievement of sustainability initiatives that management control and performance measures may help to mitigate. The research is valuable to contribute to multiple literatures as well as to provide important practical results.

FINDINGS AND DISCUSSION OF RESULTS

The entrepreneurial and mutualistic model, both among members and with the territory, is structured according to three levels. Starting from the bottom, there are the cooperative members, that own the associated sales points. They represent the local operational and decision-making actors of the Large-Scale Retail Cooperative. At the upper level, there are regional cooperatives provide administrative, commercial, procurement, logistics, and financial services. At the top, there is the national consortium serves as a central purchasing and services center and is responsible for international and national negotiations with suppliers, marketing and communication, promotion, and development of the distributor's brand.

Starting from 2015, sustainability has become a pillar in the strategic orientation of the National Consortium of Regional Cooperatives (NCR). Consequently, the regional cooperatives[1] have been asked to introduce changes that among others result in a reduction of GHG, CO_2 emissions, and waste. In the regional cooperative (CCN) changes are continuous all over the investigated period and concern the logistics infrastructure (the use of Euro-6 trucks, the use of alternative fuels, natural liquid gas, NLG, for the most part). At the same time, CCN managers redesign the main logistic processes in order to improve social and governance goals. Finally, some circular economy strategies have been introduced, which consist in the use of reusable packaging (according to the circular economy approach).

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[1] In our case study one we investigate one of the regional cooperatives labeled with the fictional name CCN.

In the period 2015-2020, sustainability and resilience initiatives seem to be aligned or coupled for the most. After 2020, the disruptions coming from the Covid pandemic, and international conflicts, significantly altered the logistics processes, and the sustainability initiatives already in place needed an adaptation.

PM of multiple nature are used to measure the effects consequent to the introduction of sustainability and resilience initiatives, some of them available in real time, thanks to the continuous investments in IT and control towers. However, given the different priorities of cooperative managers and entrepreneur-members that characterize the context under investigation, the decisions to introduce sustainability and resilience initiatives is always the result of a balance between the increasing costs and the expected environmental and social goals.

Logistics costs represent a constraint to logistics resilience and sustainability, as they should not result in extra costs that negatively impact the entrepreneurs-members profitability unless it is strictly necessary. The logistics managers provided an example of a supermarket chain with a unique property, where some resilient initiatives are implemented notwithstanding the remarkable consequent increases in logistics costs.

For what concerns the capabilities that enable resilience and the achievement of sustainability goals, collaboration is involved in several initiatives. Solid relations and partnerships with the suppliers allow proactive resilience initiatives aimed at reducing CO_2 emissions in transports and waste. Collaboration is also determinant to improve the quality of disclosure in sustainability reporting together with the development of reactive resilience initiatives. As previously mentioned, during the Covid pandemics, and due to international conflicts, CCN needs to revise the initiatives already in place to balance the strategic orientation toward sustainability of the Large-Scale Retail Cooperative, with the shortages of products and transportation services, with also the profitability expectations and targets of the entrepreneurs-members.

The cooperative-competitive environment determines a situation where the tradeoffs between sustainability and resilience are exacerbated, because sustainability is a pillar in the mission of NCR, while the members take in great consideration the financial performance of their stores. Logistics is at the core of this decoupling, due to the high volumes of goods handled all over the country.

The present study contributes to multiple literatures. Firstly, it provides evidence about the distinction between proactive and reactive resilience and sustainability initiatives in the presence of turbulences or disruptions (risk reduction; sustainability development; logistics efficiency improvement).

For what concerns how PM support logistics managers in introducing sustainability initiatives, the results show that before 2020, sustainability initiatives are not substantially supported by the use of PM, because an improvement either in profitability and environmental and social goals is easily expected. After the Covid pandemic, PM are perceived as necessary to balance tradeoffs between the economic and sustainability perspective. In particular, PM creates connections between dynamic capabilities (DC), sustainability and supply chain resilience in the logistics activities.

The study contributes to the literature, providing empirical evidence on the mechanism by which cooperative members derive value from logistics resilience. This contribution is especially significant because of a lack of resources and the limited availability of digital analytics among the actors. The study also extends research on dynamic managerial capabilities theory by demonstrating its relevance to supply chain sustainability and resilience. This study provides insights on empirical-based mechanism of control for developing logistics strategies. It contributes to expanding the knowledge of the current literature on performance measures, as well as to a further understanding of the typologies of sustainability and resilience initiatives concerning logistics within a Large-Scale Retail Cooperative. These insights are integrated to address one of the major issue of SMEs: i.e. resources constraint, in developing sustainable logistics strategies.

Practical implications are also provided. In contexts dominated by strong uncertainties and disruptions resilience plays a critical role to preserve the viability and enable a faster socio-economic recovery within a cooperative network of SMEs and their actors: entrepreneurs, managers, customers, etc. Further research can explore these attributes extending the analysis to companieswhich are mutually involved in achieving sustainability and resilience goals.

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ANTECEDENTS, CHARACTERISTICS AND OUTCOMES OF AMBIDEXTERITY IN FAMILY BUSINESS: A SYSTEMATIC FRAMEWORK

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ABSTRACT

Theoretical Background and Research Gaps

Family businesses are distinguished as entities where governance and legacy are shaped by the transgenerational aspirations of the owning families. In these contexts, the role of ambidexterity is crucial, referring to the ability to simultaneously manage innovation and optimize established competencies. This dual strategy is crucial for the enduring success of the company, as it involves upholding traditional values and the current array of skills, knowledge, and capabilities (exploitation), all the while adapting to the dynamic changes in the market (exploration). (Tushman, and O'Reilly, 1996)

The study has identified a lack of a unified analytical framework to holistically examine the key factors of ambidexterity present in the existing literature. The absence of an integrated model limits the complete understanding of the evolution and impact of ambidexterity on family business performance. Therefore, the aim is to develop an approach that synthesizes antecedents, characteristics, and outcomes of ambidexterity to enrich the existing literature and stimulate new future research in this field.

Method

To systematically examine the existing knowledge on ambidexterity in family businesses, Scopus and Web of Science were used as databases. Several synonyms have been used for "Family Business" and "Ambidexterity," arriving at a final query (TITLE-ABS-KEY ("Family Business* OR "Family Firm* OR "Family Enterprise*" OR "Family-Own**) AND TITLE-ABS-KEY ((exploitation AND exploration) OR ambidexterity OR (tradition AND innovation))). Subsequently, articles identified in the initial phase were manually selected, resulting in a final series of 56 publications.

Findings

Based on the analysis of the selected literature, a framework is identified that enables the classification of the main themes regarding ambidexterity in family business into three main areas: antecedents, characteristics, and outcomes.

Antecedents – Factors that serve as initial or pre-existing conditions influencing ambidexterity are captured by the first component. Internal factors can be broadly differentiated into strategic leadership, including CEO and TMT (Abdullah Ho, 2023), family's generational diversity (Mazzelli, A et al., 2020), and intellectual capital (Ferreira and Coelho, 2020). External factors can be classified into factors related to external environmental conditions (Yeniaras et al., 2017).

Characteristics - The second component of the framework outlines characteristics that influence ambidexterity, highlighting the importance of effective governance, strategic business planning, and the crucial role of family's generational dynamics in knowledge management and transmission, as underscored by Preciuk and Wilczynska (2020). The study emphasizes the significance of family involvement in ownership and management, effective communication with stakeholders, and the necessity of a corporate structure that supports ambidexterity to maintain harmony between family and business values (Stubner, 2012). By embracing the open innovation approach, the company integrates extensive collaboration with external partners to enrich the flow of innovative ideas and resources (Della Corte, 2018). The company's quick adaptation to changes, facilitated by the integration of dynamic capabilities (Teece et al., 1997), family cohesion, and overcoming internal tensions, as indicated by Guffler et al. (2023), enables the development of an ambidextrous organization.

Outcomes - Family businesses with high ambidexterity often outperform others in terms of economic performance, reflecting the harmony between family and business values. This synergy proves advantageous in market competition. Nevertheless, this capacity for continuous renewal extends beyond mere economic success, positively influencing resilience and long-term growth of the firm, as well as sustainable practices. (Abdullah Ho, 2023)

Theoretical Contributions and Implications for Practitioners

The framework proposed in this systematic literature review helps to understand how the various factors fit within the process of development and implementation of ambidexterity in family businesses, providing a clear structure to analyze the role of each element and their reciprocal interaction. The analysis also offers practical insights for business decision-makers in family enterprises. This research contributes theoretically by developing a conceptual model that integrates various aspects of family businesses with organizational ambidexterity.

Keywords: Family Business, Ambidexterity, Systematic literature review.

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MENTORING THE NEXT GENERATION TO PROMOTE INTRAPRENEURSHIP AND SUCCESSION IN FAMILY ENTERPRISES

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ABSTRACT

LITERATURE REVIEW

Family businesses account for more than two-thirds of all businesses in Quebec. Yet few of them succeed in passing the torch from one generation to the next (CTEQ, 2021). A recent study by "Les familles en affaires" (2021) showed that of the 63% of family businesses aiming to pass the torch to the next generation, just 27% are making formal preparations. In this context, a solid succession plan needs to be drawn up. Among the levers of succession, intrapreneurship can prove very interesting to implement as part of what Nordqvist and Zellweger (2010) describe as transgenerational entrepreneurship.

Intrapreneurship is often defined as " the process by which an individual or group of individuals, in association with an existing organization, creates a new organization or brings about renewal or innovation within that organization ". Sharma and Chrisman (1999, p. 18). In the context of family businesses, Minola et al (2021) point out that intrapreneurship provides a propitious framework for the development of internal initiatives. However, this process requires the involvement of family members as well as the transfer of knowledge between generations (Sappleton and Lourenço, 2015). It is in this context that a mentoring process becomes essential.

The literature review is very entrepreneurial mentoring focused, defined as the pairing of a novice entrepreneur with an experienced entrepreneur to provide guidance (St-Jean and Tremblay, 2020). Entrepreneurial mentoring helps develop entrepreneurial potential, but what about intrapreneurial mentoring? This question is particularly relevant to family businesses, which are characterized by highly paternalistic decision-making processes (Ensley & Pearson, 2005) and complex socio-emotional ties (Berrone, Cruz, & Gomez-Mejia, 2012).

It is within this framework that we are interested in studying the "intrapreneurial initiative" program launched by the Fondation des family enterprises (FEF) in Quebec. This training-coaching program aimed at a supporting "mentor-protégé" duo from a family business. Both are engaged in a project to develop an opportunity related to an established family business. In this context, we formulated the

following question*: How can mentoring foster the design and implementation of intrapreneurial initiatives to ensure succession in family businesses*? The aim of this research is to identify the different configurations that mentoring can take depending on the form of intrapreneurship and intrapreneurial orientation of each family business (Randolph et al, 2019).

METHODOLOGY

In this research, we adopted an exploratory qualitative approach. Primary data collection was combined with secondary data (internal and external documents) for better triangulation. A total of 4 family business case studies were studied, with interviews with intrapreneurs (new generations) and mentors. The information gathered was transcribed and analyzed through thematic content analysis using Nvivo software.

RESULTS

The results underline the importance of the family business's willingness to intrapreneurship. In this respect, the typology of Randolph, Li and Daspit, (2019) is particularly enlightening in typifying these companies according to whether they have an explicit transgenerational succession intention or not, and according to whether their capacity to absorb new knowledge is limited or extensive. Its application enables us to classify the four family businesses according to this typology with different arrangements for supporting intrapreneurs.

Our research underlines that several factors are key to mentoring's ability to foster the design and implementation of intrapreneurial initiatives within family businesses. A key antecedent to the success of such initiatives seems to be the willingness of the latter to engage. It is crucial that there is an explicit intention to involve the new generation in the family business, whether for medium-term succession purposes or not. In addition, the family business must be sufficiently prepared to receive new knowledge and potentially discuss or even experiment with new activities to test their relevance. The company's past experience in developing new knowledge can give an indication of such willingness. However, even if a family-run business is well-disposed to intrapreneurship, what seems key to fostering this process is its ability to support the new generation in such an initiative.

Consequently, mentoring appears to be a suitable form of support for family businesses, through the establishment of a relationship of trust between a mentor and a protégé. However, building this trust requires a delicate choice of mentor. The mentor must be trusted by both the family and the protégé.

The right mentor profile is that of a balancing act, with a strong position within the family business and/or the family, and an openness to the professional world beyond the family business. This dual position enables the mentor to act as a key intermediary, enabling the protégé to link up professionally with the family business and also to achieve professional fulfillment in circles other than that of the family. In fact, it's not easy to find all these qualities in the same person. This raises the prospect of at least two forms of mentoring - internal and external - if these qualities cannot be found in the same person. In addition, with regard to entrepreneurial projects, research shows the importance of involving an external partner in the intrapreneurial process. It helps structure the new project and the relationships between the players. The various challenges and added values of this external mentoring are also detailed in this research.

Keywords : family, intrapreneurship, mentoring, succession, next generation

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URBAN AIR MOBILITY : THE ECOSYSTEM, COMPETITIVE ADVANTAGES AND CHALLENGES TOWARDS THE REALITY FOR SUSTAINABLE ENVIRONMENT

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ABSTRACT

INTRODUCTION

In recent years, significant technological advancements in electric vertical take-off and landing (eVTOL) aircraft have driven innovations in urban aviation. These advancements encompass new aircraft designs, services, and business models, creating unprecedented opportunities for on-demand aviation for passenger mobility and goods delivery in urban areas (McKinsey & Company, 2018; Reiche et al., 2018; Holden & Goel, 2016). Collectively, these innovations are referred to as Advanced Air Mobility (AAM). The vision of AAM is to provide a safe, accessible, automated, and affordable air transportation system for both passengers and cargo. This system aims to serve previously hard-to-reach urban and rural locations, thereby enhancing connectivity and accessibility. Urban Air Mobility (UAM), a subset of AAM, specifically focuses on creating a safe, sustainable, affordable, and accessible air transportation system within or traversing metropolitan areas. UAM aims to facilitate passenger mobility, goods delivery, and medical emergency services, contributing to the overall vision of enhanced urban transportation (NASA, 2020).

PURPOSE OF THE STUDY

The purpose of this paper is to investigate the following aspects of Urban Air Mobility (UAM) and its contribution to a sustainable environment: 1) Ecosystem Formation: Analyzing the roles and interactions of internal and external stakeholders in the UAM ecosystem; 2) Competitive Advantages: Identifying the unique benefits and strategic edges that UAM offers; and 3) Potential Challenges: Examining the interdependencies and complexities within the UAM system-of-systems and its evolution. Through this investigation, the study aims to understand UAM's impact on social, economic, and environmental aspects.

RESEARCH METHODOLOGY

This study employs a multi-method approach, which includes literature review in analyzing research

from academic databases, white papers, conference proceedings, and reports using keywords such as urban air mobility, eVTOL transportation, competitive advantages, UAM market challenges, and sustainable environment.

1) *Quantitative and Qualitative Method* – Interviews/Surveys: Gather industry experts' insights on ecosystem formation (internal and external stakeholders), competitive advantages, potential challenges and sustainable environment.

2) *Quantitative Method* - Surveys: Conduct surveys with respondents to assess public perception and acceptance of UAM. The target populations are: i) Tourists from Indonesia, Malaysia, China, and India who visited Singapore from 2019 to 2021. ii) Commuters traveling from Singapore to Batam Island (Indonesia) by ferry.

IMPLICATION AND CONTRIBUTION

1) Managerial Decision and Commercial Investment: The empirical study provides valuable insights for decision-makers and investors in the UAM sector. 2) Technological Innovation and System Integration: The findings extend existing research and industry interest, helping to improve technological innovation and system integration. 3) Future Urban Transportation: The research highlights UAM as a potential future urban transportation system that is safe, affordable, accessible, environmentally friendly, and economically viable. 4) Sustainability: The study contributes to understanding how UAM can support a sustainable environment.

The paper concludes with recommendations for multimodal UAM systems and suggests areas for future research on sustainability.

Keywords: Urban Air Mobility, Ecosystem, Competitive Advantages, Market Challenges, Sustainable Environment

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AN EXPLORATION OF STAKEHOLDER COGNITIVE BIASES HINDERING CIRCULAR ECONOMY IMPLEMENTATION

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ABSTRACT

The prevailing "take-make-waste" linear business model is significantly contributing to a surge in waste production and resource depletion (Preston, 2012). This pressing concern has amplified global interest in transitioning towards a circular economy (CE), which is conceptualized as a regenerative and restorative economic system (Ghisellini et al., 2016). The CE advocates the shift towards resource reduction, reuse, and recycling to minimize waste and maximize efficiency (Ellen MacArthur Foundation, 2022), offering a novel approach to tackling sustainability challenges (Zhang et al., 2019). Specifically, moving to a circular model requires a profound transformation that transcends the company's boundaries, encompassing the entire ecosystem where stakeholders and business organizations are interlinked to pursue economic, social, and environmental goals (Aarikka-Stenroos et al., 2023).

Despite acknowledging this, the CE scholarship has been mostly focused on inquiring challenges and limitations of CE concerning the ecological sphere and has failed to comprehensively address how social dynamics and stakeholder interests, values, expectations, and perceptions can support or hinder CE, overlooking the role of human behavior (Beaurain et al., 2023; Murray et al., 2017; Korhonen et al., 2018 Souza Piao et al., 2024). In this sense, while studies about technological, economic, and legislative barriers prevail, the exploration of stakeholder cognitive biases as impediments in the transition to CE remains scant (Cristofaro et al., 2023).

Hence, this study aims to provide a broader understanding of the phenomenon by exploring the different perspectives of various internal and external stakeholders on inaction in the circular economy. In other words, circular projects have an impact on the environment and society but to guarantee their success, the precondition is that these projects are supported by various stakeholders. However, stakeholders often overlook and neglect circular economy projects and our research question arises spontaneously: which specific cognitive biases affect the stakeholders' decision to engage in circular economy projects?

To address our research question we rely on a qualitative methodology that includes interviews with: a) managers of companies that have adopted circular business models; b) managers of companies involved in circular economy projects; c) stakeholders (such as customers, NGOs, suppliers, and

others) who actively or passively participate in circular economy projects. The data will be analyzed using the Gioia method (Gioia et al., 2013), aiming to identify recurrent patterns and build theory through 1st and 2nd order and aggregate dimensions.

We structured the questions based on the literature background of cognitive biases in environmental sustainability decisions (Palmucci and Ferraris, 2023), which we applied and adjusted to CE decision-making.

For instance, Tversky and Kahneman's Heuristics and biases approach to human judgment argues that people, in conditions of uncertainty and under pressure, typically use cognitive shortcuts that make probability assessments easy, but prone to error (Griffin, Gonzalez and Varey, 2001). To provide a few examples, some of the most analyzed biases in the literature are the *status quo* bias (Palmucci, 2023) and the *temporal discounting* (Palmucci and Ferraris, 2023). The former explains individuals' preference for maintaining the current state due to perceiving any change as a loss (Weber and Johnson, 2015). The latter refers to the tendency to undervalue future outcomes favoring immediate gratification over long-term benefits (Mazutis and Eckardt, 2017). With specific reference to environmental sustainability decisions, several studies demonstrate that cognitive biases influence these types of choices as well (Hoffman and Bazerman, 2007), reducing the likelihood that people act in favor of the environment (Palmucci and Ferraris, 2023). To make a few examples with the two biases described above (status quo and temporal discounting), the first will result in a tendency to keep adopting the same practices rather than embarking on new paths and investing in innovative environmental sustainability projects (Singh and Ryvola, 2018). The second will refer to a tendency not to consider the long-term returns of active investments to prevent climate change or, even worse, the tendency not to consider the long-term negative consequences of unsustainable behavior because "far away in the future and thus not relevant" (Shu and Bazerman, 2010). The results reveal that the primary bias hindering the successful implementation of CE practices is the temporal discounting bias. Specifically, some companies favor traditional and short-term investments over CE longer-term investments. This preference is influenced by the perception that consumers are not well-informed about CE products and are reluctant to purchase them due to their high prices. Overall, our paper enriches the literature on circular economy and circular business models through a stakeholder perspective (Beaurain et al., 2023; Murray et al., 2017; Korhonen et al., 2018; Souza Piao et al., 2024), providing evidence and discussing the key role of stakeholder cognitive biases in hindering CE projects implementation and success.

Keywords: Circular Economy; Sustainability; Cognitive bias; Barriers, Stakeholders

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DEVELOPING A RESILIENT MODEL FOR WOMEN-LED SMES: INTEGRATING SUSTAINABILITY AND FLEXIBILITY

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ABSTRACT

Background: Small and Medium Enterprises (SMEs) play a crucial role in the UK economy, representing 99.9% of all businesses and contributing to a combined turnover of £2.41 trillion in 2023. Despite their economic significance, SMEs face numerous challenges due to recent global disruptions, such as Brexit, COVID-19, and geopolitical tensions. Resilience is critical for their sustained growth and stability. Organisational resilience involves adapting positively or emerging stronger from setbacks (Hoegl & Hartmann, 2021). It interests management scholars and policymakers, especially after crises (Van Der Vegt et al., 2015; Williams et al., 2017; Menzies & Raskovic, 2020). There is a need to understand how companies react to major disruptions and the adjustments made to business models following crises (Galkina et al., 2023). Additionally, the role of firm-specific capabilities in overcoming difficult times is emphasised (Krammer, 2022; Behl et al., 2022). This study aims to enhance the resilience of UK SMEs by integrating critical sustainability factors and volume flexibility, with a particular focus on women's leadership role.

Objectives: The main objective is to develop a long-term resilient model for women-led SMEs by identifying key environmental and economic sustainability factors. Secondary objectives include identifying sustainability knowledge gaps, measuring the effectiveness of volume flexibility, recognizing key sustainability practices, establishing links between social and economic sustainability factors, understanding the impact of ethnicity, and developing a sustainability matrix.

Literature Review: This study is grounded in the intersection of sustainability theory, resilience theory, and gender studies. It seeks to understand and enhance the resilience of women-led SMEs, highlighting the unique contributions of women in business. Sustainability theory, rooted in the Brundtland Commission's definition, emphasises meeting current needs without compromising future generations, focusing on environmental and economic sustainability (Warth & Koparanova, 2012). Resilience theory examines the capacity of systems to absorb disturbances and reorganise while maintaining core functions, essential for SMEs facing economic and environmental disruptions (Hoegl & Hartmann, 2021). Gender studies provide insights into the innovative, community-focused, and environmentally responsible leadership of women in business (Adams & Funk, 2009; Eagly *et al.*, 2003;

Gloor *et al.*, 2022; Hillman *et al.*, 2002; Singh *et al.*, 2008). By integrating these theoretical perspectives, the study aims to identify sustainability knowledge gaps among women leaders, assess the effectiveness of volume flexibility, recognise key sustainability practices, establish links between social and economic sustainability, and understand the impact of demographic factors. This comprehensive framework culminates in developing a sustainability matrix, offering a practical tool for evaluating and enhancing sustainability practices, thereby building long-term business resilience.

Methodology: The research is designed to be inclusive, targeting women-led SMEs in the UK goods industry. We consider variables such as ethnicity, education, experience, training, and age, ensuring a comprehensive understanding of these enterprises' challenges and opportunities. The study involves a mixed-methods approach, combining qualitative interviews and quantitative surveys to assess operational efficiency, resource utilisation, and sustainability knowledge. Data analysis will focus on identifying gaps and developing strategic recommendations for improvement to empower these enterprises for long-term success.

Preliminary findings reveal the untapped potential of women-led SMEs in the UK. These enterprises demonstrate a unique approach to sustainability, often incorporating more innovative and community-focused strategies. However, there is a significant gap in advanced and strategic sustainability knowledge, particularly in operational and environmental practices. Volume flexibility has shown the potential to enhance economic sustainability by allowing SMEs to adapt to market fluctuations. These findings should inspire policymakers and business leaders to invest in developing these enterprises, fostering a more sustainable and resilient business landscape in the UK.

Implications: This research is not just about women-led SMEs; it is about contributing to the UK's broader economic and social goals. The model developed can help women-led SMEs achieve long-term financial success and environmental responsibility by addressing the identified knowledge gaps and promoting sustainable practices. Additionally, the project aligns with and supports the UK's commitment to the UN Sustainable Development Goals, underscoring the significance of this work in the global sustainability agenda.

Keywords: SMEs, Sustainability, Resilience, Women Leadership, Volume Flexibility, Economic Sustainability, Environmental Sustainability, UK Economy

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THE EFFECT OF AUDIT MARKET DEREGULATION ON AUDIT COMPETITION AND QYALITY

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ABSTRACT

In this paper, we examine the relationship between audit quality and audit firm competition. In the year of 2011, law 3919, puts an end to audit fee regulation in Greece and ushers in an era of free agreement on audit fee levels between the parties involved. This regulatory adjustment provides a unique setting, in which to study the effect of the increased level of competition between audit firms on audit quality. We use earnings quality as an audit quality proxy set various independent variables as suggested by existing literature and conduct a difference in difference (DID) analysis and robustness tests. The sample consists of 1.200 firm-year observations from 120 listed companies on the Athens Stock Exchange. To estimate abnormal accruals we use the same model as Han and Wang (1998). Our results indicate a negative statistically significant relationship between audit quality and deregulation of fee bottom reserves, which suggests that augmented competition of audit firms had a negative effect on audit quality.

Keywords: Audit quality, deregulation, audit fees, earnings quality, audit firm competition.

NAVIGATING GLOBAL UNCERTAINTIES THROUGH LEGAL RECOGNITION OF DIGITAL-TECHNOLOGICAL INFRASTRUCTURE WITHIN CORPORATIONS.

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ABSTRACT

In this globalized and interconnected world, corporations are continuously affected by extraordinary events such as pandemics and conflicts, as well as by business and political occurrences that, while not directly connected with their core operations, have a magnitude that penetrates the global economic and financial framework. These events include financial crises, global political changes, and significant corporate failures with wide-reaching implications, exemplified by the subprime mortgage crisis of 2007, the UK's Brexit referendum in 2016, and the Evergrande bankruptcy of 2021.

To enhance businesses' capability to manage uncertainties and navigate the contemporary global business environment, certain European legal frameworks have introduced specific provisions. These provisions focus on the duties of corporate governance bodies to adopt, evaluate, and monitor the adequacy of corporate structure and business organization, aiming to proactively mitigate potential crises.

For instance, the Italian Civil Code, Article 2086, highlights the entrepreneurial duty to create an organizational, administrative, and accounting structure appropriate to the enterprise's scale and nature, aimed at early crisis detection and continuity preservation (Cerrato, Peira, 2019).

However, despite fostering a shift from a retrospective to a forward-looking and proactive business approach, these legal provisions do not directly address the impact of the ongoing digital and technological revolution on business processes and corporate governance - a revolution that is both a source of uncertainty and a key to managing it (Enriques, 2019).

It is acknowledged that digital and technological developments are primary drivers of change and disruption (see, Scott D. Anthony, et al., 2021; KPMG 2022, CEO Outlook), as demonstrated nowadays by the advent of increasingly advanced artificial intelligence systems. Corporations are, in fact, pursuing digital transformation, also integrating various advanced technologies into their business model, thereby gaining greater flexibility, efficiency, process optimization, and enhanced market competitiveness (Dedehayir et al., 2017; Alicia M. et al., 2023, Marinko et al., 2023). The digitization/technologization of business is further exemplified by studies showing that the majority

of corporations are now engaged in some form of digital initiative or technology platform utilization (see, Eurostat, 2023; U.S. Chamber of Commerce).

In this context, specific regulations address digital and technology phenomena by establishing governance standards that impact corporate governance and business structures. Notable examples include the EU AI Act, which harmonizes rules on artificial intelligence, the Market in Crypto-Assets Regulation (MICA – Reg. EU 2023/1114) setting uniform EU market rules for crypto-assets, and the EU Regulation on distributed ledger technology market infrastructures (Reg. EU 2022/858).

However, this multitude of different regulations creates a fragmented legal and business environment that risk hindering the efficient and effective adaptation of corporate governance and business processes to the digital/technological matters.

Building on the analysis of Italy's Article 2086 of the Civil Code and corresponding laws in other European Member State (such as Germany, France, and Spain), this study proposes an overarching legal intervention aimed at generally recognizing and embedding the digital-technological infrastructure within the core framework of corporations.

The proposed legal intervention mandates entrepreneurs and/or managing directors to establish a digital/technological structure in alignment with the corporation's scale and nature, as well as its organizational, administrative, and accounting structures and the type and degree of advancement of the adopted digital/technological assets.

This legal intervention delineates the roles and duties of governance bodies and promotes the development of common criteria and practice concerning the digital/technologic structure (as has already occurred with the other organizational, administrative, and accounting corporate structures - see Fondazione Nazionale di Ricerca dei Commercialisti, 2023).

Furthermore, it clarifies the responsibilities of administrators and outlines the related legal countermeasures available to shareholders and/or third parties in the event of breach of duty. For instance, under the Italian legal system (Tribunale Catanzaro, 2024; Tribunale Cagliari,2022) the breach of the obligations outlined in Art. 2086 of the Civil Code by corporate directors may constitute a significant irregularity with several potential consequences. In particular, under specific conditions, this irregularity can (i) allow shareholders to request a judge for the replacement of directors, as provided by Art. 2409 of the Civil Code; (ii) inducing auditors to convene the directors before the shareholders, pursuant to Article 2406 of the Civil Code; (iii) serve as a justified cause for the revocation of directors under Article 2383 of the Civil Code; (iv) entitle shareholders to initiate legal action against the directors to seek reparation for damages resulting from the breach.

Finally, the proposed comprehensive intervention enhances the corporation's ability to adapt to rapidly advancing technologies, acting as safeguards in scenarios where specific regulations may be lacking. In this regard, the requirement to establish an adequate digital-technological infrastructure before implementing any specific technology can endow corporations with a "forward looking" effect that may enable them to anticipate associated risk and respond appropriately.

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ARTIFICIAL INTELLIGENCE TO FOSTER (MULTI)-STAKEHOLDER MARKETING: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

In recent years, Artificial Intelligence (AI) has gained a prominent voice in supporting human activities within business organizations, including the improvement of business processes, the development of more sustainable products and services, and the creation of new sources of value for stakeholders (Pinheiro et al., 2022; Malodia et al., 2023; Kim et al., 2024). The potential of AI in advancing transformative impacts on interactions with and among stakeholders is recognized as critical to business organizations (Güngör, 2020; Hollebeek, Sprott and Brady, 2021; Khemasuwan and Colt, 2021) since their purpose is, growingly, to create and co-create value with multiple groups of stakeholders simultaneously (Andriof et al., 2002; Freeman et al., 2010; Greenwood and Van Buren III, 2010; Freeman, 2017).

The way firms create value for and with multiple stakeholders defines a company's multi-stakeholder or stakeholder approach. This entails that businesses engage their stakeholders through constant dialogue to build long-term and trustworthy relationships and partnerships with them (Freeman and McVea, 2001; Greenwood, 2007; Manetti and Toccafondi, 2012; Kujala et al., 2022). To do that, some business functions, more than others, play a significant role, such as marketing (Hult, 2011; Aksoy et al., 2022). Marketing has undergone profound changes in the last two decades that seem to follow society's expectations towards more responsible and ethical ways of doing business. Not by chance, marketing scholarship is positing evolutions of definitions and conceptualizations that embed a (multi)-stakeholder approach to value creation. For instance, they suggest that marketing should be seen as a responsible activity that meets customers' evolving needs and the expectations of all stakeholders by engaging with them and establishing human-based long-term relationships between the company and its stakeholders (Bhattacharya and Korschun, 2008; Hillebrand, Driessen and Koll, 2015; Aksoy et al., 2022; Keller and Kotler, 2022).

However, despite the growing efforts of turning marketing into a more human-oriented and perceived business activity, some intrinsic issues that the discipline has been suffering for a long time remain. Such as stakeholders' misperception toward the credibility of the discipline because marketing is commonly considered hustle, misleading and oriented to a dichotomous and residual

value creation solely for customers, underestimating the impact of stakeholders in society (Kachersky and Lerman, 2013; Cluley, 2016).

Therefore, given that 'the impact of AI systems should be considered not only from an individual perspective but also from the perspective of society as a whole' (European Commission, 2020) and scholars call for investigations on the interplay between AI and (multi)-stakeholder approach to serve business' purposes more effectively (Kumar et al., 2019; Güngör, 2020; Katsikeas, Viglia and Hollebeek, 2023, 2023) a question arises: How do AI applications support a (multi)-stakeholder approach in marketing, enabling stakeholder interactions, engagement and collaboration between firms and stakeholders? Before providing an empirical-based answer to this question, we decided to first map the field through a Systematic Literature Review on the topic, given that a holistic interpretation of AI for supporting (multi)-stakeholder approach is needed and the literature is still highly fragmented. Our SLR provides a structured organization of themes and future lines of research in the application of AI to foster a (multi)-stakeholder approach in marketing, by responding to the following RQs:

RQ1: How does AI support a (multi)-stakeholder approach in marketing?

RQ1.1: How does AI enable the interaction with multiple stakeholders in the marketing processes?

RQ1.2: How does AI enable engagement with multiple stakeholders in the marketing processes?

RQ1.3: How does AI enable collaboration with multiple stakeholders in the marketing processes?

RQ2: What are the future lines of research?

The SLR was performed from the Scopus database (Palazzo and Vollero, 2022) and employed the following search query limited to articles in English in the Business, Management and Accounting and Social Sciences fields: (TITLE-ABS-KEY ("*marketing*" OR "communication" OR "advertising" OR "sales" OR "customer" OR "product" OR "pric*" OR "virtual influenc*" OR "promot*" OR "distribut*") AND TITLE-ABS-KEY ("artificial intelligence" OR "AI") AND TITLE-ABS-KEY ("*stakeholder*")) AND (LIMIT-TO (SUBJAREA, "BUSI") OR LIMIT-TO (SUBJAREA, "SOCI")) AND (LIMIT-TO (DOCTYPE, "ar")) AND (LIMIT-TO (LANGUAGE, "English")). To structure our Systematic Literature Review steps, we followed the procedure proposed by Massaro, Dumay and Guthrie, (2016) and Secundo, Del Vecchio and Mele (2021). The initial search led to 320 records and as a further qualitative selection criterion, all papers with an AJG 2021 ABS ranking below 2 were excluded via Excel. The database was narrowed down to 88 results. At this stage, two authors analyzed titles and abstracts to assess each paper's pertinence to the topic under investigation, resulting in the exclusion of 13 papers. Finally, to strengthen the validity of the final sample, a third author read the full texts of all papers and confirmed a final database of 72 papers. For our descriptive analysis, we used the software Bibliometrix to observe the papers' basic information (Denyer and Tranfield, 2009; Calandra

et al., 2023): time evolution, publication breakdown by source, country distribution, and type of methodology. Furthermore, we observed the most cited articles, authors, and most relevant journals. Early results from our content analysis reveal the emergence of three main clusters that identify how AI supports (multi)-stakeholder marketing: 1. SHARED DECISION-MAKING and DECISION SUPPORT SYSTEM: AI can enable variegated stakeholder capabilities (from commercial to interpersonal) to improve marketing impacts on diverse stakeholders and promote participatory decision-making for product design (Pereira et al., 2022; Pinheiro et al., 2022) and more effective market analysis and forecasting (Albrecht, Rausch and Derra, 2021; Li et al., 2021; Ramos et al., 2021). 2. HUMANIZED MARKETING: AI can favor constant interactions and dialogue among managers, business partners and stakeholders in society to resolve conflicts (Hermann, Williams and Puntoni, 2023; Stahl and Eke, 2024). It also has the potential to empower and engage stakeholders about more ethical use of technology (Hermann, 2022; Bulchand-Gidumal et al., 2023) and to direct marketing efforts to social good (Madianou, 2021; Hermann, 2022). 3. SUSTAINABLE DEVELOPMENT: AI can support stakeholder and manager collaboration in directing marketing efforts toward social good, from how a product is conceived to how advertising campaigns are designed to spread values and norms in society (Coffin, 2022; Rodgers and Nguyen, 2022; Malthouse and Copulsky, 2023).

The deeper exploration of practical evidence and theoretical frameworks within these three identified clusters, which we will perform in the final paper, will open the avenue for future research about AI and (multi)-stakeholder marketing.

Keywords: Artificial Intelligence; (Multi)-stakeholder marketing; Stakeholder approach; Sustainability; Systematic Literature Review

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ADDRESSING THE ATTITUDE-BEHAVIOR GAP IN FASHION INDUSTRY: EARLY ADOPTION OF NEUROMARKETING TECHNIQUES ON GEN Z AND MILLENNIALS

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ABSTRACT

In the over-discussed fashion industry, sustainable fashion seems paradoxical (Atik and Ertekin, 2022). On the one hand, the current fashion system is mainly driven by speed, change, planned obsolescence, disposable trends, and social dogmas (Buchel et. al 2022), ranking second among the most polluting industries in the world (United Nations Climate Change, 2023), and on the other hand, the challenge of sustainability implies longevity, reusability, and protection of natural resources for future generations (Borowy, 2013; Ozdamar et.al, 2015; Keeble, 1988; Pencarelli et. al, 2020).

Nevertheless, the global fashion industry's harmful social and environmental impacts, particularly the fast fashion sector, are crying out for a more sustainable fashion system (Jung et al., 2016; Lundblad and Davis, 2016).

In this regard, the ones calling for this change are mostly represented by younger generations, who are typically considered the most concerned about issues of responsibility and sustainability (Ivanova et al., 2019; Kozinets and Jenkins, 2022), however, affected by an uncontrollable desire for consumerism (Horton et al., 2022; Joy et al., 2015).

This reinforces an attitude-behavior gap, which is much studied in the literature but not yet resolved (Bick et al., 2018; Bianchi and Gonzalez, 2021; Blazquez et al., 2020; Jacobs et al., 2018; McNeill and Moore, 2015; Riesgo, 2019; Wiederhold and Martinez, 2018). This phenomenon, coined by field researchers as the Fashion Paradox (Black, 2008; Jacobs et al., 2018; McNeill and Moore, 2015) is particularly evident among Generation Z and Millennials, who consistently reveal dichotomous and paradoxical behaviors (Bick et al., 2018; Horton et al., 2022).

Despite many studies on the topic, investigating the gap between attitude and behavior is crucial to studying the fashion paradox. The existing literature has studied the phenomenon using traditional methodologies with intrinsic limitations, such as surveys and interviews. Moreover, such methodologies can produce biased or paradoxical responses in the literature known as *social desirability bias* which can become an issue when research involves collecting data on personal or socially sensitive issues. For example, respondents may believe that society expects them to be responsible for the environment, even though the respondent may not care much about the

environment (Grimm, 2010) and then their consumption patterns remain unaffected (Fisher et al., 2018). This discrepancy underscores the need to investigate the issue using innovative methodologies that can finely capture the complexities of consumer behavior through deeper exploration beyond self-reported data to understand the real dynamics among attitudes and behaviors.Therefore, to provide key theoretical contributions and useful insight to such a phenomenon, we aim to explore the barriers that prevent Genz and Millennials from aligning their behaviors with the environmental and social values they claim to possess through a methodology that entails experimental study based on neuromarketing techniques. Such a technique proves validity in shedding light on subconscious influences and underlying causes of these groups' persistent consumption of fast fashion, as well as uncovering the cognitive and inner drivers underlying their attitude-behavior gap.

We expect that our results will contribute to the literature of consumer attitude-behavior gap by identifying a spontaneous and truthful comprehensive set of sustainable purchasing barriers among younger generations - from economic to emotional and ethical - that, if properly addressed, can guide managers to shape coherent and viable marketing strategies.

Keywords: fashion industry; responsibility; marketing; customer behavior; neuromarketing; attitude-behavior gap;

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NUDGING FOR WISE REASONING

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ABSTRACT

Have we overvalued the pursuit of intelligence at the expense of cultivating wisdom? This study investigated what developmental psychologists are calling a systemic problem: a lack of wisdom in leadership. Delving into Aristotle's practical wisdom, this study analyzed the urgent need for wisdom in contemporary workplaces. Through strategic nudges towards wise reasoning, this research illuminates a path towards decision-making aligned with the common good, promising a brighter future amidst uncertainty.

Wisdom researchers argue there is an urgent need to foster wisdom. The concern from academics, specifically developmental psychologists, is that society has overfocused on developing IQ and domain-specific knowledge, which can be competitive and self-serving at the expense of wisdom (Sternberg & Glück, 2022; Sternberg & Karami, 2021). Intelligence is important to the world, but provides no guarantee of an improved world (Sternberg, 2019). Personal intelligence can be a force for good (e.g., Nelson Mandela, Malala Yousafzai, Martin Luther King) or evil (e.g., Adolf Hitler, Saddam Hussein) depending on one's motivations. Furthermore, high intelligence can be a risk factor for foolishness (Sternberg, 2019). When faced with complex business problems, egocentrism, omniscience, omnipotence, and ethical disengagement can cloud a leaders' ability to act wisely (Grossmann, Weststrate, Ardelt, et al., 2020; Sternberg, 2019, 2021).

Aristotle was the first to introduce phronesis, or practical wisdom, allowing people to discern the Golden Mean and the right ways to act in each situation within the context of the situation. Phronesis enables wise reasoning (Grossman & Dorfman, 2019; Shoup et al., 2022). Aristotle's version of practical wisdom is significant in that it stresses how decisions are made within the context of situations, portraying action as a dynamic, complex process (Woerner-Powell & Edmondson, 2019). The action considers the ultimate goal within the context of the community one belongs to. Schwartz and Sharpe (2019) describe wisdom as one's "true north" compass that serves as a guide to keep one on the right path with purpose. Aristotle's work has contributed to the application of wisdom in everyday life.

Cultivating wisdom in individuals offers specific advantages to the workplace (Elangovan & Suddaby, 2020). Wisdom helps individuals see problems not in isolation but as multiple contextual layers, increasing awareness of short- and long-term causes and consequences that shift over time. Wisdom includes perspective-taking: understanding problems from different lenses and integrating viewpoints to maximize a common good outcome (Sternberg & Karami, 2021). Additionally, embedded with

wisdom is an understanding of the limits of one's knowledge. As Kessler and Bailey (2007) state, "knowledge gives us the means, but wisdom provides the context and direction" (p. xxii).

This research shares insights from an experimental study on how nudging for wise reasoning strategies may influence decision-making on ill-structured problems for the common good. Study participants (*n* = 419) reviewed a fictitious ill-structured business problem and made a pre-study yes/no vote. Participants were randomly assigned to either the control group or one of two experimental arms: nudge perspective (NP) group or nudge uncertainty (NU) group. The experimental groups were provided a short wise-reasoning nudge and asked to vote again. The NP group received information that provided a new perspective to think about the problem, and the NU group received consideration for future uncertainty.

This study demonstrated that once participants realized the potential long-term implications of the business problem, a significant number of participants changed their decisions, with a significant decrease in their confidence in their decision-making process.

The results of this study found that providing wise reasoning nudges appear to have caused reflection in participants' reasoning strategies. Both nudge groups reported lower confidence in the quality of their decision and how wise of a decision they felt they made after the second decision. Despite the lower scores for confidence and wise decisions, they were more likely to report using wise reasoning strategies, such as considering future uncertainty and ethics, and less likely to consider their own personal interest and financial benefits of being first to market.

The control group participants, working with the least amount of information, reported the highest confidence in the quality of their decision-making process and in how wise of a decision they felt they made. However, the control group was also significantly more likely to report posthumously they wish they had considered ethics in their decision.

The purpose of this experimental study was to test nudges for wise reasoning strategies against an ill-structured business problem. The fictitious problem did not have a right or wrong answer, and it included complicated risks and benefits. The authors imagined cases such as DNA testing, STEM cell research, and the opioid crisis where the benefits to society need to be weighed against the risks when the future use is uncertain, and the future is almost always uncertain. Company financial gain and rapid consumer adoption may be the first step to determining a go-to-market business strategy, but just because a company can fill a market desire, should it? We argue that long-term perspective-taking and consideration of uncertainty should be a part of decision-making. This study demonstrated that once participants realized the potential long-term implications of the business problem, a significant number of participants changed their decisions, with a concomitant decrease in their confidence in their decision-making process.

The world needs more wisdom, and we trust it is available to everyone. Business leaders especially need to adopt wise-reasoning practices when making decisions that impact the common good. In a post-truth world overwhelmed with misinformation and disinformation and technology moving faster than regulating entities can keep up, business leaders have the power to do the right thing. Yet, doing the right thing is not always clear. As these findings pointed out, using wise reasoning strategies, including intellectual humility, perspective-taking, and short- and long-term planning under uncertainty may help leaders make a more balanced decision that considers the common good.

This study contributes to the field of business psychology by empirically demonstrating the impact of strategic nudges on enhancing wise reasoning in decision-making. By focusing on Aristotle's concept of practical wisdom (phronesis), the research underscores the importance of integrating wisdom with intelligence to address complex business problems. The findings reveal that nudging participants to consider different perspectives and future uncertainties can lead to more reflective and ethically grounded decisions, even if it decreases their confidence in those decisions. This study bridges the gap between theoretical wisdom and practical application, showing that wisdom not only enhances individual decision-making but also promotes a broader consideration of the common good in organizational contexts. The use of wise reasoning nudges provides a potential practical tool for leaders to cultivate wisdom, thereby improving decision-making processes. By integrating perspective-taking and ethical considerations into business decisions, this research offers valuable insights for fostering a culture of wise reasoning in contemporary workplaces, ultimately contributing to more thoughtful and balanced leadership practices.

Keywords: Nudges, Wise Reasoning, Wisdom, Decision-Making, Ethics

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ELEVATING AUDIT QUALITY: A SYSTEMATIC FRAMEWORK FOR RISK ASSESSMENT

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ABSTRACT

Financial audits are conducted in accordance with a risk-based auditing approach wherein auditors assess the risk of material misstatement (RMM) and then develop and execute audit procedures to minimize the audit risk (AR) to an acceptable level (Graham et al., 2018; ISA 200, IAASB 2022; Le and Nguyen, 2020; Seidel, 2017). In this manner, auditors implement the principles of the audit risk model (ARM) to perform effective audits (Chen *et al*., 2019; Lu *et al*., 2017). However, limitations and difficulties encountered in applying the ARM (Favere-Marchesi, 2013; Niemi *et al*., 2018) have led auditors to shift to the use of the ARM at a conceptual level (Chen *et al*., 2019). Furthermore, the qualitative approach (ISA 200, IAASB 2022) adopted by financial auditors in assessing risks has resulted in varying risk evaluations and inconsistent application of ARM, impacting the quality of audits (Miller *et al*., 2012; Nguyen and Kend, 2021).

While a stream of research have delved into the correlation between assessed AR and variables affecting audit quality (e.g., Choi *et al*., 2023; Feng *et al*., 2023; Nguyen and Kend, 2021; Trucco *et al*., 2022; Xiao *et al*., 2020), scant attention has been paid to examining and demonstrating quantitative approaches for assessing AR components within the framework of ARM implementation (Mock and Fukukawa, 2015).

Therefore, this study aimed to investigate the risk factors influencing the application of the ARM and proposed a complementary risk-based instrument (KRIs) to form substance risk judgments and mitigate heightened RMM.

A three-stage scale development procedure was implemented. This included two independent samples involving 767 participants: a pretest through an Exploratory Factor Analysis and a subsequent study through Confirmatory Factor Analysis for construct validation. Additionally, the authors tested the ability of the KRIs to predict the audit efforts needed to mitigate heightened RMM.

The results validated the suggested KRIs, which comprises two risk components (i.e., inherent risk and control risk) and seventeen risk items in total: ten risk items, such as a history of material misstatements and a large extent of manual accounting records, pertain to the inherent risk. The remaining seven risk items, for instance, ineffective control activities and a lack of a code of ethics, relate to the control risk. Additionally, The findings indicated a high prediction power regarding audit efforts needed to reduce the RMM, corresponding with sustainability accounting.

This original study contributes to theory by implementing a holistic approach to develop a well-grounded and innovative instrument that elucidates the mechanism of risk assessments. It models the intuitive approach of evaluating risks (West and Buckby, 2023) into the theoretical framework and provides a quantitative expression of the assessed risks, thereby enriching the theory of risk management (Bogodistov and Wohlgemuth, 2017). The findings of this study could aid practitioners in forming risk judgments when assessing risks (Nagi and Kersten, 2022; West and Buckby, 2023). Furthermore, through the utilization of the KRIs, auditors can effectively communicate material misstatements to senior management, thus contributing to sustainability over time (Gholami *et al.*, 2023; Pizzi *et al.*, 2023). The KRIs is adaptable across various auditing fields and may assist audit standard-setters in enhancing the uniformity and quality of risk assessments.

Keywords: Risk of material misstatement, Audit risk model, Financial audits, Scale development, Key risk indicators (KRIs), Sustainability, Audit efforts.

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IMPRESSION MANAGEMENT IN AN ENVIRONMENTAL CATASTROPHE: CORPORATE REPORT ANALYSIS

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ABSTRACT

In the current globalized and dynamic business environment, organizations face increasing demands for reliable information. However, there is a critical inquiry into how these organizations respond when confronted with adverse circumstances that may impact their corporate image and overall value. Thus, we try to analyze whether, given the circumstances arising from the Mariana and Brumadinho dam accidents, the Brazilian company Vale made use of its corporate reports to clean up its corporate image, or to manipulate the external perception of the events in question. To achieve this objective, a comprehensive analysis of corporate reports issued by Vale spanning the years 2010 to 2021 was conducted. This analysis focused on identifying impression management strategies employed by the company. The goal was to scrutinize Vale's conduct both before and after the aforementioned accidents, as well as during their occurrence. Evidence was found of the adoption of strategies, mostly of defensive nature, such as internal attribution and denial during the period of Mariana's accident; and apologies, restitution, denial, and improvements in the period of the Brumadinho's accident.

Keywords: impression management, reporting, disclosures.

THE EFFECTIVE LEADER AS "SELF-TALK" OF THE ORGANIZATION

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ABSTRACT

INTRODUCTION

Leveraging General Systems Theory (GST) (Von Bertalanffy, 1968), this research argues that effective leadership in non-routine contexts can be conceptualized as isomorphic to certain instances of consciousness in individuals, specifically the function of "self-talk".

Both individuals and organizations are conceptualized as open systems composed of several sub-systems, with leadership and self-talk acting as integrative forces, steering the system towards a given end goal. These forces serve as "centers of narrative gravity" (Dennett, 1993), binding the subsystems together and enabling the system to cohesively: i) assess its own behavior, and ii) change it to reach a desired end state.

This conceptualization stems from a critical review of literature and the interpretation of empirical data collected through a grounded theory approach, focusing on interviews and case studies to formulate a model of the behavior of the effective leader. A measurement scale is currently being developed to empirically support the validity of these claims.

The integrative function of leadership has been dissected through multiple theoretical lenses. Just to name a few:

– Transformational leadership highlights the role of leaders in inspiring alignment of individual efforts with organizational objectives, suggesting that leaders foster coherence through vision and motivation (Bass, 1985).

– In complex adaptive systems, it is argued that leadership is vital for managing system dynamics and maintaining coherence (Uhl-Bien & Marion, 2009).

– Strategic leadership theories underscore the importance of leaders in synthesizing diverse informational inputs to guide organizational direction effectively (Finkelstein et al., 2009).

Collectively, these theories affirm the integrative role of leadership but often overlook the actual behaviors that leaders enact to enable individuals who hold different pieces of information to collectively construct a shared view of the organization's functioning, their role within the organization, and the relationship of the organization with the external environment.

Based on a review of i) the role of the leader as a "system integrator" in mainstream leadership theories, and ii) the sensemaking literature and its gaps, it is argued that the role of the leader as a "system integrator" overlaps with facilitating collective/distributed sensemaking and the distributed creation/adjustment of routines by the many stakeholders that make up the organization. This dynamic is argued to be crucial to other key organizational processes such as organizational learning and change, and fitness to the environment in general.

This study aims to bridge the gap about how the aforementioned dynamic between leader and other organizational stakeholders plays out, offering a systemic perspective that portrays this integrative role as a ubiquitous function across various categories of systems.

GROUNDED THEORY APPROACH

Adopting a grounded theory methodology, this research involved conducting 15 detailed interviews and analyzing four case studies where leaders effectively guided organizational subsystems.

The interviews focused on followers working in teams within knowledge intensive firms and where aimed at exploring what was perceived as effective leader behavior in non-routine contexts. The cases include an individual learning how to drive, a consulting team where the leader clearly communicates the larger project objectives to the team members, an accounting department during a distressed M&A transaction, and a growing no-profit organization looking for its identity.

The findings from these diverse scenarios suggest a common structural theme: effective behavior adjustment towards a desired end goal is facilitated by the presence of a leading voice, which first calmly and effectively describes what they believe the system is doing, and then forms a consensus regarding what the system should be doing to achieve the desired end goal. This evidence supports the notion that both effective individual cognitive processes and organizational leadership dynamics rely on internal or communicated directives that describe to the system what it is doing, thereby integrating the efforts of several subsystems towards a common outcome.

MODEL DEVELOPMENT AND EMPIRICAL VALIDATION

Based on the theoretical groundwork and qualitative insights, a 13-item scale called Global Workspace Leadership (GWL) is being developed to measure leadership behaviors that align with the GST-based model of integrative leadership. GWL assesses how leaders provide clarity, ensure understanding of goals, and align individual efforts with broader organizational objectives.

Preliminary testing involving team members from knowledge-intensive firms – distinct from those interviewed – has yielded encouraging outcomes. The results demonstrate internal consistency within the developed scale. Ongoing efforts are focused on refining the scale and substantiating these findings. As part of this process, convergent validity will be assessed by examining the correlation between scores from this scale and another established measure of follower performance. Currently, the Individual Work Performance Questionnaire (IWPQ) is under consideration as a potential metric for performance. This step aims to establish a strong link between the behaviors captured by GWL and overall perceived leadership effectiveness.

CONCLUSION

By conceptualizing leadership as isomorphic to self-talk, this approach offers a unifying perspective for examining the integrative function of leadership as conceptualized through existing theories. It also connects individual cognitive mechanisms with organizational dynamics, enabling leadership research to intersect with other areas of inquiry. The distinction between management and leadership is also revisited, proposing that an effective manager is also, necessarily, an effective leader.

If empirical evidence will lead to the validation of a measurement scale based on the proposed model, further contribution to the leadership literature will be possible, especially with respect to the relationship between leadership and performance.

Keywords: effective leadership, general systems theory, interdisciplinary research, exploratory mixed method, grounded theory

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THE IMPACT OF OPERATION MANAGEMENT CAPABILITY ON ORGANIZATIONAL INNOVATION PERFORMANCE: THE MEDIATION ROLE OF MARKETING PIONEERING ORIENTATION

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ABSTRACT

The main purpose of this study is to examine the impact of operation management capability on organizational innovation performance via mediation of marketing pioneering orientation. The data analysis was done by SmartPLS 4 software and included 189 managers from Israeli companies that operate in international markets. The main findings show that operation management capability affects both marketing pioneering orientation and organizational innovation performance. Additionally, the findings reveal that marketing pioneering orientation serves as a partial mediator in the relationship between operation management capability and organizational innovation performance.

INTRODUCTION

Innovation is one of the organizational pillars that help it to achieve a competitive advantage over its competitors. Many companies are constantly looking for innovative ways to improve their organizational capabilities and adapt their marketing strategy in order to increase the organizational innovation performance. This paper focuses on two organizational characteristics from two different disciplines. The first is from logistics field, which includes the operation management (OM) capability. The second is from marketing field, which includes a marketing pioneering orientation (PO). These two characteristics were chosen because of their central role in promoting organizational innovation performance (INP).

In addition, this study tries to answer a main research question which is whether OM capability and marketing PO can enhance organizational INP ?. Following the above, the main contribution of this study is to advance the research literature by identifying OM capability and marketing PO as drivers of organizational INP. Many of research has documented the positive influence of these characteristics to organizational INP. Hence, understanding how to manage and improve these characteristics is important both managerially and theoretically.

BACKGROUND AND HYPOTHESES

Organizational Innovation Performance

Organizational Innovation Performance (INP) is described as an organization's outcome that yields from implementation of their operation management and marketing strategy. Most firms competing within a given industry exhibit similar levels of managerial competence within their various organizational departments such as operations, human resources, marketing, and strategy (Liao et al., 2007). As a result, many firms see innovation as a key to achieving a competitive advantage. Zona et al. (2013) propound that firm innovation encompasses three pillars: developing new products, introducing new processes, and implementing organizational systems that bolster competitive advantage.

Operation Management Capability

Operation Management (OM) refers to the design, operation, and continuous improvement of a firm's production system, or processes for creating products and services (Mabert & Venkataramanan, 1998). In this study we consider OM as an organizational capability that allow companies to improve their operation processes in order to achieve their goals effectively. Krasnikov and Jayachandran (2008, p. 2) stated that "operations capability is focused on performing organizational activities efficiently and flexibly with a minimum wastage of resources. Therefore, this capability is related to efficient manufacturing and logistics". Operational management mainly refers to delivery, production cost, production delivery, and production flexibility capabilities (Santos Bento & Tontini, 2018). Improving these capabilities positively impacts the firm's innovation performance and competitive advantage (Pagell & Krause, 2002; Wong et al., 2011). Thus, we can assume that:

H₁: OM positively affects INP.

H₂: OM positively affects PO.

Marketing Pioneering Orientation

Marketing Pioneering Orientation (PO) can be described as a marketing strategy according to which organizations operate. It reflects a company's propensity to introduce novel products to the market at the earliest time. Typically, pioneering behavior is perceived as the embodiment of entrepreneurial behavior - when a particular company creates a new market, or is the first to enter a new market, which others have not yet recognized or formalized (Covin et al., 2000).

Thus, we can assume that:

H₃: PO positively affects INP.

METHODOLOGY

Data collection and sample

The data collection was done by *Ipanel* – an Israeli commercial company that specialized in online survey collection. The data was collected using a structured questionnaire that contained screening questions about the research as well as questions related to the body of the study.

The sample contained 189 managers from several companies in Israel operating in international markets.

RESULTS

The results of the hypothesis tests show that in *direct effects* all hypotheses were found to be significant ($p < .001$). So, *H1* to *H3* were supported. With respect to the *specific indirect effect*, the findings show that the path OM→PO →INP was found to be significant ($p < .001$).

DISCUSSION AND CONCLUSIONS

This paper aims to examine the impact of two organizational characteristics such as OM capability and marketing PO on organizational INP. The findings show that both OM and PO positively and directly affect INP. Comparing the beta coefficients of OM and PO (0.33 and 0.42, respectively) show that the impact of PO on INP is slightly stronger than the impact of OM on INP. So, managers who strive to increase their organizational INP should strengthen their marketing PO. BY doing so they may enhance organizational INP. Additionally, regarding the mediation role of marketing PO in the relationship between OM capability and organizational INP the findings show that marketing PO have a partial mediation role in this relationship. So, managers who aspire to improve their organizational INP need to combine both OM capability and marketing PO in order to achieve a competitive advantage.

Keywords: Mediation, Operation Management Capability, Marketing Pioneering Orientation, Organizational Innovation performance

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RESIDENTS' SUPPORT FOR TOURISM DEVELOPMENT: INFLUENCES OF THE THEORY OF PLANNED BEHAVIOR AND LOCAL ONLINE COMMUNITY ENGAGEMENT

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ABSTRACT

Residents are an important but relatively limited resource in terms of comprehensive training on participation and tourism development. Residents' perceptions of tourism activities have been evaluated as showing positive changes; however, they remain at an external and phenomenological level of understanding without depth (Nguyen Phuc et al., 2024). In the context of the extensive impact of social media on all aspects of life, increasing evidence suggests that residents use social media to express their views on tourism (Nguyen Phuc et al., 2024; Nunkoo et al., 2023). Social media allows residents to share knowledge and enhance their awareness of tourism development (Lévy, 1997). When residents use social media, they can acquire more knowledge and develop a better understanding of the values brought by tourism development (Nguyen Phuc et al., 2024). Simultaneously, it creates an environment for them to interact, support each other, and build effective community support. Therefore, effectively leveraging media to help residents raise awareness and facilitate easy access to tourism information is of significant importance. Previous researches have demonstrated that the reception and expression of messages on social media platforms influence residents' attitudes and behaviors (Nguyen Phuc et al., 2024). However, specific research focusing on residents' supportive attitudes toward tourism through participation in local community groups on Facebook remains a gap that needs to be addressed in the context of the rapid development of social media. This research extends the TPB model by incorporating the factor of "local online community engagement" and the antecedent of online social support.

This study was conducted in Can Tho City, which is the economic, educational, and touristic hub of the Southwest region of Vietnam. It is also an important transportation hub connecting various tourist routes from different regions. Can Tho City is also a major rice granary in the country, and agricultural tourism has thrived, attracting domestic and international visitors. However, there is uneven educational attainment and access to information among the local population, and their understanding of tourism is not deep, leading to behaviors that negatively impact tourism (Nguyen

Phuc et al., 2024; Phuong, 2017). Enhancing the level of information reception to increase knowledge and support from local residents in local tourism activities is an important factor in the development of community-based agricultural tourism. This research aims to assess the impact of available online local community channels on the attitudes, behavioral intentions, and behaviors of Can Tho residents in supporting tourism development. Subsequently, solutions will be proposed to effectively utilize these online social channels to provide social support, increase knowledge, engagement, and support from the local residents for tourism development.

The survey was conducted between October 2023 and January 2024. The random sampling method was employed. Data were collected through a survey investigation based on a structured questionnaire sent to the residents via Can Tho's online local community platforms. The focus of the research was on the local residents' perceptions following the proposed research model, which included: (1) social support with information support (4 items), emotional support (5 items), and peer support (5 items) derived from previous researches by Oh & Lee (2012) and Zhong et al. (2021); local online community engagement (5 items) modelled from the scales by Harrigan (2017); (3) attitude (5 items); (4) subjective norms (5 items), behavioral intentions (5 items), and residents' behavioral support for tourism development (3 items) adopted and revised from previous researches Shen and Shen (2021). In order to examine the structural relationships, the Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed.

Through 552 survey responses obtained from residents of Can Tho City (Vietnam), the results revealed a contrast with previous researches: emotional support was regarded as a stronger motivator for LOCE in comparison with informational and peer support. Subjective norms, perceived behavioral control, and attitudes all exerted significant impacts on residents' support for tourism development. Moreover, LOCE exerted a powerful influence on both attitudes and behavioral intentions to support tourism among residents, despite a discernible gap between attitudes and intentions. This phenomenon can be explained from the perspective of localization (social identity theory) and the illegitimate empowerment role of local online community fan pages. The research also provides a reference on residents' tourism support behavior development and proposes a new concept of "local online community engagement" based on the theory of social identity and the theory of social media engagement, focusing on clarifying the specific impacts of social media on tourism activities from the perspective of local residents. Based on the research findings, several recommendations are also proposed. Firstly, the management of local online community platforms should be entrusted to specialized departments. To enhance effectiveness, it is proposed to establish an official Facebook page for the locality, managed by the Local Tourism Promotion Center, with the participation by relevant parties to disseminate information, increase awareness, and promote participation and

support for sustainable tourism development at the local level. Secondly, it is important to enhance content development and interactive activities to increase social support and strengthen connections among community members. Thirdly, controlling response time and content is crucial in managing local online community platforms to build the brand image of the destination.

Keywords: residents' support for tourism, TPB, local online community engagement, social identity theory, social media engagement.

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INTEGRATED PERFORMANCE MEASUREMENT AND SCORING SYSTEMS FOR AGRICULTURAL FIRMS' SUSTAINABILITY ASSESSMENT

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ABSTRACT

The (un)sustainability of the food system is an urgent theme of some authoritative international political programmes (Fassio and Tecco, 2019). To accelerate the transition of any socioeconomic system towards a more sustainable paradigm, companies should reshape corporate purpose, management activities and performance measurement practices (De Micco *et al.*, 2021). This is particularly relevant for the EU context where the Corporate Sustainability Reporting Directive obliges companies with specific characteristics to disclose report their sustainability performance. In this view, the use of an Integrated Performance Measurement System (IPMS) is indispensable for both EU large companies and SMEs to efficiently guide business activities boosting corporate sustainability (Vitale *et al.*, 2019). However, performance measurement and reporting systems can be affected by ambiguities and incompleteness (Giovannoni and Quarchioni, 2019). Such critical issues typically limit the measurement and reporting of corporate non-financial performance because no univocal consensus has been achieved so far on standards and key performance indicators (KPIs) for adequately managing environmental, social and governance (ESG) activities. Moreover, the existing sustainability measurement and reporting tools have been designed in line with the organisational characteristics of bigger companies rather than considering the needs of small ones (Steinhöfel *et al.*, 2019). Notably, SMEs present less structured and formalized management mechanisms that often inhibit the adoption of the available ESG measurement solutions. Moreover, they usually tend to be focused on ordinary business operations facing challenges in defining and implementing sustainability at the firm level. This is due to limited available resources, scarce awareness about the benefits of sustainability practices on corporate growth, and poor skills and expertise (Mengistu and Panizzolo, 2024). Concurrently, several ESG ratings based on heterogeneous scoring methods have been emerging over the last decades. These ratings mainly support the evaluation of listed or bigger companies' ESG aggregate performance to meet investors' needs and are often characterized by a multisectoral overview (Diez-Cañamero *et al.*, 2020). Considering these gaps, Sachs *et al.* (2021) proposed a holistic set of corporate sustainability topics and indicators to measure, report and assess ESG performance feasibly and efficiently. This framework was created by identifying best practices of non-financial reporting, through the screening of corporate sustainability disclosure based on content

analysis techniques. It was shared and validated through a structured engagement process involving large companies.

The present study aims at addressing agricultural SMEs' challenges when measuring and managing sustainability performance. To this end, we redefine and empirically validate the framework of Sachs *et al.* (2021) designing a comprehensive and flexible IPMS tailored to the specific agricultural SMEs' features. Further, we design an ESG scoring mechanism based on some relevant KPIs and metrics of the proposed IPMS. To achieve the two main purposes of the present study, a survey was administered to Italian SMEs operating in the wine sector, which is notoriously characterized by companies that have more advanced management capacities compared to other agricultural companies (ISTAT, CREA, 2022). Semi-structured interviews were conducted to understand which sustainability material topics are most shared among the firms. The same survey allowed us to collect quantitative data regarding some sustainability performance related to the three ESG areas. Such a qualitative and quantitative approach allowed us to reconsider and enrich the framework of Sachs *et al.* (2021) aiming at redefining specific agricultural ESG themes, KPIs and metrics. We conducted a structured analysis of the most widely used non-financial reporting standards, both at an international and European level (i.e., GRI, ESRS, SASB, IFRS and specific environmental standards). This analysis led us to align our set of ESG themes, KPIs and metrics to the common corporate sustainability reporting practices enhancing the legitimacy and the robustness of our IPMS designed coherently with agricultural SMEs' needs. Contextually, we also aligned the ESG themes, KPIs and metrics with the regulatory standards defined by the European Common Agricultural Policies (CAP) 2023-2027 regarding agricultural firms' environmental and social sustainability impacts. We also set our ESG themes, KPIs and metrics consistently with the standards required by the main well-recognised sustainability Italian agri-food industry certifications (such as Equalitas, EquiPlanet, SOStain, Viva, etc.). Furthermore, we have included indicators and metrics useful for calculating a simplified Product Life Cycle Assessment (LCA) for agricultural SMEs, as well as indicators and metrics needed for calculating carbon credit farming. Finally, we have identified specific indicators and metrics for the wine, oil, cereal, and dairy sectors. Moreover, based on our research and empirical evidence gathered, we have selected a subset of indicators and metrics to calculate a scoring system tailored to the characteristics of agricultural SMEs to evaluate their sustainability performance.

Our research contributes to the ongoing debate on measuring and reporting agri-food SMEs' ESG performance by pursuing the following objectives. 1) Proposing an IPMS designed coherently with agricultural SMEs' characteristics for adequately measuring and reporting agricultural ESG performance. 2) Defining a scoring process to assess the sustainability of agricultural SMEs, considering the macro and micro ESG topics proposed by Sachs *et al.* (2021) and the empirical

evidence found in our study. This assessment could be suitable for managerial purposes and investment/financing decision-making processes.

Keywords: Agricultural systems, SMEs, Sustainability performance, ESG Scoring, IPMS.

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THE IMPACT OF ENTREPRENEURIAL UNIVERSITIES ON FOSTERING ENTREPRENEURIAL ACTIVITIES: THE CASE OF THE UNIVERSITY OF TURIN

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ABSTRACT

The growing complexity of the economic and social system entails an important change in the role and activities of universities, increasingly called upon to spread technology, knowledge and innovation from the academic world into society (Ferraris et al., 2020). This transition phase has led to the affirmation of entrepreneurial University in which entrepreneurship and innovation represent central factors (Etzkowski, 2004). Recent studies have highlighted how entrepreneurial education programs for students strengthen the rise of the entrepreneurial university. These programs facilitate the development of ideas from the academic sphere, enhancing universities' effectiveness in their third mission activities and fostering virtuous knowledge transfer processes. (Mele et al., 2022).

For this reason, in recent years, universities have implemented numerous targeted programs to foster an entrepreneurial culture among students. These initiatives are designed to create synergies and mutual support dynamics between the academic community and the local entrepreneurial ecosystem (Micozzi et al., 2022). The goal is to prioritize the promotion of entrepreneurial attitude among students and the transfer of knowledge to companies to move from a pure research-based model to a more entrepreneurial-based one (Etzkowitz, 2003).

The University of Turin finds itself under the influence of these structural changes, as well as of economic and conjunctural factors, such as the projects linked to the European NRRP (National Recovery and Resilience Plan) funding, and the implementation of programs by philanthropic actors. In this sense, the University of Turin plays a central role in the processes of fostering entrepreneurship, innovation, and technological and knowledge transfer as explicit in the document "Piano Strategico 2021-26". This is also highlighted by the role of the Department Directorate for Innovation and Internationalization which specifically deals with the promotion of entrepreneurship and the University incubator that supports higher-value services, such as mentoring, coaching, networking and fundraising intermediation (Auricchio et al, 2013).

Although the concept of the entrepreneurial University has been widely studied in academic literature, it is not yet clear what are the best policies and tools to incentivize the positive effects of ideas coming from the academic world (Dalmarco et al., 2018).

For these reasons, in such a delicate evolution phase of the university's role, this research aims to answer the following questions: 1) What role do the universities play in promoting innovation and entrepreneurship? 2) How do specific entrepreneurial and innovation education programs impact university students and how can these programs be improved?

To address these research questions, we will conduct a case study analysis focusing on the University of Turin. Specifically, we will examine programs aimed at fostering entrepreneurship and innovation among students, which involve collaboration with external companies as organizers. Data will be collected through three different methods and then analyzed through triangulation (Eisenhardt, 2002) to reduce the biases that would derive from a single observation (Tarrow, 1995). This research will make use of semi-structured interviews (Roesch, 2005) with the most relevant figures who deal with innovation and entrepreneurial programs as well as with the managers of the 2i3T University of Turin business incubator and with the enterprises involved in such activities. Furthermore, an online survey will be administered to students who have participated in such programs. Finally, the authors will actively engage in these programs, observing and conversing with both organizers and participants, thus allowing an ethnographic analysis.

The results will be studied using qualitative and quantitative methods to provide important insights into the process of the establishment of the entrepreneurial University and how to improve the activities related to the promotion of entrepreneurship and innovative mentality among students. Moreover, this research provides new ideas that can integrate the activities carried out by both universities and enterprises in these sectors.

Subsequently, other researchers in the field will have the possibility of using our results to compare with the experience of other universities in the Italian context or internationally.

Keywords: Entrepreneurial university, Entrepreneurial education, Innovation, Knowledge Transfer, Business Incubator, Startup, University, Turin.

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HR BEYOND HR: THE DEVELOPMENT OF NEW METRICS TO ASSESS HR ACTIVITIES IMPACT

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ABSTRACT

POSITIONING AND RESEARCH GAP

The conception of Human Resources (HR) departments has undergone a transformative evolution. Initially, these departments primarily served an administrative function (Lemmergaard, 2009). This role, while essential, often confined HR to a reactive and operational sphere. However, with the changing dynamics of the business landscape, HR has shifted towards a more strategic and managerial role (Jo *et al.*, 2024). This culminated in the HR business partner concept, wherein HR functions as a strategic ally to business leaders, contributing to the attainment of organizational goals and objectives (McCracken *et al.*, 2017), making HR an integral part of the overall business strategy (Wach *et al.*, 2022).

This paradigm shift has underscored the importance of leveraging HR activities to drive broader organizational outcomes (Taamneh *et al.*, 2018). Traditionally, HR initiatives were aimed at enhancing the performance and, more recently, the welfare of employees (Pagán-Castaño *et al.*, 2020). While this remains fundamental, there is now a growing recognition that the strategic utilization of HR data and insights can have further-reaching implications, informing decision-making processes across various organizational facets including operations, finance, information technology, and corporate social responsibility (CSR) (Di Prima *et al.*, 2023; Oehlhorn *et al.*, 2020; Stahl *et al.*, 2020).

Despite the increasing recognition of HR's strategic importance, there exists a notable academic gap concerning the development of comprehensive metrics to assess the impact of HR activities beyond the HR domain. While financial performance metrics have gained prominence, they offer only a partial perspective (Kramar, 2014). Furthermore, the rapid technology advancements have added complexity to the HR function, necessitating the adaptation of measurement tools effectively capturing the evolving dynamics of the organizational environment (Oehlhorn *et al.*, 2020). Consequently, scholars have highlighted the need for empirical research aimed at developing comprehensive frameworks and more nuanced and multifaceted metrics that encompass a wider range of organizational outcomes beyond the financial aspect (Pillai and Sivathanu, 2022). Such metrics would not only provide a more

holistic understanding of HR's contributions but also facilitate alignment with broader organizational objectives.

OBJECTIVES

The primary objective of this study is to propose new metrics encompassing not only the diverse activities undertaken by HR departments but also the broader organizational outcomes resulting from these activities. To achieve this objective, we will address the following research questions:

RQ1: What are the key priorities of the HR department?

RQ2: What are the impacts of HR department's activities beyond traditional HR outcomes?

RQ3: How can these impacts be measured?

Research Design

A mixed methodology will be employed, including both a qualitative and quantitative approach. First, semi-structured interviews will be conducted with experts who possess relevant expertise in the field of organizational metrics to explore the needs, challenges, and opportunities in performance measurement (Döringer, 2021; Horton *et al.*, 2004). Subsequently, based on the interviews' insights, measurement scales for each identified area will be developed (Hinkin, 1995). A validation process will then be undertaken to ensure the reliability and validity of the scales, employing principal component analysis, internal reliability, and internal consistency techniques (Mat Nawi *et al.*, 2020). Subsequently, a large-scale questionnaire administered to a representative sample of organizations will collect data on the proposed new metrics as well as other relevant variables for each identified areas of interest (Groves *et al.*, 2013). Finally, comprehensive data analysis will be conducted to explore relationships between the new metrics and organizational outcomes of interest (Dash and Paul, 2021; Hair Jr *et al.*, 2017).

THEORETICAL CONTRIBUTIONS AND IMPLICATIONS FOR PRACTITIONERS

From an academic standpoint, this study addresses a notable gap in the literature by proposing new metrics that encompass the entirety of HR activities and their organizational impact, thus enhancing the understanding of the multifaceted role of HR departments. Furthermore, the rigorous methodology employed in this study, including interviews with experts, scale development, validation, and data analysis, adds methodological rigor to the field of HR metrics research, enriching scholarly discourse and laying the groundwork for future research endeavors.

For practitioners, this research offers tangible benefits in enhancing HR measurement practices and facilitating informed decision-making. The proposed new metrics provide a more comprehensive and nuanced understanding of the impact of HR activities on organizational outcomes, allowing for more effective alignment of HR strategies with broader organizational objectives. By leveraging these metrics, organizations can optimize their HR practices to drive sustainable business success, foster employee engagement and well-being, and enhance overall organizational performance. This will empower practitioners to make data-driven decisions that contribute to the achievement of strategic goals and the long-term success of their organizations.

Keywords: HR management; HR metrics; organizational outcomes; mixed methodology.

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MARKETING STRATEGIES AND INTERFACES WITH ACCOUNTING AND CORPORATE FINANCE: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

INTRODUCTION

There is an extensive literature on the association between marketing strategies and corporate finance and accounting. This literature stresses that the visibility generated by product market expenditures (advertising and communication expenses) can have direct and measurable implications for investors' attention and behaviour, and even the efficient administration of corporate accounting scandals on behalf of involved firms (Sharpe, 2021). As pointed out by Gensler et al. (2023), today stock market participants want firms to balance their marketing strategic orientation with their financial goals and value creation. Specifically, they showed that stock returns are associated with communicated and reported shifts in strategic orientation, with a positive market response on communicating value creation to potential investors. Moreover, alternative marketing strategies such as celebrity endorsements (Shiva et al., 2022), green crowdfunding (Rossolini et al., 2021) and consumer resilience programs under extreme crisis conditions (Bahmani and Yazdanparast, 2024) all have impact on stock valuations, investment intentions, firm values, and fund-raising efforts.

The scope of this paper is to provide a defined, refined, and comprehensive understanding of the association between marketing strategies and corporate finance and accounting by conducting a systematic literature review on the interfaces of corporate marketing strategies and finance. Specifically, we try to answer the following research question: What are the implications of marketing strategies for businesses accounting performance and financing decisions? To answer this question, we undertake a critical analysis of the marketing strategies literature in relation to stock valuation, corporate financing and performance evaluation and subsequently synthesizing the existing findings utilizing a multi-theoretical and multi-disciplinary framework, and present avenues for future research and practical implications for marketing strategists and managers.

This paper aims to cover an important gap in the literature by providing a comprehensive and analytical literature review connecting various marketing strategies and their implications to accounting and corporate finance. This is the first systematic literature review on this topic, responding to calls for more research raised by Morgeson III et al. (2024), Sydney-Hilton and Vila-

Lopez (2019) and Gensler et al. (2023), offering useful implications for a) researchers extending the current qualitative and quantitative frameworks and forms of analysis on this topics, b) corporate managers for evaluating marketing strategies in relation to their accounting and financial impact, and c) marketing practitioners for improving marketing and communication strategies to better align their effectiveness with economic and financial returns.

DATA AND RESEARCH DESIGN

Following Dimitropoulos et al. (2023) and Christofi et al. (2017), we examined the Title, Abstract, and Keyword fields within the digital libraries of Scopus and Web of Science, because these sections typically include key phrases for each article. The keywords were truncated to identify all relevant journal articles (published in English) containing keyword variations. In addition, each group's key phrases were correlated using the Boolean OR operator to generate a research string. Additionally, the group research strings were correlated with the Boolean AND operator to generate the combined research strings. The research formula utilized was ("Marketing strategies") AND ("Corporate finance") AND ("Accounting" OR "Financial Accounting" OR "Corporate accounting"). The primary literature search based on the qualifying criteria generated a total of 158 results (papers) from both databases that will be used in the analysis. Preliminary findings suggest that communication, brand, marketing, sponsorship, and various other strategies are connected to financial performance (profitability), revenue generation ability, stock price returns and volatility, credit risk and market share.

CONTRIBUTION OF THE STUDY

This study contributes to the literature on marketing strategies and finance since we provide the first systematic review of the extant literature aimed at the interfaces of marketing strategies, accounting and corporate finance thus offering an overall understanding of the domain, which allows us to assess, critique, and yield a value-adding synthesis of the literature. Our study aims to fill this gap in the literature because the analysis enhances the knowledge base related to marketing strategies and finance (corporate accounting and financial management) by merging multiple insights from different theoretical streams, allowing a thorough understanding of this issue.

Keywords: Marketing strategies, Accounting, Financial Reporting, Corporate Finance, Systematic literature review, Capital markets.

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THE ROLE OF BLOCKCHAIN TECHNOLOGY AND ITS IMPACT ON THE BUYER-SUPPLIER RELATIONSHIPS IN THE FOOD SUPPLY CHAIN

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ABSTRACT

Blockchain technology (BCT) is a decentralized consensus system that provides secure, transparent record-keeping through digital cryptocurrency (Shankar et al., 2017). Blockchains allow us to have a distributed peer-to-peer network where non-trusting members can verifiably interact with each without the need for a trusted authority (Christidis and Devetsikiotis, 2016). In recent years, blockchain (BC) networks have expanded to a broad spectrum of fields. They have garnered significant attention due to their feature of creating secure private and public networks in a decentralized manner. On the other hand, the expansion of the food industry, both on the national and the global stages, has resulted in complex collaborative networks where supply chains food safety and management significantly affect public health and has become an essential subject of concern in both print and digital media around the globe. The traditional Food Supply Chain fails to meet the customer requirements of quality, safety, reliability, transparency, and traceability (Tayal et.al., 2020). The use of blockchain-based systems for managing a supply chain offers significant benefits, such as faster and more reliable traceability (Katsikouli et al., 2020). There is a pressing need to study Blockchain technology especially in the food supply chain. Moreover, conceptual and empirical contributions will improve our understanding of this emerging technology and its impact on food supply chains. Buyers in the food industry are requesting nowadays updated data on nourishments through the presence and use of digital media. They are likewise progressively requesting to know whether the nourishments they devour are ecologically and socially manageable or not. As an outcome, food product traceability, safety, and sustainability issues have become urgent worries to food retailers, wholesalers, processors, and farmers. Digitalization permits food supply chains to be exceptionally associated, proficient, and receptive to customer needs and regulation requirements (Kittipanya-ngam and Tan, 2019). Blockchain technology offers significant advantages in the food supply chain by enabling immediate identification and prevention of tampering, benefiting both food producers and retailers. Additionally, it addresses the issue of information asymmetry, potentially reducing market failures caused by consumers inadvertently selecting lower quality or unsafe food due to a lack of transparent information about food quality.

The purpose and the importance of this abstract lay upon the role of Blockchain technology and its impact on buyer-supplier relationships in the food industry. It is very important to understand the effect of such role of Blockchain technology since the agri-food industry could benefit from the introduction of Blockchain, which has all the features to represent a huge sustainable business model (SBM) innovation towards sustainability (Tiscini et al., 2020). The management culture adopted for food supply chains has an impact on the quality of the end product and the vitality of the involved businesses. As for the methodology, different steps will take place: the first step is about conducting a comprehensive review of existing literature on blockchain technology, buyer- supplier relationships and their application in the food supply chain- by analyzing the dynamics of buyer-supplier relationships within the food supply chain, considering factors like trust, communication, information sharing, and power dynamics, while evaluating the influence of blockchain technology on these relationships, including its impact on transparency, trust-building, and collaborative decision-making; the second step, is about selecting case studies from the food industry where blockchain technology has been implemented or explored to enhance buyer-supplier relationships, and by illustrating its impact on various aspects of supply chain dynamics, transparency, and efficiency; the third step is about conducting semi-structured interviews with stakeholders involved in the food supply chain including food producers, distributors, retailers and even consumers to gather primary data on their experiences and perceptions regarding blockchain technology, and along collecting secondary data from reports, industry publications, and academic journals to supplement primary data and provide additional context. It is important to mention that the collected information from the food companies through different interviews with the managers or supervisors will help in interpreting and analyzing the academic literature and mainly notify any future research opportunities (Wang et al., 2018). Regarding the contributions, this study will provide a comprehensive understanding of blockchain technology's role in addressing challenges within the food supply chain, such as traceability and transparency. It highlights the potential benefits of blockchain-based systems and their impact on traditional supply chain management practices. Additionally, the study offers insights into buyer-supplier relationships in the food industry, examining how blockchain influences collaboration, trust-building, and information sharing. By synthesizing academic literature and empirical data, the research identifies future research opportunities to further explore blockchain's potential in improving supply chain operations and sustainability. Furthermore, this study will empower managers to make informed decisions about integrating blockchain-based systems into supply chain operations. Furthermore, by deepening understanding of blockchain's impact on buyer-supplier relationships, managers can foster collaboration and trust, streamline communication, and improve overall supply chain performance. Additionally, the study emphasizes blockchain's potential to drive innovation and

sustainability, enabling managers to develop more environmentally and socially responsible business models while meeting customer demands for quality and transparency.

Finally, the research question that is formulated is settled as "what is the role of Blockchain Technology and its influence on the Buyer-Supplier Relationships in the Food Supply Chain? This research, which integrates information technology, Blockchain, operation management and supply chain, will motivate the academia and industry to adopt and achieve efficient and effective goals in this field of Food Supply Chain.

Keywords: Blockchain Technology, Buyer-Supplier Relationships, Transparency, Food Supply Chain, Digitalization, Traceability, Safety, and Sustainability Issues.

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BUYER-SUPPLIER'S TRUST RELATIONSHIPS AND SOCIAL BONDING MECHANISMS IN THE SMALL AND MEDIUM ENTERPRISES: INVESTIGATING THE IMPACT AND UTILIZATION OF BLOCKCHAIN TECHNOLOGY

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ABSTRACT

Depending on the companies' actions, customers will either increase or decrease their trust in the quality of the products the companies provide. Monitoring buyer experience provides competitive advantages for suppliers as buyers explore the market before reaching a salesperson. Still, not many B2B suppliers monitor their buyers' expectations throughout their procurement journey, especially in MSMEs and SMEs. In the previous decades, buyer-supplier relationships have been supply chain management's primary focus and aspiration, retaining the notion that trust, duty, and long-term direction are vital forerunners to viable buyer-supplier connections (Trautmann et al., 2009). Creating and developing trust between all levels of companies, specifically between suppliers and consumers, is essential for achieving effective supply chain performance. Different conceptual models seeking to understand the outcomes of buyer-supplier relationships in supply chains, were proposed by many authors among them: Sapukotanage et al. (2016), Johnston et al. (2004), and Ambrose et al. (2010). Gullet (2010) identified trust, distrust, and trustworthiness as interdependent factors that influence the relationship between buyers and suppliers. Paluri and Mishal (2020) identified 40 trust antecedents among them are cooperation, information sharing, communication, shared values, and supply chain planning. This is followed by dependence on customers, which leads to customer trust, where customer integration improves the organization's financial results (Zhang & Huo, 2013); and dependence on suppliers, which leads to supplier trust and supplier integration, which impact the organization's financial results positively (Zhang & Huo, 2013). On the other hand, the consequences of trust are collaboration, commitment, performance, and relational outcomes such as stability, relationship commitment, satisfaction, and transaction cost. Moreover, relationship commitment is guided by team and individual trust and leads to collaborative performance (Paluri & Mishal, 2020). To create the buyer-supplier relationship, social bonding strategies include interpersonal interactions

and friendships. Structural bonds reflect a variety of economic, strategic, and functional characteristics that provide exchange partners with tangible business benefits (Rodríguez & Wilson, 2002). Two social dimensions of buyer-supplier relationships' tactics are management ties and information exchange. Managerial relationships are a trust-based mechanism that can be easily exploited by the weaker side. These connections encourage reciprocal trade, consumer loyalty, and sales, as well as facilitate prompt payment from customers. The power used by the side with greater power can be influenced by the party with less power. The long-term relationship between exchange partners is influenced by the interplay between the power structure and management ties. Supplier information sharing is a crucial element of social bonding for the buyer, as it is necessary for establishing a long-term partnership between buyer and supplier, which requires constant communication to sustain strategic, operational, and technological integration (Hult et al., 2004). It is believed that Blockchain-based payment systems provide faster, more secure, and cost-effective cross-border transactions. For international SMEs, this technology can eliminate the need for intermediaries, reduce transaction fees, and enable faster settlement. However, in contemporary times, the ubiquity and significance of Blockchain technology across various sectors, notably the small and medium-sized businesses (SMEs) in the food and beverage industry, which are especially vulnerable to changes in their external environment (Johnson et al., 2017), are undeniable. Blockchain technology serves as a peer-to-peer distributed data infrastructure facilitating record-keeping and value transfer. The methodology in this research is qualitative based on interviews addressed to the buyers and suppliers within the food industry. This study expands the understanding of trust dynamics in buyer-supplier relationships by integrating blockchain technology as a moderating factor. It also adds to the existing body of literature on supply chain management by exploring the interplay between trust, social bonding, and technological integration. The findings provide practical insights for SMEs in the food and beverage industry, demonstrating how blockchain technology can enhance trust and cooperation between buyers and suppliers. Managers can leverage these insights to improve supply chain performance and foster stronger, more reliable partnerships. This abstract intends to explore the potential applications of blockchain-based technology, its benefits and limitations, especially in increasing or decreasing the level of trust and improving or diminishing the social bonding between parties in the small and medium-sized businesses (SMEs) especially in the food and beverage industry.

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ETHICAL AND UNETHICAL PRACTICES WITHIN THE FOOD SUPPLY CHAIN: EXPLORING THE ROLE AND APPLICATION OF BLOCKCHAIN TECHNOLOGY

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ABSTRACT

Many countries globally are experiencing food crises due to a combination of factors that require external support to address any critical problems with food insecurity. In addition, many countries in the MENA region engage in unethical practices in the food supply chain, including Jordan, Palestine, Turkey, Cyprus, and Saudi Arabia. Unethical practices range from bribery to corruption, defects, and food fraud. Different factors play a critical role in food production. For example, animal welfare, customer and employee safety and protection, the use of natural resources, the country's raw materials in terms of quality and safety, the global trade between buyers and suppliers, and the changes in temperature that affect crops. In an example of food fraud, Trudel and Cotte (2009) stated that consumers preferred ethical products over unethical ones and were willing to pay for them even though they were more expensive. Any misconduct or unethical behavior will disrupt the relationship between buyers and suppliers, indicating that some members of the supply chain were responsible for this illegal or unethical act. As stated by Kaynak et al. (2015), the buyers blame salespeople for faulty or defective products; however, the main problem rests with the suppliers, since they are responsible for assembling the raw materials and distributing the products to the market. Therefore, it is essential to control all the processes from the point of origin to the end consumers. Even though a code of ethics is beneficial and useful for companies, it is not a guarantee that they will implement ethically responsible behavior in the marketplace (Nijhof et al., 2003). Companies such as Enron, Worldcom, Arthur Andersen, and Parmalat destroyed their market reputations by engaging in unethical behaviors, leading to dire situations. In addition, several firms, such as Skandia and Systembolget, were accused of bribery and ethical violations (Dibra, 2016). Companies must emphasize the importance of developing their managers' ethical decision-making skills in order to resolve ethical issues in supply chains. Therefore, greater effort should be dedicated to establishing norms that encourage ethical judgments. Furthermore, in-house ethical training programs could be useful in the future, particularly if rewards and benefits are offered to managers, so that they could act or judge ethically with a reduction in unethical practices (Ha & Nam, 2014). Companies engaging in unethical

practices affect supply chain relationships, compelling firms worldwide to prioritize business ethics as a critical strategic action (Ha & Nam, 2016). When making ethical decisions, values and judgments are regarded as crucial variables based on the circumstances of the specific situation (Ferrel et al., 2011). With the rapid advancement of information technology and the emergence of internet-based e-commerce, enterprises began to focus on improving the supply chain's performance and the strategic partner relationship of the supply chain network (Cui, 2018). The food technology sector is constantly changing, with new advances and breakthroughs every year. Advances in technology and industrialization may give consumers the opportunity to increase their knowledge about food producers and the quality of the product through the labels found on them. Nowadays, no one can deny the presence and importance of Blockchain technology in different fields especially in the food industry. As a distributed digital ledger technology, the blockchain technology works as a "peer to peer" distributed data infrastructure that can be used for recordkeeping and the transfer of value, with potential applications in multiple sectors including for supply chain management and logistics. In the agri-food supply chain, the blockchain technology shows promise for ensuring traceability and transparency of product information as fundamental differentiators (Kim et al. 2019). While the relationship between blockchain technology and supply chains have been widely investigated (Treiblmaier, 2018), the research on the application of blockchain technology in food supply chain is still at the embryonic stage especially when it comes to ethical practices. The main gap in this study is the lack of concrete exploration into the specific applications of blockchain technology in addressing ethical issues within the food supply chain. Additionally, how exactly blockchain can be utilized to mitigate unethical practices such as bribery, corruption, defects, and food fraud, requires further investigation. Therefore, there is a need for further research to bridge this gap by conducting comprehensive studies that explore the practical implementation of blockchain technology to promote ethical practices in the food supply chain industry. Regarding the methodology, an analysis of the existing literature will take place to establish a foundational understanding of ethical issues within food supply chains and the potential of blockchain technology to address them, followed by a gathering of the primary data through semi-structured interviews with different food firms from the MENA region countries, alongside secondary data from reports, publications, and industry sources, to enrich the study with diverse perspectives and empirical evidence. Thus, developing a framework for evaluating the ethical implications of blockchain implementation in food supply chains, ensuring a systematic approach to assessing its impact on ethical standards, designing a strategic plan for integrating blockchain solutions into food supply chains, and outlining practical steps for leveraging blockchain to address identified ethical challenges effectively, is critical in this research.

This abstract intends to explore the potential applications of blockchain-based technology to agri-food supply chains, its benefits and limitations, especially in deploying ethical practices and reducing unethical practices in the food supply chain industry. In other words, the study aims to explore how blockchain technology can enhance traceability and transparency of product information, ultimately improving the ethical standards of food production and distribution. Additionally, it intends to suggest approaches to overcome challenges associated with implementing blockchain technology in this context. As for the contributions, the abstract, mainly the research will contribute in exploring the potential of blockchain technology in agri-food supply chains, emphasizing its role in promoting ethical practices: it provides insights into how blockchain can enhance traceability and transparency, thereby improving ethical standards in food production and distribution; by identifying both benefits and limitations, the abstract offers practical guidance for researchers, policymakers, and industry stakeholders. Furthermore, it suggests approaches to overcome challenges associated with implementing blockchain technology, encouraging further research in this under-investigated area. Overall, this research contributes to advancing the knowledge and understanding of how emerging technologies like blockchain can be leveraged to address ethical issues within the food supply chain industry.

Keywords: Ethical Practices, Unethical Practices, Blockchain Technology, Food Supply Chain, Technology, Food Fraud Consumer Behavior.

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PORTFOLIO OPTIMIZATION BASED ON LOCAL DEPENDENCE FUNCTION IN FINANCIAL ASSET SELECTION

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ABSTRACT

Efficient portfolio optimization is a fundamental goal for investors to achieve risk-return trade-offs. At the center of this goal is the process of asset selection where the choice of assets influences the performance and risk of the created portfolio. Due to the growing number of available assets, this selection process requires innovative methods as it becomes a computationally challenging task (Haugh and Lo, 2001). The significance of effective asset selection cannot be understated. Quantitative traders, portfolio managers, and investment advisors benefit from various asset selection techniques that improve risk-adjusted returns and portfolio resilience.

In this study, we propose a new approach during asset allocation using the local dependence function introduced by Bairamov and Kotz to overcome the challenges of asset selection (Bairamov and Kotz, 2000). Local dependence function is a measure that can capture the dependencies between variables locally rather than globally which provides more insight on the relationship compared to existing measures. We incorporate the modified local dependence function proposed by Tutuncu et. al to capture the dependencies among assets into the optimization model and enhance the accuracy of the portfolio (Tutuncu et. al, 2021). The main objective of the study is to evaluate the success of our proposed method using computational analysis and comparative studies.

Our study involves collecting and preprocessing historical stock price data obtained from NASDAQ100, construction of local dependence matrix and portfolio optimization using efficient frontier framework. The computational performance analysis of using local dependence function for asset selection demonstrates the effectiveness of our approach to achieve high return and low risk trade-off. A comparison between Pearson's correlation and local dependence is also provided and it offers a more insightful view of our approach compared to traditional measures.

Keywords: Portfolio Optimization, Asset Selection, Stock Exchange, Correlation, Local Dependence, Efficient Frontiers

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CULTURE-DRIVEN URBAN REGENERATION: TRANSFORMING CITIES THROUGH CREATIVITY AND TECHNOLOGY

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ABSTRACT

The article investigates how culture and technology are reshaping the role of cities and their contributions to public value creation. A multiple case study approach is used to examine successful urban regeneration projects through culture and technology, with a focus on redevelopment of "postindustrial cities". Furthermore, it analyzes the transition from industrial activities towards activities related to the fields of culture, creativity, and tourism, capable of enhancing a sustainable economic and social revitalization. For this purpose, the article aims to illustrate how creative and cultural branding strategies can modify the former image of an industrial city and renew the local specializations representing a territory's identity. The article considers the role of culture-driven urban regeneration central in creating new forms of entrepreneurialism able to promote a sustainable urban development and contributing to public value creation.

Keywords: Public Value, Urban Regeneration, Urban Branding, Cities, Cultural products, Creative Industries, Technology.

THE EFFECT OF THE NUMBER OF CONTROLS ON USER PERCEPTION OF INTERACTIVE PRODUCTS

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ABSTRACT

INTRODUCTION

As technology evolves, adding enhanced functionality to products becomes more feasible. This development is highlighted in the works of Thompson et al. (2005), who note that both software and hardware advancements have paved the way for more functional interactive products with fewer controls. Tannen (2009) further explains how automation has revolutionized the execution of complex processes, making them accessible at the click of a button. Despite these advancements, a primary challenge for manufacturers and designers of interactive products remains to comprehend consumer preferences (e.g., Eytam, 2023). Experts in Human-Computer Interaction (HCI) advocate for simplicity in design, suggesting that consumers prefer a limited number of user-friendly controls. Researchers such as Norman (1988), Nielsen (1999), and Maeda (2006), support this perspective. They argue that designs with fewer controls not only facilitate efficiency and effectiveness but also enhance clarity, ease of learning, and operation by focusing on essential features and eliminating the superfluous. This minimalist approach to interactive product design, prominently led by Apple's aesthetic innovations and Google's single-control search interface, has been a successful marketing strategy. However, contrasting this trend, Norman's studies from 1998, 2007, and 2010 indicate that products with multiple controls often enjoy higher sales and pricing. This discrepancy suggests a complex relationship between expert design principles and consumer purchasing behaviors, revealing an intriguing aspect of product design and marketing.

PURPOSE

The primary goal of this research is to investigate the notable disparity between expert recommendations for minimalist control designs in products and the consumer inclination towards choosing products with multiple controls. Our approach involved conducting two sequential studies. The first study utilized a qualitative methodology, relying on interviews to gather insights. The second study employed a quantitative approach, focusing on the measurement of user preferences. Through these studies, we aimed to analyse and document the impact of the number of controls on

user preference and their perception of product quality. This exploration seeks to provide a deeper understanding of the factors influencing consumer choices and product design preferences.

METHODOLOGY

Twenty individuals with diverse ages, genders, and professions participated in semi-structured interviews for this study. The initial segment of each interview involved presenting the participants with ten generic illustrations of product control panels. These illustrations were intentionally designed to be ambiguous, not revealing the intended use or purpose of the products. Each control panel varied in the number of controls, simulating a scenario where individuals assess a product prior to actual usage. In the second segment of the interview, we inquired about the participants' typical methods for evaluating products and the specific product attributes that influence their purchasing decisions. Following this, a separate study was conducted with 114 participants. In this phase, they were asked to express their preferences concerning 30 different illustrations of interactive products, each featuring a varying number of controls. These controls were categorized into four distinct types based on their shape (round or rectangular) and size (large or small), allowing us to observe preferences in a more nuanced manner. This methodical approach aimed to provide a comprehensive understanding of how control design influences consumer preferences.

RESULTS

The qualitative study uncovered a unanimous trend among participants: the number of controls on a product was consistently used as an indicator of its quality. However, when we analyzed the data based on the age groups of the participants, a pattern emerged. For those aged 30 and above, a smaller number of controls was often associated with ease-of-use, but they also perceived it as a sign of limited functionality. This demographic tended to view each control as representative of a single feature, leading them to conclude that fewer controls equated to fewer features. Conversely, participants younger than 30 shared the perception that fewer controls suggested ease of use, but their interpretation differed significantly from the older cohort. This younger group associated fewer controls with advanced automation, perceiving such products as more innovative and capable of higher functionality. Despite these differing perspectives on innovation and functionality, both age groups agreed that products with a larger number of controls appeared more challenging to use yet were likely to offer a broader range of functionalities. This insight highlights the complex relationship between user perception of product design and age-related user expectations. In the quantitative study, participants were asked to use a Likert scale (containing a range between one and seven) to rate their preferences among illustrations of panels that presented different numbers of controls. The

results revealed that the number of controls included in the panel was significantly and negatively correlated to the preference ratings of the product. The highest preference (with a scale rating higher than five) was given to panels with three or four controls. The lowest preference (with a rating lower than four on the scale) was given to the panels with more than 42 controls. Panels with a single type of control were judged as easier to use than those with two to four types of controls. The presence of a greater variety of control shapes and sizes was judged as more difficult to use. Shape and size of the controls together with their number served as significant predictors of product quality perception.

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CIRCULAR ECONOMY IN THE LITHIUM-ION BATTERY INDUSTRY: STATE OF THE ART IN MANAGEMENT LITERATURE

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ABSTRACT

Scarce resources and pollution have increased interest in circular economy models also in the lithium-ion battery sector (LIB) (Gu et al., 2017; Liu et al., 2019; Kim et al., 2021). The industry (LIB) is growing and there is a need to manage the supply chain and sustainable use of these systems in the mobile consumer devices, industrial and domestic equipment, stationary energy storage systems, and electric mobility markets (Hanish et al., 2015; Tsiropoulos et al., 2018; Winslow et al., 2018; Martins et al., 2021; Chizaryfard et al., 2023).

The current scientific production on LIBs seems to have a predominantly technical-engineering character focused on realisation, production and recycling. At the same time, there is no relevant research work on economic-managerial topics studying the topic of the circular economy in the LIB industry.

By means of a bibliometric investigation, the literature on the circular economy in the LIB industry was deepened by extracting useful concepts to define managerial implications and possible future studies from a management perspective.

Bibliometric analysis makes it possible to analyse the current state of the art (Mukherjee, 2022; Fan et al., 2022) and, through the application of quantitative techniques on bibliographic data (Donthu et al., 2021), provides useful insights, identifying theoretical and practical implications and capturing emerging trends. Through the query (("batter*") and ("lithium-ion" or "li-ion") and ("recycl*" or "reus*" or "recover*" or "redesign*" or "regenerat*" or "remanufactur**" or "redefin*" or "repair*" or "reform*" or "refus*" or "rethink*" or "reduc*" or "reclaim*" or "reprocess*" or "circular economy" or "circularity" or "circular*")) data were extracted from Scopus for the definition of the dataset (limit categories: Business, Management and Accounting, English language, scientific articles and grey literature). After reading the selected papers (338), each individually, we eliminated those inconsistent with the work (15) obtaining a dataset of 323 contributions.

Using Bibliometrics, through performance analysis we examined the evolution of productivity and the impact of research on the topic of investigation (Mukherjee, 2022).

The scientific production is unevenly distributed between 2002 and 2016. An increasing trend is registered between 2016 and 2020. After a reduction in contributions in 2021, from 2022, an albeit minimal growth is recorded from 2023. Growth is expected for the current year, as productivity has

exceeded that of the year 2023 by more than 50 percent. The discontinuous trend is also noted when calculating the average citations per year, with a maximum level found in 2018 (13.5) followed by a decreasing trend until 2023 (1.46). A further decrease is also likely to occur by 2024 since it stood at 0.004 as of the date of the analysis. The journal considered most relevant in terms of publications available is Journal of Cleaner Production (208 articles) followed by journals with smaller numbers of publications. The most productive author is Na N. with 20 articles published with discontinuity between 2002 and 2022. However, his articles have a very low number of citations per year. He is followed by Zhang Y. with 17 articles and a number of citations per year with values above 70 in 2018 and 100 in 2019, and Li J. with 10 articles between 2018 and 2024 and a good number of citations. Three Chinese universities are at the first places for research interest in circular economy in LIB industry; USA and Germany follow. The 10 most cited papers were published in Journal of Cleaner Production with citations ranging from over 180 to over 470. In the most cited article, Lipu et al. (2018) compare models for estimating the health and remaining life of LIBs. The results show that LIB recycling via hydrometallurgical, pyrometallurgical and direct recycling systems is relevant for market and sustainability objectives.

Science mapping (Zupic, Čater, 2015), using VOSViewer, enabled the identification of 4 thematic clusters (with a total of 20 items of a managerial nature - Figure 1 - comments in table 1) after selecting keywords (149) that recur 5 times and using the thesaurus.

Figure 1 - Output of co-occurrence analysis
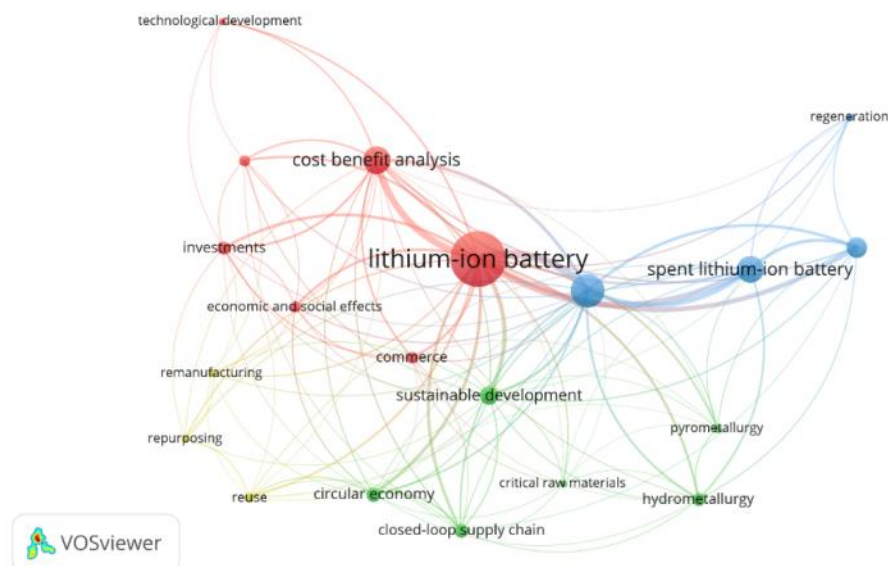
Source: our elaboration

Table 1. Comments to the clusters		
Cluster type		Items
1	RED – 7 items	lithium-ion battery (main node), commerce, cost benefit analysis, decision making, economic and social effects, investments, technological development
The keywords in this cluster are related because the decision-making process is based on the cost-benefit analysis, economic and social effects of investments for the technological development of LIB in a circular economy model.		
2	GREEN - 6 items	sustainable development (main node) circular economy, closed-loop supply chain, critical raw materials, hydrometallurgy, pyrometallurgy,
The emerging theme concerns the implementation of circularity and closing the supply cycle through hydrometallurgical and pyrometallurgical processes to recover critical materials from lithium batteries, thus contributing to sustainable development.		
3	BLU – 4 items	recycling (main node), recovery, regeneration, spent lithium-ion battery
The focus is on enhancing the circular economy through recycling, recovery and regeneration of materials extracted from spent lithium batteries with positive effects on the useful life and environmental impact of your disposal.		
4	YELLOW – 3 items	reuse (main node), remanufacturing, repurposing
In this cluster circular economic process practices are emphasised by extending the life of products, maximising the use of available resources and reducing the consumption of natural resources.		
Source: our elaboration		

The findings highlight a prominent focus on technical-engineering aspects in the current literature regarding LIB markets. The lack of scientific research on management and business within this market is attributed to its dynamic nature, marked by significant recent changes. Battery production predominantly relies on virgin raw materials, with only recent attention given to themes of reuse and recycling, driven by environmental concerns and the expansion of electric vehicle and solar panels for buildings.

The focus on reusing, recycling, and developing a circular economy for batteries primarily stems from corporate social responsibility and environmental concerns rather than cost considerations. Some countries enforce laws requiring a percentage of recycled materials in battery production. Despite this, research on business models, management, and marketing in these areas is still nascent. However, there's anticipation for increased interest due to emerging opportunities for companies to optimize processes, address relational challenges, and adapt to market dynamics. This suggests several implications (Table 2) for companies and practitioners to consider in the medium to long term.

Table 2. Practical implications
The role of relationships between companies in lifecycle management. Looking at the evolution of markets, complex contractual relationships among companies of different sizes will emerge in the entire process of managing the circular economy. Relationships will be shaped by evolving laws or, differently, by evolving batteries adoption.
Strategic resource management choices. The evolving batteries markets is shaping global relations, supply chain management strategies and the dynamics of creation and transfer of economic and non-economic value in the procurement and processing and assembly of materials and components, even considering sustainability management and circular economy perspectives.
Strategic B2B and B2C relationships. The circularity in the LIB market can derive from the company side, looking at the relationships and strategic agreement among companies within the LIB market from the raw material procurement till the production and application of the battery on devices. At the same time, the interest of consumers in adopting of different types of devices powered by batteries can be different and it can change looking at the multiple solutions on the market where the battery can be integrated to the device or, differently, it can be considered in the product-as-a-service solution.
Source: our elaboration

About the future research, we intend to deepen this study by triangulating the results through quantitative content analysis. One of the main limitations of this research is due to the composition of the dataset, which could be expanded by using additional databases to validate and extend our study.

Keywords: circular economy, lithium-ion battery, sustainability, management literature, bibliometric analysis, content analysis.

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LGBTQ-THEMED ADVERTISING: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

INTRODUCTION

In the past five decades, researchers from a wide variety of disciplines such as marketing, psychology, sociology, and health have produced relevant documents on advertising targeting LGBTQ consumers. Nevertheless, it resulted in fragmented knowledge that creates a real challenge for researchers in tracing the evolution of the research focus. This focus has moved from the debate on how to present gay imagery to the comparison of mainstream and gay window ads, and later to the analysis of the effects of advertising targeting LGBTQ consumers, considering the gender of participants and actors. More recently, the research focused on the measure of attitudes toward advertising and homosexuality (Gong, 2019; Oakenfull et al., 2008; Puntoni et al., 2011) and processing advertising information (Bhat et al., 1998).

We apply bibliometric analysis to enhance the understanding of advertising targeting LGBTQ consumers. We aim to uncover research trends by closely examining thematic clusters, assessing the maturity of the research topic, and suggesting potential directions for future studies.

METHODOLOGY

Researchers from different fields use bibliometric analysis when studying various marketing topics, such as brand relationships and comparative advertising (Donthu et al., 2021). Our paper considers the best practices that should be followed to overcome the limitations of this type of analysis (Archambault and Gagné, 2024; Donthu et al., 2021; Keathley-Herring et al., 2016; Snyder, 2019), namely potential biases in selection and interpretation associated with qualitative reviews (Montecchi et al., 2024).
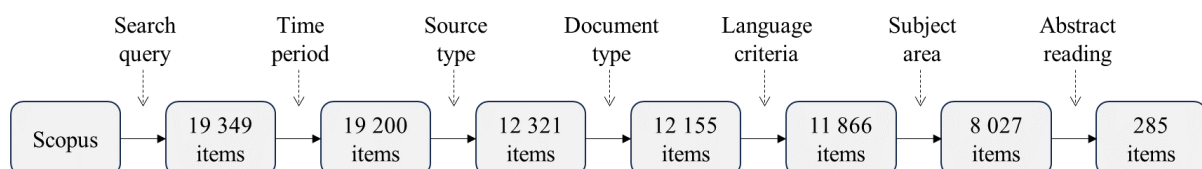
Figure 1: Summary of the screening process (authors' elaboration)

In February 2024, we obtained 19,349 papers from Scopus, the largest high-quality multidisciplinary database for peer-reviewed literature in social science research (Donthu et al., 2021; Kumar et al., 2021; Veloutsou et al., 2021). We targeted focal keywords (such as lgb*, glb*, queer, gay, lesbian, transgender, homosexual) and contextual keywords (e.g., adverti*) within the titles, abstracts, and keywords of documents, covering publications from 1976 to 2023. Our focus was solely on journals and conference proceedings, considering articles, reviews, and conference papers. We excluded non-English-language documents and those outside the scope of Social Sciences, Business, Management, and Accounting, Economics, Econometrics, and Finance, and Multidisciplinary subject areas.

Based on the final dataset, we scrutinized titles, keywords, and abstracts of all retrieved documents, resulting in the exclusion of 7,742 documents that were outside the study's scope. The next step consisted of eliminating duplicates and erroneous entries, such as articles without authors, and adding missing information, following the guideline that each author should have only one valid affiliation at the time of publication (Donthu et al., 2021). Additionally, we corrected misspellings in keywords, and standardized words, and ignored differences between singular and plural forms, acronyms, mixed wording, and variations between American and British English.

RESULTS

We used different bibliometric techniques described by Donthu et al. (2021) that allowed us to identify the most productive countries, journals, influential authors, papers, and research clusters.

We divided the 285 documents into three periods of time, based on insights from the queer theory (Kates, 1999): 1976-2011, 2012-2019, and 2020-2023. The average yearly publications were 4, 11, and 26, respectively, suggesting a growing academic interest in the topic of advertising targeting LGBTQ consumers. Documents with North American (174) and European (56) affiliations account for 93%, 84%, and 76% of each period, respectively. Representing a quarter of the citations, 47.72% of the documents were published between 2017 and 2023.

The top 5 journals, all ranked in Scimago's Q1 category (SCImago, 2023), account for a quarter of the documents retrieved in Scopus: Journal of Homosexuality (35), Journal of Advertising (16), International Journal of Advertising (8), Tobacco Control (7), and Journal of Advertising Research (6). The 142 journal titles that published the 285 documents reflect a broad spectrum of research interests, and the high quality of these sources is assured by 89% of the journals classified as Q1 and Q2.

Among the 545 authors that contributed to the 285 publications, 105 researchers solely authored 120 items, while the remaining collaborated as co-authors. Notably, Ciszek E. and Oakenfull G.K. each have an H-Index of 6, with 7 and 6 publications, respectively. Um H.-H. and Eisend M. present an H-

Index of 5, supported by 6 and 5 publications respectively. Although Grier S.A. ranks in fifth with an H-Index of 4, based in 4 articles, he is a co-author of the 2 most highly cited articles with 216 and 191 citations.

Using VOSViewer, we have identified 6 keyword clusters. The top keywords, collectively accounting for half of the occurrences, are advertising, human, male, female, homosexuality, adult, article, lesbian, gender, LGBTQ, sexuality, marketing, and United States.

FINDINGS

Our study corroborates the idea that academic research focus shifted from the debate over whether to include homosexuality imagery in advertising to the study of factors influencing perceptions of homosexuality (Gong, 2019). During the 1990s, brands applied techniques like gay window advertising, using ambiguous images of sexual preferences to create ads identifiable by LGBTQ consumers while remaining vague to mainstream consumers. Another technique involved the use of implicit gay imagery, such as iconography and symbolism (Grier and Brumbaugh, 1999; Penaloza, 1996). However, recent studies suggest that including homosexual portrayals in mainstream advertising may be less risky than marketers expect, as it may not negatively affect consumer attitudes toward the brand and the product, nor consumer purchase intentions (Holz Ivory, 2019). The selection of keywords by authors over time reinforce this conclusion.

The analysis also unveils new focuses of research on advertising targeting LGBTQ consumers: the studies exploring representation and storytelling, considering authentic stories as tools for inclusion (Zayer et al., 2023), and the emergence of rainbow-washing topic points out the growing attention to the authenticity of LGBTQ-focused advertising efforts (Zayer et al., 2023).

CONTRIBUTION OF THE STUDY

Our study is the first bibliometric analysis on the topic of advertising targeting LGBTQ consumers. We integrate publications from various disciplines, not only contributing to the broad understanding of the evolution, status, and trends of the research topic, but also proposing future research directions.

Our contribution to managers consists in the identification of contemporary concerns, namely authenticity issues, that will benefit the companies' advertising strategies and the way they communicate with LGBTQ consumers.

Keywords: LGBT, Bibliometric Analysis, Advertising, Advertisement

ACKNOWLEDGMENTS

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BUSINESS MODELS APPLIED TO THE INTERMODALITY OF PERISHABLE PRODUCTS

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ABSTRACT

In recent years, public administrations have attempted to promote a shift from road transportation to maritime transportation, through intermodality, to achieve a rebalancing of the transportation sector. In theory, this change would not only have positive effects on the environment and society as a whole but also for the companies involved. However, supply chain members continue to be reluctant to apply this change (Pérez-Mesa, 2022). In every real competitive situation, the particular characteristics of the company, sector circumstances, and competitor details present unique challenges and opportunities. In this context, this study proposes that the concept of a business model can become a useful integrative framework for strategy formulation and execution.

The main objective of this study is to discover new arguments in favor of promoting intermodality for the transportation of highly perishable products, beyond those merely related to shortening transit times or reducing costs. Through a literature review, this study aims to identify innovative examples of business models that are facilitating the implementation of intermodality in transportation, meaning the actual application of modal shift strategy. Specifically, it aims to promote intermodality based on short sea shipping (SSS) specifically for perishable products in the agri-food sector. This particular case is especially challenging due to the need for rigorous supply chain management, as food quality and safety may be compromised during transportation.

The BM is a practical tool that allows describing and analyzing how a company carries out its activities. This description may include several components, with the most common being (Richardson, 2005): 1) offering; 2) target audience; 3) main strategy; 4) necessary resources and capabilities; 5) organization of the value chain; 6) position in the value network; 7) revenue source; 8) business economics. The BM plays a fundamental role in the execution of business strategies by providing the structure and means to implement and achieve the organization's objectives (Mikl et al., 2021). On the other hand, intermodality refers to the coordinated and efficient use of different modes of transportation (road, rail, maritime, air) to carry out a logistics chain or journey in an integrated and uninterrupted manner. Intermodality seeks to optimize resources, reduce costs and times (Yakavenka et al., 2020), and minimize environmental impact (Rossi et al., 2021).

A priori, the intersection between business models and intermodality has a special opportunity for development in the transport and logistics sector through 1) innovation, where transportation and logistics companies can innovate in their business models to offer more efficient and attractive intermodal solutions to their customers; for example, integrated logistics services simplifying processes for customers and reducing costs (Monios and Bergqvist, 2015). 2) Improvement of collaboration and coordination, meaning other business models based on stable formulations may exist, where business collaboration within the supply chain is the key component (Stål et al., 2022). 3) Application of technology and digitization: technology plays a fundamental role in optimizing intermodality and improving business models in the transportation sector. In this sense, from an operational perspective, the digitization of logistics management represents the catalyst in the development of successful business models that can improve business sustainability (Pal and Kant, 2019) and, therefore, accelerate the implementation of the modal shift process. In summary, business models and intermodality are closely related in the transportation and logistics field, as both focus on efficiency, resource optimization, and delivering value to customers. Innovation, collaboration, and technology are key to making the most of the opportunities offered by these concepts.

Keywords: business model; innovation; intermodality; supply chain; perishables.

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MAPPING GAMIFICATION IN THE CONSUMPTION CONTEXT: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

This research provides an overview of the current state of the art in gamification. To do this, a systematic review of the literature (Tranfield et al., 2003; Loureiro et al., 2020) was conducted to map gamification. This systematic analysis is composed of articles, conference papers, and books published between 2004 and October 2023. This study analyzes the objectives, methodologies, theories, constructs (antecedents, moderators, mediators, consequences), main conclusions, main gaps, limitations, and indications for future research, that are relevant to this research.

Figure 1. Screening process
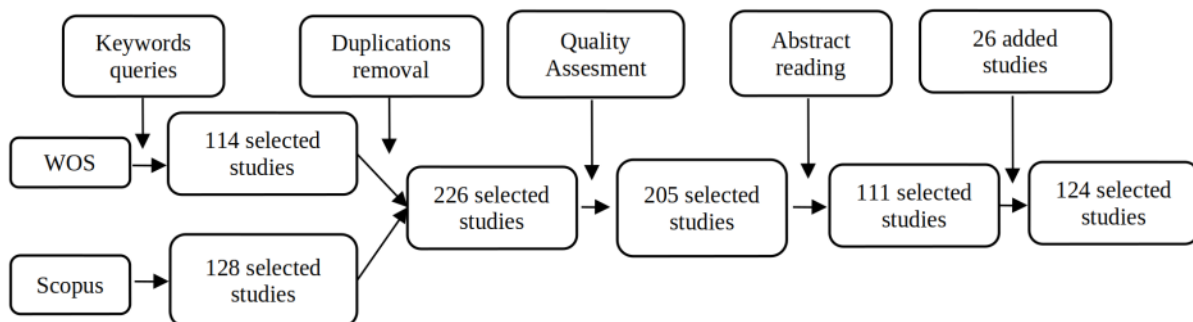
Source: author's elaboration

The studies for this research were extracted from two large online libraries, Web of Science and Scopus, from which 114 and 128 studies were extracted respectively. First, regarding the extraction on two different platforms, duplicate studies were removed (16 studies). Subsequently, quality was assessed, considering the rank of journals in Scimago 2022 (SJR 2022) and JCR 2022 that are between quartiles 3 and 1, thus reducing the list to 205 studies. After that, the content of the title and abstract was assessed and 94 studies that were not relevant to this research were removed.

After reading the 111 studies, 13 studies were removed for not having relevant content and meeting the quality criteria applied in other studies. (Macpherson and Holt, 2007; Pittaway et al., 2004). Furthermore, it emerged that 26 studies were constantly being cited, but were not included in the initial search. Therefore, given the relevance of these studies, they were included. Most of the studies added (16) with relevant citations are from the sector technology and, therefore, they were included in

this systematic review, which thus left the final number of 124 studies to analyze, of which 82 are articles, 41 are conference papers and 1 is a book (see figure 1).

From 2013 to 2023, around 82 articles were published in various journals, such as Computers in Human Behavior, International Journal of Information Management, Journal of Interactive Marketing, International Journal of Retail and Distribution Management, and Business Horizons of which represent 22% of this type of document. The year with the highest number of publications was 2022. In that year there was a wide variety of journals that contributed to the scientific community (21% of all journals with publications) since there was one publication per journal. Some examples of journals that were published that year are: Electronic Commerce Research and the International Journal of Advertising and Tourism Management.

In terms of conference papers, 41 studies were published at the following conferences: CEUR Workshop Proceedings, ACM International Conference Proceeding Series, and SIGCSE 2021 - Proceedings of the 52nd ACM Technical Symposium on Computer Science Education of which represent 22% of all conference papers. Similar to articles, the number of publications has been increasing over the years, with the first year there was a study published being 2004 and the year with the highest number of publications being 2020.

Concerning the sectors used by the studies analyzed in this literature review, 27% of the studies deal with gamification in general. In terms of specific sectors, most studies are aimed at the Education (31%), Retail (15%) and Healthcare (8%) sectors.

Concerning the methodologies used in the studies, 52 are quantitative, 38 are qualitative, 20 are literature reviews, 10 are mixed methods and 4 are conceptual.

Regarding the theories used, 93 theories were identified throughout the studies analyzed, but only 11 theories (12% of all theories) were cited more than once.

The most referenced theories in the studies analyzed in this research are, as follows, Self-Determination Theory (Deci and Ryan, 1985), Flow Theory (Csikszentmihalyi, 1975), MDE Framework (Plangger et al., 2016), MDA Framework (Hunicke et al., 2004), TAM (Davis, 1989), Theory Planned Behavior (Ajzen, 1988, 2020; Sussman and Gifford, 2019) and Stimulus-Organism-Response (Woodworth,1929).

The systematic analysis of the literature also identified the main constructs used in this field of research. The most frequent antecedents are Gamification (33%), followed by Challenge (6%), representing a total of 39% of the antecedents, where the rest are used only in the respective article. Within mediators, the most frequently used are Customer Experience (14%) and Emotions (7%). The moderators, on the other hand, there is no discrepancy in the variables, with only one use per article, e.g. moderators: Customer Engagement, Price Discount, Satisfaction, and Perceived Usefulness.

Finally, consequently, the most frequent variables are Behavioral Intention (8%), Customer Intention (8%), and Perceived Learning (5%).

The findings of this systematic literature review provide a framework to show the main constructs and relationships used to study gamification, present gaps in the literature, and point to avenues for future research, as well as provide businesses with some pointers for best practices.

Keywords: Gamification, Customer Experience, Systematic Literature Review, Gameful Experience, Gamified Experience, Retail

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TEACHERS' BURNOUT SYNDROME IN PUBLIC SPECIAL SCHOOLS IN GREECE IN THE POST COVID 19 ERA

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ABSTRACT

CONCEPTUAL BACKGROUND

The present study investigates the burnout syndrome among secondary education school teachers, who work in public special schools in the city of Piraeus in Greece. As we are going through a very difficult period because of the post-Covid era, the wars, and the migration waves teachers face many challenges in the workplace (Linos *et al.,* 2021). Moreover, teaching in special education schools is often overwhelming and stressful (Rohmer *et al.,* 2024). Teachers report increased levels of stress, communication difficulties, and a lack of administrative support (Pressley, 2021). Specifically, a report addressed to UNESCO (Holmes *et al.,* 2020) emphasizes the importance of studying the psychological effects of factors such as burnout, so that the acquired knowledge can be used to prevent and alleviate the difficulties teachers face. Maslach and Jackson (1981) define burnout syndrome as a psychological syndrome that consists of three components: 1) emotional exhaustion, 2) depersonalization, and 3) reduced personal achievement, which can occur among people who work with other people and especially in the service sector, and after a short time can become chronic, resulting in negative health changes (Edú-Valsania *et al.,* 2022). The root of burnout syndrome lies mainly in the working environment (Maslach & Leiter, 1997). However, each person is affected by personal risk factors that make them vulnerable (Ramírez-Elvira *et al.,* 2021). Burnout is a multidimensional phenomenon that arises when an individual's capacity to manage stress results in feelings of physical and emotional exhaustion, cynicism, and unfulfilled accomplishment (Garwood, 2023). Especially teachers in special education are at high risk of job burnout (Garwood et al., 2018). Burnout in conjunction with other illnesses can affect the educational system by influencing the objectives of instruction, the learning environment, and the caliber of learning, and can result in withdrawal from the relationships between students and teachers and feelings of inadequacy which unintentionally harm the class and the whole school (Brittle, 2020). These elements may intensify problems related to teacher burnout, leading to medical, psychological, and social issues, reduction in productivity, and unfavorable outcomes for the teaching and learning processes of students (Li et al., 2020; Ramos et al., 2023). A survey by Küçüksüleymanoglu (2011) shows that teachers who work with students who have special educational needs and disabilities are more vulnerable to high levels of stress and burnout. Compared to teachers in typical schools, special educational needs and disabilities teachers report feeling more

exhausted and stressed. In a study that was conducted among 664 special education teachers concerning their levels of burnout, job satisfaction, and occupation engagement it was noted that the participants' profile age, educational level, location, and teaching experience reveal differences in burnout levels (Antoniou et al., 2024). Furthermore, Kamtsios's (2018) study in a sample of 1447 teachers of all levels, concludes that all three dimensions of burnout change during the different stages of teachers' professional development, and shows that as the years pass, the levels of burnout increase. Although research has looked into the phenomenon of burnout among teachers in Greece, there is a lack of studies on burnout of teachers in special schools, who are exposed to greater stress levels. The purpose of this research is to further investigate burnout syndrome in Greek secondary special education school teachers.

METHODOLOGY

The Maslach, Jackson, and Schwab (1996) (Maslach Burnout Inventory- MBI-ES) questionnaire was distributed to a total of 125 special education teachers (29 males and 96 females) who participated in this study. The Maslach Burnout Inventory questionnaire consists of 22 items and examines on a 7-point Likert scale, three dimensions of teachers' burnout when teaching students with disabilities and/or special educational needs. These dimensions are emotional exhaustion, depersonalization, and reduced personal achievement. The questionnaire was developed in Google Forms and sent by email to Special Education teachers in the Region of Piraeus, in Attica.

RESULTS

Results showcase that most of the participants are between 36-45 years of age (51.2%) and married (71%). 72.8% hold a master's degree of which 54.4 % have a degree in special education, and finally 36% work in special education schools for 2-5 years. The suitability of the sample appears to be at a satisfactory level (KMO =0.841, Bartlett's Test of Sphericity X^2 (231) = 1280.2, p = .000). Results of the Exploratory Factor Analysis show that all factors explain 51.38 % of the total variance. Internal consistency of the scale was examined with the Cronbach alpha coefficient that was higher than .73 for all dimensions. Descriptive analysis shows that the most significant factor is emotional exhaustion, whereas moderate depersonalization has moderate significance and personal achievements have low significance. However, none of the three contributing factors has a statistically significant effect. In addition, demographic data, such as age, gender, and marital status do not have a statistically significant effect on burnout syndrome, while having children in the family appears to affect the emotional exhaustion levels of teachers in the study. Finally, the parameters related to the additional

educational expertise are also found not to have a statistically significant effect on burnout syndrome, whereas many years of work experience have a significant effect on emotional exhaustion.

DISCUSSION-IMPLICATIONS

In conclusion, the study shows (a) the sample of teachers shows high levels of emotional exhaustion, moderate levels of depersonalization and low levels of personal achievements, (b) demographic data, i.e., age, gender, marital status, and further education do not have a statistically significant effect on burnout syndrome. Results about the high levels of burnout among special education teachers are in line with previous studies (Küçüksüleymanoglu, 2011; Antoniou et al., 2024) whereas the role of demographic data on burnout is in contradiction with previous surveys (Antoniou et al., 2024; Kamtsios, 2018). Only teachers' work experience and having children influence the level of emotional exhaustion perceived. Since the internal characteristics of teachers do not seem to play a significant role for experiencing burnout syndrome, the only way to cope with such problems is for schools to set and apply specific managerial policies related to human resources and quality standards in the educational process and strengthen collaborations with stakeholders and agencies such as the Institute of Educational Policy, the Center for Interdisciplinary Assessment, Counseling and Support and the Association of Parents and Guardians, that can help in the implementation of policies that are able to reduce teachers' burnout syndrome. Such policies can be considered part of an innovative management system that can provide a competitive advantage related to the internal strategy and policy of Greek special education schools (Kaleli et al., 2024).

Keywords: Burnout syndrome, public special education schools, teachers, emotional exhaustion, depersonalization, reduced personal achievement, job burnout

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STRENGTHENING COMPETENCES TO ENHANCE PROFESSIONAL MOBILITY IN THE EXPLOSIVES SECTOR

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ABSTRACT

Over the past two decades, the explosives industry in Europe has contracted significantly. Manufacturing and production have largely transitioned to the private sector, and similar changes have occurred in ordnance research activities. The global economic crisis started in the summer of 2007 exacerbated this decline, leading many companies to declare bankruptcy and prompting early retirements among employees seeking to avoid significant salary cuts (European Commission, 2017). As a result, recruitment within the explosives industry has markedly declined, leading to a substantial reduction in the number of skilled specialists (EUROSTAT, 2024). In many European countries, a significant proportion of the most experienced and knowledgeable personnel in this field are now retiring. In today's world, professional mobility has increased significantly. Employees no longer operate solely within their own company or home country but often work across various companies and countries. Consequently, it is essential for employees to possess comprehensive knowledge to effectively carry out their tasks. Additionally, work tasks evolve rapidly, requiring employees to adapt quickly.

This paper examines the European Qualifications Framework, focusing on the transferability of qualifications and credits between states and territories. It explores various schemes for acquiring and recognizing knowledge in the explosives sector and identifies the barriers that hinder the recognition of qualifications and skills, impeding worker mobility. Additionally, it discusses the main results achieved by four European projects in which the author is a participant (Akhavan *et al.*, 2009; IEXPE, 2015, Góis and Rodrigues, 2017, PECCS, 2024).

Thirteen countries (the United Kingdom, Sweden, Norway, Latvia, Italy, Ireland, Portugal, Germany, France, Estonia, Czechia, Finland, and Lithuania) participated in the projects, resulting in several key achievements: (1) the construction of a map to describe and categorize competencies in the manufacture and use of explosives; (2) the development of a European network to standardize procedures for issuing certificates and accrediting competencies; (3) the creation of practical guidance and support for implementing occupational standards in the explosives sector for both civilian and military applications; and (4) the development of training materials and a guidebook for educators to train European blasters. Despite efforts to promote the convergence of Vocational Education and

Training (VET) across Europe, mobility within the explosives sector remains low. Many countries still have outdated regulations, and the European Qualifications Framework is often too abstract to facilitate the transfer of skill levels. The principle of mutual recognition stipulates that registered training organizations must recognize qualifications awarded by other registered training organizations. However, the recognition of qualifications and competencies from other education and training systems is not always guaranteed in most European countries. Additionally, the complexity of assessment systems can hinder the establishment of equivalencies. While the concept of recognizing work experience to shorten training duration is widespread in many continuing training schemes, the idea of omitting examinations leading to certification marks a cultural shift in numerous countries. The current push for developing schemes to validate experience-based knowledge has spurred the search for new techniques to establish benchmarks. The assessment of experiential learning presents greater challenges compared to the evaluation of training-based knowledge. Work experience is gained in diverse contexts, and the acquired knowledge may not necessarily align with a predefined set of information. In many countries, the recognition of prior learning and the application of credit transfers based on hours have not been commonly utilized in the vocational education sector. E-learning methods for certification are increasingly regarded as the future, offering an interactive learning experience and step-by-step guidance. Through an online account, students can access various courses to be completed throughout their studies. This approach allows students to schedule exam appointments at the nearest test site when they feel adequately prepared. The current drive to develop schemes that validate experience-based knowledge is fostering the exploration of new techniques for establishing benchmarks. The desire of professionals to work in other countries is often fueled by local job opportunities, resulting in relatively short durations of employment. In Europe, many companies in the civil explosives sector operate transnationally, necessitating employees to work across multiple countries. Apart from competencies in explosives science and technology, national security clearance is often a prerequisite enforced by national authorities for obtaining a license to handle explosives. Indeed, effective communication and clear transmission of orders are essential in blasting operations, and the diverse languages spoken in Europe pose an additional challenge to mobility. In the explosives sector, professional training still heavily relies on traditional methods, and courses and practices are adopted based on varying knowledge requirements dictated by the nature of explosives and blasting domains. Consequently, different blaster certificates are available to accommodate these diverse needs. Currently, there is no European regulating board assessing or enforcing competencies in the explosives sector. However, these projects suggest that despite the diverse nature of explosives and their usage domains, it is feasible to develop vocational training programs with common subjects. This approach can promote the harmonization of

competencies, potentially facilitating the issuance of a European certificate for professionals in the explosives sector. Such initiatives would foster increased mobility across Europe. Today, Information and Communication Technology (ICT) tools, such as computers and video conferencing facilities, enable the utilization of e-learning and blended learning (b-learning) systems, as well as workplace training, for specific vocational areas. Universities and vocational schools can contribute by developing courses that leverage these technologies, while companies should prioritize methods that emphasize experiential learning. Best practices and safety procedures for using explosives in civilian and military activities are established in several countries, providing valuable resources for training and skill development. In conclusion, even though numerous obstacles remain, such as national regulations and language barriers, achieving convergence of education and training practices and the recognition of qualifications and competencies across Europe is feasible. By leveraging the occupational standards and matrix developed in these projects, a functional framework for validating competencies and qualifications can be established. This framework should offer a range of suitable qualifications with sufficient flexibility to accommodate diverse needs and contexts. This flexibility should enable individuals to choose from a variety of modules offered in different countries, empowering them to obtain a blasting qualification recognized across borders and within various subsectors. However, assessing individuals' knowledge, regardless of how they acquired their skills, remains a significant challenge in certifying competencies and promoting mobility within the explosives sector.

Keywords: competencies, Europe, explosives sector, mobility, qualification, vocational training.

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ETHICAL IMPLICATIONS IN THE APPLICATION OF AI IN HRM: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

With the proliferation of artificial intelligence (AI) in more and more fields, including human resources management (HRM), ethical issues related to their introduction and implementation have become essential. Previous studies suggested how HRM and AI appear to be much-discussed topics in recent years, in particular, different possible implementations of AI in the field of training, recruitment, and selection have been studied (Kaushal et al., 2023). The scientific community is increasingly focusing on exploring both potential and actual risks associated with the integration of AI in the workplace, recognizing its potential impacts not only on organizational dynamics but also on the individuals associated with it. As a consequence, this escalating debate is gradually resulting in a proliferation of diverse perspectives within the HRM literature (Pereira et al., 2023).

Recently, COVID-19 has also led human resources managers to accelerate the adoption of AI technologies to face the new challenges brought by the pandemic crisis, giving rise to a trend that has grown in recent years. (Prikshat et al., 2023).

One of the main challenges that arise, because of the increasingly rapid implementation of AI in HRM practices, concerns the need to identify and address all the various ethical issues related to the topic. For instance, while managers who deal with recruitment want to implement tools that exploit AI as it allows them to hire with greater efficiency and meticulousness, job seekers want to protect their data and information of a more sensitive nature (Figueroa-Armijos et al., 2023). In fact, on October 30, 2023, President Biden issued the Executive Order, the first useful document for the legislative regulation of AI on American soil. In the EU, On February 7, 2024, the AI Act was approved in its final draft by the EU Council and is expected to be finally approved by the EU Parliament in March/April 2024. The one proposed by the European Union is the first-ever legal framework related to AI legal risks and represents an important step globally. In addition, even if the implementation of new AI technologies in HRM does not necessarily mean a decrease in job opportunities for workers, the risk of increased unemployment within those lower value-added jobs cannot be underestimated (Vrontis et al., 2022). As a result, the scientific literature has begun to analyze the issue in increasing depth, from various perspectives, including ethical implications. This has led to the need to implement an SRL that

classifies the various ethical implications related to the implementation of AI in HRM, also in light of the growing worldwide interest in the topic. Thus, the review highlights the multifaceted nature of ethical concerns, including bias and discrimination in AI algorithms, privacy and data protection issues, transparency and accountability in decision-making processes, and the potential impact on job displacement and human autonomy. Various ethical frameworks proposed in the literature are examined, offering guidance for ethical AI development and deployment in HRM contexts. Hence, the present study is based on the following research questions (RQs).

- RQ1: What is the research profile of the previous literature regarding the ethical implications of applying AI in HRM?

- RQ2: What are the existing ethical issues and can they be clustered based on the main research topics?

- RQ3: What are the main existing gaps in the literature and what could be the future research agenda on the ethical issues of AI application in HRM?

Accordingly, this research aims to systematically review the extant literature to offer a detailed guide intended to support and guide the academic debate. Systematic literature review (SLR) proved to be a versatile methodology, used in several high-quality scientific journals to guide future research by looking at past contributions (Danese et al., 2018). In addition, we decided to adopt SLR to learn about the current status of the existing literature, its nature, and extent, in the area of ethical implications in the application of AI in HRM and to highlight the need to conduct SLR (Pereira et al., 2023). Accordingly, we decided to divide the process into four steps: a first step dedicated to planning the review; a second step in which we defined the inclusion and exclusion criteria; a third step in which the data were extracted; and, finally, a fourth step in which the data were executed (Hassan et al., 2023). Initially, we used Scopus to advance the following keyword search and we found 2.524 articles.

"AI" OR "Expert system" OR "Algorithm" OR "Fuzzy logic" OR "neural language programming" OR "machine learning" OR "robotics" OR "Fourth Industrial Revolution"

> AND
>
> "HRM" OR "Human Resource Management" OR "HR" OR "recruitment" OR "selection" OR "training" OR "development" OR "performance management" OR "contract management" OR "Job signaling" OR "Person-organization fit" OR "Employee experience"
>
> AND
>
> "Ethical concerns" OR "Transparency" OR "Ethical evaluation" OR "Ethics" OR "Privacy concerns" OR "bias" OR "legal concerns"

Then, we set the inclusion and exclusion criteria. We chose to include in our research only papers in English, published by top-ranked journals, published between 2014 and 2023. We limited the subject area to business, management, and accounting, sources to journals, and document type to articles in their final stage. Before manual analysis of the items, the search produced 127 results, following manual analysis our sample produced 61 final results. Then, we conducted bibliometric and content analyses to identify key articles and explore the ethical implications of implementing AI in HRM. Bibliometric analysis is exploited in many fields and subfields of the literature because, coinciding with a technique that places the article as the basic unit of analysis, it allows the analysis of different components of the literature such as keywords, authors, and sources. (Alon et al., 2018). To identify the research clusters, how they evolved, and the trends for future research we have used the Bibliometrix package in the R and VOSviewer software. Subsequently, we advanced a content analysis to distinguish and isolate the most and least developed topics within the literature and highlight future research interests (Bretas and Alon, 2021). As a result of the bibliometric analysis, we observed how the debate about the ethical implications of AI adoption in HRM increased in the past three years. It attracted the attention of scholars from various fields of study such as business management, computer science, social science, and decision science. Most of the authors come from the USA, UK, and China. The USA appears to be among the pioneers of research in the field, while the UK's interest has grown rapidly in the past two years.

From a preliminary assessment, we can identify through the content analysis how the issue of ethical implications in the application of AI in HRM was more often addressed about the ethical perceptions that various stakeholders have toward the introduction of AI technologies in HRM-related practices, rather than from an ethics-centric perspective. In addition, more than one paper highlights the strong need to introduce a regulatory framework both within individual organizations and at the governmental level that would identify which actors are involved in the implementation, introduction, and application of AI technologies in HRM and their respective responsibilities.

In conclusion, this systematic review pursues to deliver both contributions to the theory and implications for practitioners. In the first place, we enriched the literature at the intersection of AI and HRM by shedding light on ethical concerns and guiding academics toward future research opportunities. We highlighted how it is important to delve more deeply into dues related to security, privacy concerns, and labor legislation to promote sustainable HRM(Kraus et al., 2023); and we explored how it appears essential for both research and practice to delve into pathways to minimize the bias associated with implementing AI technologies in HRM (Malik et al., 2022). Finally, this research is intended to expand the understanding of such topics among managers by contributing to creating awareness in dealing with ethical HRM in the digital age.

Keywords: AI, Artificial Intelligent, Technologies, HRM, Human Resource Management, Recruitment, Ethical

Issues, Ethical concerns

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THE ADOPTION OF M-COMMERCE AMONG RETAIL SMES

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ABSTRACT

M-commerce has gained significant interest from businesses globally, including small and medium enterprises (SMEs), owing to its benefits such as enhanced productivity, improved marketing, reduced costs, increased competitiveness and customer satisfaction (Chau *et al*., 2021; Fahriawan, 2020; Fatoki, 2020; Khaskheli *et al*., 2017; Li and Wang, 2018; Rana *et al*., 2019). However, despite the benefits of m-commerce, the adoption of m-commerce among SMEs in developing countries is low (Chau *et al*., 2021; Fahriawan, 2020; Omonedo, 2016; Salimon *et al*, 2021). It has been argued that the low adoption rate may be attributed to the intricate process of adopting m-commerce which involves various factors. Drawing on the Technology-Organisation-Environment (TOE) framework, the purpose of this study was to develop a conceptual framework for investigating the factors that influence the adoption of m-commerce among retail SMEs in South Africa. This study followed a mixed methods approach that incorporated both qualitative research (phase 1) and quantitative research (phase 2). Phase 1 of the research involved conducting online focus groups and in-depth interviews. The aim of phase 1 was to identify the factors that influence the adoption of m-commerce, with a specific focus on retail SMEs in South Africa. Phase 2 incorporated self-administered web-based questionnaires and applied structural equation modelling (SEM) as well as multiple regression to assess the validity of the conceptual framework. The findings indicated that perceived benefits, perceived cost, perceived complexity, customer pressure, top management support, organisational innovativeness, government support and global trends have a significant influence on the adoption of m-commerce among retail SMEs in South Africa.

This study enriches the existing body of knowledge by developing a conceptual framework that may provide a better understanding of the adoption of m-commerce among SMEs. This study raises awareness of the factors that influence the adoption of m-commerce which may encourage SMEs to embrace m-commerce and capitalise on its benefits. The conceptual framework may enable SMEs to make well-informed decisions and enhance their marketing strategies. Additionally, this study may serve as a guide to understanding the behaviour of SMEs and the factors that influence their adoption of m-commerce which could offer valuable insights for government in their endeavours to promote the adoption of m-commerce among SMEs.

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"DON'T LEAVE ME BEHIND", CAN UNIVERSITY EDUCATION ENABLE INDIGENOUS PEOPLE TO ENHANCE ECONOMIC CONTRIBUTION?: A STAKEHOLDERS' PERSPECTIVE

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ABSTRACT

MOTIVATION

Research on indigenous peoples has studied gaps and differences between indigenous and non-indigenous peoples in education, income, health care, inhabitation (Lamb, Yap &Turk, 2018). However, less attention has focused on what caused the gap and factors responsible for leading to such a gap. The loss from potential contribution from indigenous talents to labour force and thus economic growth could be exponential. Further, little attention focused on if senior management has a role to play and if firms have a key role in linking education to workplace contribution? We expect a higher number of indigenous youths staying in higher education would increase their number of economic contributions. We examine which stakeholders have what role in advancing this potential workforce for economic growth.

Lamb and colleagues (2018) call for further research on understanding and removing barriers to education. We extend to ask, what are the barriers and inhibitors to indigenous peoples for so many years of consistent lagging in achieving higher education? In which form can university play a role to make pivotal changes? How can stakeholders shift their roles to be active and drive this change?

DEFINING INDIGENOUS PEOPLE

The World Bank defines indigenous people as "distinct social and cultural groups that share collective ancestral ties to the lands and natural resources where they live, occupy or from which they have been displaced". In 2020, there were 476 million indigenous peoples globally (compared to 370 million in 2009, United Nations, 2009), located in 90 countries, making up above 6 percent of the total global population (compared to around 5% in 2009, United Nations, 2009). Unfortunately, they formed around 15 percent of the extreme poor and a third of the world's poor populations. Further, their life expectancy is twenty years shorter than non-indigenous people worldwide (World Bank, 2020). Since indigenous people live around the globe, even our research questions studies issues in the context of Canada but the findings do have important implications on a global scale. Since it is a community matter; we are taking a stakeholder's perspective to examine our questions.

In North America, forty percent (40%) of indigenous students with post-secondary certificates live in cities, while 26% stay on-reserve communities and 35% in rural communities (Heritz, 2016). In which way does indigenous peoples' residential location impact their pursuit of higher education? Is this the only reason hindering their years of lagging behind? We do not know? Are there any other reasons to explain why only 10.1% of indigenous people achieve bachelor's degrees or higher education in Canada (Statistics Canada, 2017)? (Table 1). Canada is a multicultural society, and White, Japanese, Chinese and South Asian peoples have all achieved advanced level of education in Canada (Statistic Canada, 2011), but indigenous peoples are still lagging way behind? (Table 1). We wonder why? Differences between two surveys on indigenous peoples (Table 1) show positive changes for over five years but still reveal the same lagging outcomes: an improvement in numbers and upward trend of – the higher the educational level, the higher the income will be for indigenous peoples. This implies income received either from new venture start-ups or working in firms, either way increased their income and contribute to economic growth. The fact is of course true across society but why are indigenous peoples not yet taking full advantage of Canadian education when the world is flocking to Canada for its excellent education? Are they interested in working? Since education has been found to affect income and career progression, thus economic growth of the society (Mai, 2011; Dwyer, 2003), understanding underlying reasons, inhibitors and challenges will enable educators and policy makers to find ways to positively change this ratio.

RESEARCH IN INDIGENOUS PEOPLE

Indigenous peoples have a distinctively valuable culture that Canada and the world celebrate and value. We underscore the deep economic potential of indigenous advancement to turn what perceived to be liability of society into highly productive and sought-after resources of our society. Most research on indigenous people (Crawley and Sinclair, 2003; Lertzman and Vredenburg, 2005; Murphy and Arenus, 2011) has identified culture, ethical issues and cross-cultural frameworks but stopped short of reaching the underlying challenges of why society is constantly – leaving indigenous people behind, even after many years of "attempts" and "policy" to bring them into the mainstream of society. It is still unclear why there exists lack of accountability, lack of engagement of indigenous people in policy making process, lack of general recognition and awareness of indigenous cultural and practices (Murphy and Arenus, 2011), lack of support in workplace and training (Crawley and Sinclair, 2003; Dwyer, 2003), and why indigenous people lack self-identity? (Croce, 2017).

THEORETICAL PERSPECTIVE

Public policies and funding support for indigenous peoples have been formulated and allocated since 1920 in Canada, if not longer (Heritz, 2016). Nonetheless, positive impacts are far from satisfactory (Truth and Reconciliation Commission of Canada, 2015). Research examining municipal-aboriginal advisory committees in four Canadian cities from 1999-2014 found many issues, including education, still exist, and inhibitors include low representation of indigenous peoples in all levels of government, including provincial, local and communities (Heritz, 2016). What are the inhibitors that are so stubborn even after more than one hundred years nothing much has improved in 2024?

EXPECTED FINDINGS

Indeed, indigenous peoples are still suffering from "alienation … and lack of role models …" (Royal Commission on Aboriginal Peoples, 1996, p 527). Since the Indian Act in 1920, indigenous engagement in society has not yet reached optimal levels. Organization studies on indigenous peoples are also relatively few in number (Croce, 2017). From the stakeholder's perspective and taking a system view, we posit the higher the coordination and collaboration amongst stakeholders such as government, communities, educational institutions and indigenous communities, the faster and more effective the indigenous engagement in university education. We made this assertion by extending the stakeholders perspective (Laplume et al., 2008) from firm level stakeholders (management, employees, suppliers, shareholders' etc.) to societal level (government, indigenous, non-indigenous, educational institutions etc.). We argue that only when all actors, not some, but all (that means including indigenous peoples) have high level of equal participation, will the society as a whole yield distinctive resources and dynamic capabilities, to achieve greater economic growth for all. Thus, university educators may have a key role to play as one of the stakeholders at the beginning of the "chain of stakeholders".

CONTRIBUTIONS AND ORIGINALITY

We emphasise the importance of the system approach where all stakeholders in society must engage to collaborate and coordinate to include all members of the society. It is clear when one or more stakeholders are not participating in contribution to growth, they become a liability to the society. But all stakeholders must pull each other up when time is tough for certain members. Indigenous people were not in an advantageous position as they were taken advantage of not only in the past but also in the present. That is not fair. In essence, stakeholders in society were not given a fair opportunity for indigenous people to play a part. It's time for change. We argue from the system's

perspective that the higher the level of collaboration from all stakeholders in society to connect indigenous youth to education and to the workplace, the bigger the overlap and thus higher potential to achieve success bringing economic growth from indigenous youth participating in education, work and economic growth.

Therefore, our research is among the very few examining the antecedents of indigenous higher education status or the lack of it and trace the cause to lack of stakeholders' participation in bringing inclusivity instead of only blaming on indigenous people's past and tradition.

Keywords: Indigenous peoples, indigenous policy, public policy, indigenous studies, university education, stakeholder's perspective

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APPENDIX

Table 1: Income, Education levels 2012 vs 2017. Source: Aboriginal Peoples Survey, 2012, 2017.

Statistics Canada

	2017	2017	2017	2017	2017	2017	2012	2012	2012	2012	2012	2012
	Grade 8 or	Some seco	Secondary	Some post	Postsecon	Bach. degr	Grade 8 or	Some seco	Secondary	Some post	Postsecon	Bach. degr
Less than $5000	17.1	14	11.7	11	5.6	3.5	13.3	13.8	11.7	12.8	5.8	4
$5000 to $9,999	12.5	8.9	8.8	11.6	5.2	4	9.7	8	8.8	10.7	5.5	4
$10,000 to $19,	17.3	17.9	15	19.5	10.8	6.6	24.7	18.6	16.8	17.6	10.6	7.8
$20,000 to $29,	16.4	18.4	15.3	13.2	11.4	7.6	12.7	17.6	14.9	14.2	12.6	9.2
$30,000 to $39,	12.3	12.7	12.6	10.7	13.2	7.6	15.7	16.3	13.6	11.8	16.8	8.4
$40,000 to $49,	5.7	6.9	9.3	9.6	12.4	8.4	6.1	6	10.6	9.7	12.4	8.5
$50,000 to $69,	9.3	11.3	14.2	11	17.5	18.6	17.8	19.7	23.6	23.3	36.3	58.1
$70,000 and ov	9.4	9.9	13.2	13.2	23.8	43.6						
Total	100	100	100	100	100	100						
	2017	2017	2017	2017	2017	2017	2012	2012	2012	2012	2012	2012

TO DETECT OR PREDICT ACCOUNTING FRAUD? AN AGENCY THEORY AND MACHINE LEARNING METHOD PERSPECTIVE

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ABSTRACT

MOTIVATION

Do we want to detect accounting fraud? Then the event has to occur first, recent or historical. The problem is detection process is costly, time consuming and accuracy rate uncertain. Regardless of model deployed, extant accounting literature is still inconsistent in ideal forensic model, either analysing with traditional, ratio based or raw data-based methods (Kotsiantis, Koumanakos, Tzelepis, and Tampakas, 2006). Further, when detection is accurately achieved, damages may have already been felt by individuals, corporations, government and even society at large. Sometimes damages are recoverable, but often they are detrimental and irrecoverable. Is that what we aim for? Just to detect fraud? Practitioners and scholars alike are in search of optimal auditing strategy (Dionne, Giuliano and Picard, 2009). Thus, developing a model to accurately predicting the probability of fraud (Owens et al., 2022) in advance to prevent, instead of detecting after the fact.

THEORY

It is well documented in agency theory literature that monitoring system preventing and predicting manipulative behavior is possible to achieving and safeguarding owners' interest. Clearly, owners, individual or institutional, would prefer prediction even at the expense of increasing cost of monitoring. Research undertakes from agency theory perspective found governance and behaviours between the CEO and the board carry both positively and negatively reciprocal behaviors (Bosse and Phillips, 2016). When negative, owners suffer, often due to lacking information symmetry avail by executives' manipulative control of operating information flow and false accounting information. As such, imbalance of full and accurate accounting information renders owners disadvantaged, deceived and misled, while accounting fraud committed.

What can be done for owners? In recent accounting and machine learning literature, identifying factors leading to fraudulent activities and predicting fraud using machine learning method are on the rise. For example, some researchers are using stacking variant method and found it to achieve better performance than any examined simple and ensemble method (Kotsiantis, Koumanakos, Tzelepis, and Tampakas, 2006). Where Saleh et al., (2021) draw data from Jordanian

industrial owners and applying Altman's z-score and Dechow f-score to analysing with multiple regression procedure. They found clear proof of false financial statements and confirmed the validity fraud detection models chosen. Similar study conducted in Indonesia by Arum and colleagues (2023) using secondary data collected from annual reports of firms under special monitoring listed on the Indonesia Stock Exchange of 2020–2021. The financial statement fraud was measured using the Z-Score and F-Score models. Their results showed that when using the Z-score, only the board size has a negative effect on financial statement fraud.

Meanwhile, Baranes and Palas, (2019) undertake Support Vector Machines (SVM) technique and financial data extracted from the Securities Exchange Commission (SEC), they found merit with machine learning method and achieved better prediction accuracy rate. Extant literature guides our curiosity to our research question; what is the optimal machine learning method for predicting accounting fraud with highest accuracy?

METHOD

Our research aims to employ ensemble methods as they are considered the optimal method for many machine-learning challenges. Sagi and Rokac (2018) found that these "methods improve the predictive performance of a single model by training multiple models and combining their predictions" (page 1). In terms of models, we choose cash flow-based and earnings-based models. We adopt Lee, Ingram, & Howard (1999)'s finding and they have drawn from accrual measurement theory and had long established the effectiveness of using discrepancies between earnings and operating cash flow to derive and test as indicators for testing financial statement fraud. Their research demonstrated that the earnings-operating cash flow relation provides key information for identifying financial statement fraud. Thus, we undertake this approach as basis to establish an ensemble, a set of six commonly used forensic models used in conjunction, three being cash flow focused (Altman's Z score, Ohlson's O score and Cash Flow return on Investment (CFROI)) and three being earnings focused (Beneish M score, Dechow F score and Modified Jones Model) for our research.

RESULTS

We split our data into training and test dataset using completely different sample data from Securities and Exchange Commission (SEC) of USA. The result of our model is consistent with various previous studies that machine learning models consistently outperform baseline model, which in our case is logistic regression. We used logistic regression as baseline model and decision tree, random forest and XG Boost (Extreme Gradient Boosting) as machine learning models. While logistic

regression provides 36% accuracy, machine learning models such as random forest provides 57% accuracy and decision tree exhibits a 60% accuracy. However, the top performing model was XG Boost which exhibited 75% fraud prediction accuracy.

CONTRIBUTIONS

The results of our study add to the body of literature in agency theory and machine learning method. We extend by linking AI to agency theory for finding optimal ways to mitigate information gap between owners and agents. In the past, agents are in the know and owners are not. Information asymmetry has always been the key in agency theory perspective and scholars making argument in terms of reward systems, organizational structure and strategy to flatten the knowledge curve between owners and agents about the financial health and condition of the firm. Machines learning method has changed the shape of the curve. Moreover, information asymmetry has not only impacted interest of owners but also investors, shareholders, analysts, regulators and business practitioners. They all share paramount concern regarding the veracity of financial statements, yet inconsistency in extant research and lack of an unbiased model that can detect and predict financial reporting fraud means there is still a void. Enabled by machine learning method, our ensemble model addressed this void.

We hope our model empower businesses via early fraud prediction, to make better investment selection, and to enhance regulatory monitoring and may be offering greater behavioral control for firms to manage in-house accountants and external auditors. Finally, our machine learning (ML) based ensemble model provides an unbiased, analytical tool to the owners to better protect their business interest by disrupting information monopoly from their agents.

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BUILDING BRIDGES: TRUST, WISDOM, AND THE PATH TO SOUND DECISION MAKING IN BUSINESS

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ABSTRACT

With global trust in decline, and technology outpacing regulation, business leaders face increased pressure to bridge gaps left by governments. Beyond prioritizing shareholder returns, leaders must balance the welfare of employees, customers, and the broader community, while also influencing societal standards. In this climate of uncertainty, wisdom emerges as a promising avenue. This study delves into the significance of fostering wise reasoning within business contexts, shedding light on the essential roles played by both trust and wisdom in guiding leadership actions. This study explores the value of enhancing wise decision-making in business, revealing the pivotal role of trust and wisdom.

Trust is a critical social currency, and arguably one of the most fundamental attributes of a leader. The traditional leadership narrative focuses on vision and strategy, but Frei and Morriss (2023) argue that leadership "really isn't about you," it's about empowering others and creating conditions for employees to realize their potential. In the words of John F. Kennedy, "a rising tide lifts all boats," underscoring the common good benefits of shared success. Central to this dynamic is the cultivation of trust, a currency earned through the consistent demonstration of authenticity, logic, and empathy (Frei & Morriss, 2023; McLain & Pendell, 2023). When leaders authentically engage with their teams, demonstrate genuine concern, rational decision-making, and an understanding of diverse perspectives, they foster an atmosphere of trust and confidence. Trust, in essence, acts as the bridge that connects leaders with their teams, enabling seamless collaboration and unwavering support.

Unfortunately, the world is experiencing a trust crisis exacerbated by divisive politics, the proliferation of fake news, and unregulated technological advancements, leading to instances of incompetence and ethical lapses among decision-makers (Edelman, 2022, 2023; Maxwell, 2019; Sternberg, 2021). In response to the pressing need for sound judgment and moral reasoning in leadership, psychologists have sought to define and understand wisdom (Grossmann, Weststrate, Ardelt, et al., 2020; Sternberg, 2019; Sternberg, 2021). Now, more than ever, it is on the shoulders of business leaders to make decisions that benefit the common good of society for the health and welfare of all stakeholders (e.g., shareholders, employees, customers). Drawing on historical theories of wisdom introduced by Greek philosophers and further built upon by psychologists and economists, practical wisdom can positively impact wise decision-making in business leadership (Sternberg et al., 2019). The demand for wise leaders who can navigate complex, morally ambiguous challenges during uncertain times and restore

trust is a worldwide imperative. There is an urgent need for a resurgence in understanding wisdom in corporate and organizational leadership to address the growing complexities and uncertainties in the global environment and, by extension, foster trust in employees, consumers, and other stakeholders.

This concurrent nested mixed methods study delved into the exploration of wise reasoning within the context of a complex business problem. In the quantitative portion, the authors' employed a quasi-experimental design using a wise reasoning boost exercise (a noncoercive intervention that fosters competences to make better decisions) that encouraged participants to propose a wise solution. The study involved 325 U.S. employed adults ages 24 to 84 who first took the Self-Assessed Wisdom Scale (SAWS) (Webster, 2003) to assess wisdom as a character trait, and later the Situated Wise Reasoning Scale (SWIS) (Brienza et al., 2018) at the end of the study to assess wise reasoning within the context of a complex business problem. In between the assessments, the participants were presented a complex business problem related to introducing a neurotechnology product designed to measure employee fatigue in the workplace. Participants were randomly assigned to either the wise reasoning exercise, or active control exercise probing them to think about the introduction of this technology in the workplace through open-ended questions as part of the nested qualitative portion of the study. Participants were then asked about their confidence and trust in their proposed solutions. These wise reasoning exercise questions explored the domains of intellectual humility, perspective taking, uncertainty and balancing the interests of all stakeholders thus offering the opportunity for multiple methods to develop a comprehensive understanding of wise reasoning processes to further enhance the validity and credibility of the results.

Results revealed that wisdom, conceptualized as a character trait and measured by SAWS, emerged as the strongest predictor of wise reasoning in the face of a complex business challenge, as assessed by SWIS. Specifically, SAWS subscales life experiences, reflection habits, and openness to new experiences emerged as robust predictors, explaining 21% of the variance in wise reasoning. The inclusion of trust in the regression model contributed to a 24% percent variance in SWIS. The provision of wise reasoning boosts in the form of open-ended questions seemed not to have significant influence on wise reasoning scores. However, the qualitative data indicated consistent suspicions of how top leadership could potentially misuse the workplace technology igniting fear that it could discriminate front-line workers. The findings underscore the nuanced interplay of trust and wisdom in fostering wise reasoning within the complex landscape of decision-making.

The future has always been uncertain. The key difference today is there has been an erosion of global trust in government and media creating a climate of volatility, uncertainly, complexity, and ambiguity (VUCA), (Edelman, 2023; Ko & Rea, 2016). Psychologists fear developing intelligence (IQ) and domain-specific knowledge has been overvalued at the expense of wisdom (Sternberg, 2019). Intelligence and

domain-specific expertise are undeniably important, but do not guarantee societal improvements (Sternberg, 2019); intelligence can be leveraged toward nefarious ends as much as noble ones. Wisdom encompasses morally grounded excellence in cognitive processing by applying meta-cognitive reasoning to problem solving with a foundational consideration for a common good outcome (Grossmann, Weststrate, Ardelt, et al., 2020). Consider the rapid development of AI ahead of regulations; intelligence is useful in answering "how can AI be developed," whereas wisdom flips the coin and asks "when, and under what circumstances should it be used?"

The results of this research have some immediate practical applications for business leaders to build trust and foster wiser reasoning within the workplace, specifically the role that openness and reflecting on past experiences can positively impact wiser reasoning. Business leaders may wish to consider practices that encourage openness to new ideas, opinions, controversies, and diverse cultural perspectives. This could include brainstorming sessions, innovation labs, and providing opportunities for continuous learning that broadens individual perspectives. Business leaders could also encourage post-mortems to learn from self and others' experiences including lessons learned, after-action reviews, and mentorship programs where both leaders and employees are encouraged to reflect and learn from personal and others' experiences. Creating a culture where openness, learning from past experiences, and reflection are encouraged.

The initial intent of this research was to boost wiser reasoning by providing a short-term intervention that probed one consider a complex problem with wise reasoning strategies. The wise reasoning boosts did not make a significant difference. What this research suggests is that the ability to reason wisely is related to one's openness, reflection habits, and learning from past experiences, and it is these habits that need to be fostered to improve wiser reasoning.

This research contributes to the academic understanding of wisdom and trust in business contexts, and provides actionable insights for enhancing managerial practices. This study empirically validates the relationship between wisdom traits as measured by SAWS (specifically openness, reflection and experiences) and wise reasoning as measured by SWIS. Furthermore this study integrates these variables with trust in leadership to form a cohesive framework for better decision-making. Methodologically, the mixed methods design of this research offers a robust approach to understanding complex phenomena, while the context-specific application within a contemporary business problem bridges the gap between theory and practice. For managerial practices, the findings suggest that fostering wisdom traits and building organizational trust can enhance wise reasoning among leaders. Practical steps include promoting intellectual humility, reflective practices, and transparent communication in learning from past experiences are crucial in today's rapidly changing business environment. By emphasizing these traits and integrating ethical guidelines, leaders can

improve decision-making processes, ultimately benefiting all stakeholders, their organization, and society as a whole.

Keywords: Trust, Wisdom, Decision-Making, Wise-Reasoning

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IT TAKES TWO TO TANGO: UNDERSTANDING HUMAN-AI INTERACTION IN THE WORKPLACE

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ABSTRACT

Artificial Intelligence (AI) transforms the modern workplace that leads to significant changes in the ways businesses operate and employees carry out their roles and responsibilities. Companies that implement AI gain substantial benefits, such as heightened productivity and creation of new job opportunities. AI technologies excel in automating repetitive tasks, which boosts efficiency and allows employees to engage more with complex, strategic activities, consequently enhancing job satisfaction and performance (Kumar et al., 2024). Moreover, AI drives innovations and leads to the creation of new job roles and responsibilities focused on its development, implementation and continuous management, consequently contributing to the development of the job markets (C.-H. Lu, 2022). At the same time, AI enhances the workplace by providing predictive analytics and insights that enable informed and accurate decision-making (Kumar et al., 2024). Tools like AI-enabled chatbots improve employee engagement, encourage trustful work environment and have a potential to contribute to the stress and burnout reduction (Dutta et al., 2023; Malik et al., 2022). In customer service, AI manages routine inquiries, freeing up employees to handle more complex tasks and improve sales conversions (De Keyser & Kunz, 2022). Importantly, AI is increasingly viewed as a complementary tool that fosters a symbiotic relationship between human workers and technological systems (Monod et al., 2023).

However, the integration of AI also presents several challenges. There are still concerns about AI-induced job transformations and displacement that could escalate inequality and decrease the labor share, especially as AI takes over routinized tasks traditionally performed by humans (Wang et al., 2023). The introduction of AI may also undermine the social and cultural capital within organizations, leading to decreased acceptance and low participation in AI training programs (Monod et al., 2023). Furthermore, AI could diminish the significance of human input, affecting employee satisfaction and altering the nature of work (Wang et al., 2023). Resistance to new systems and the transformation of work processes pose additional challenges, as does the need for employees to adapt to new workflows (Lebovitz et al., 2022).

Despite the significant potential opportunities and threats that AI implementation introduces to the workplace, empirical research on its effects remains sparse (Dutta et al., 2023). Existing studies have explored the impact of AI on the demand for skilled labor and workplace organization, and indicated substantial transformations in work environments (Bresnahan et al., 2002). Furthermore, the studies of

employees' perceptions regarding future workplaces equipped with AI, robotics, and algorithms indicated diverse expectations and concerns (Brougham & Haar, 2018). Similarly, research has focused on AI's influence on learning, career paths, and wage distribution, leading to the potential reshaping of career trajectories and income levels (Monod et al., 2023). In the realm of Human Resource Management (HRM) studies, perceptions and utilization of AI continue to evolve. For instance, Dutta et al. (2023) illustrate a growing trend in adoption of AI-driven tools such as chatbots in HR functions that enhance the efficiency of providing personalized employee experiences and positively influence employee attitudes by fostering trust and engagement, thus setting new standards for HR practices (Dutta et al., 2023). However, there is a noticeable scarcity of empirical research on the behavioral and attitudinal changes among employees resulting from AI implementation. Moreover, there is a need for further research on how AI may alter perceptions of work and its significance across various employee demographics and experience levels (Wang et al., 2023).

This research gap leads to the critical questions of this study: How do humans actually use AI in their daily work routines, and how do they collaborate with AI to achieve their work objectives? To address these questions, this study is designed as a phenomenology that employs interviews to explore the lived experiences of individuals in various positions and industries. Through these interviews, the study aims to explain how diverse AI-driven applications and technologies are integrated into daily tasks and what are the use patterns in this human-AI collaboration. The study is an early work-in-progress, but it aims to contribute in several ways. First, using the phenomenological approach, it aims to contribute to the understanding of the integration of AI technologies into the daily work activities. Besides, it will contribute to the understanding of the human-AI interaction by identification of human behavioral patterns.

Keywords: Artificial Intelligence, Innovation, HRM practices, modern workplace

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DETERMINING ATTRIBUTES IN THE SMARTPHONE PURCHASE DECISION: ANALYSIS OF CONSUMERS FROM THE X, Y AND Z GENERATIONS

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ABSTRACT

One of the reasons for the growing development of smartphones is the integration of these high-engagement electronic devices and wireless internet, which has resulted in a rich flow of information and changed the way people communicate and their lifestyles. Public demand for information is increasing, suggesting that cell phones are not passively used but have become a new interactive model of transmission and communication (Lee & Chen, 2016). Smartphones are considered products of high involvement by consumers, so much so that, virtually everywhere, whether on public transport, at dinner with friends, in bed, or even in the workplace, consumers have been using them with intensity. Electronic devices are used to make calls or send messages, listen to music, watch movies and series, or view recent content posted on social media (Melumad & Pham, 2020).

Smartphones allow consumers to acquire information from other sources while shopping at traditional stores. Therefore, organizations need to understand the types of information consumers look for with their smartphones and devise appropriate strategies (Bhatnagar & Papatla, 2019). Perrin (2017) conducted research and verified the need for consumers to constantly use their smartphone, stating that their device is like something they "could not live without." In addition, consumers get emotional benefits from their smartphones – particularly feelings of psychological comfort and, if necessary, natural stress relief (Melumad & Pham, 2020).

This study is justified based on the following notes: the existence of possible variations in the way and intensity in which each generational group uses technology (Magsamen-Conrad, Upadhyaya, Joa, & Dowd, 2015); different attributes may be affecting the use and involvement of consumers with technology, and one of these factors is age, and individuals can be divided according to age into generational cohorts (Calvo-Porral & Pesqueira-Sanchez, 2019); each generation has had an impact on the overall evolution of the world of business and industries and has different shopping habits (Hoxha & Zeqiraj, 2019), and there is still a gap in research on consumer motivations to use and engage with technologies (Calvo-Porral & Pesqueira-Sanchez, 2019).

It has been common practice in global marketing to group consumer segments into target market categories. One of the more widely used is that of lumping generational cohorts into a group, and assigning traits to that group (Zwanka and Buff, 2021). Given this, the theoretical contribution proposed is to present the determining attributes in the decision to purchase smartphones for different generations, compare them and, above all, relate them to the respective generations. Smartphones are considered high involvement products, and for that, the comparison of attributes and generations theoretically advances in the analysis of these constructs.

Given this context, the present work answers the following question: What is the difference in prioritizing the determinant attributes of purchase in the decision process of generations X, Y, and Z? Thus, the objective is to comparatively analyze the prioritization of attributes in smartphone purchase decisions of individuals belonging to the X, Y, and Z generations. The theoretical contribution of this research is mainly due to the validation of the instrument for smartphone purchase decisions and the analysis comparison of attributes between different generational cohorts.
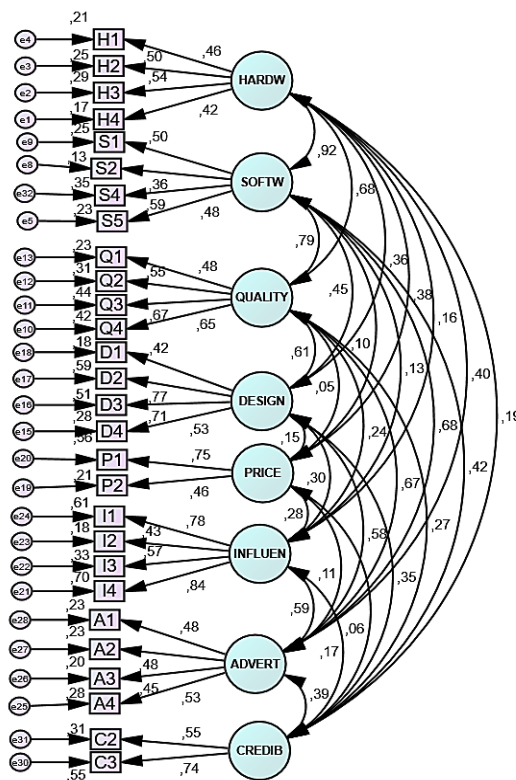
Figure 1. Final model with adjustments.

This research is characterized as quantitative and descriptive, with data collection through a survey. The sample used in this study was non-probabilistic for convenience. The selection sought smartphone consumers who have used the brand for over three years and have purchased the last smartphone no more than six months ago. The total sample of this research was 1,182 respondents. Statistical analysis was performed using IBM SPSS software, v. 23®, and AMOS, of which descriptive statistics and factor analysis modules were used. The instrument consisted of 32 questions (in addition to consumer profile questions), and the statements should be answered using 5-point Likert-type scales. For data analysis, the Confirmatory Factor Analysis (CFA) technique was used to test the reliability and validity of the constructs and the Structural Equation Modeling (SEM). The instrument questions that arise from the theory and the qualitative research carried out are presented in the research method.

Discriminant validity was statistically significant in all comparisons (Sig=0.000). Thus, this criterion confirmed the discriminant validity of the 28 relationships studied in this research. With these results, the analysis was performed. The structural equation modeling, as shown in Figure 1.

The determining attributes used by consumers to purchase smartphones show the complexity of this process and the diversity of influencing factors in acquiring high-involvement products. Consumers from generations X, Y, and Z are different from each other. From building the mental model from evaluating alternatives to the purchase decision, there is some time to consider acquiring these devices, even if the objective will be just for entertainment or work tool functionality. However, smartphones are part of the lives of consumers of all generations.

The main results validate the construct decision to purchase smartphones for different generations, analyzing validity and reliability indices, as well as a detailed description of the differences in the use of attributes by generations X, Y, and Z. The comparative analysis presents exciting results. It demonstrated the use with greater intensity and frequency of the attributes measured by Generation X, followed by Generation Y and then by Generation Z consumers. The purposes for using electronic devices are also divergent, as recommended in the literature of the theme. It is noticed that Generation X consumers are more aware than other generations, and the purchase decision process is more planned, organized, and safe.

The theoretical contribution of this research is the validation of the instrument for the decision to purchase smartphones. This research validates the relationships between determining attributes from the consumer's perception and a gap not yet filled in the literature. Data analysis by generational cuts

also contributes to the existing theory on consumer behavior since most studies on the subject cover only a segment of consumers.

Simulating a smartphone purchase decision process by Generation Z consumers, what would be the determining and priority attributes of this decision among different generational cohorts? In detail, this question had not yet been answered in the literature, which is the article's main contribution. Studying Generation X, Y, and Z consumers who were born into the world of technology and remain connected at all times is a significant contribution. On the other hand, no studies analyzed the determinant attributes of the acquisition of smartphones together, only analyzing them in isolation. The validation proposal of this instrument is presented, contemplating a set of determinant attributes identified from the field. This research contributes theoretically by analyzing the eight attributes considered a determinant for generations X, Y, and Z consumers. The managerial implications of this research are related to the difference in the purchasing profile of consumers between generations. In this way, marketing managers will be able to analyze the determining attributes by generation. From this, propose marketing strategies that meet the needs of consumers in a personalized way. For example, understanding and analyzing these attributes by the companies may present superior sales volume and customer satisfaction.

New comparative studies between generations and other types of electronic equipment are recommended. At the same time, comparing the results of this research with consumers from other countries can contribute to consumer behavior literature, taking into account the cultural and social differences between emerging and developed countries. Finally, new methodological approaches are needed to clarify consumer behavior, such as the Fuzzy Method, Comparative Qualitative Analysis (QCA), and even Interactive Qualitative Analysis (IQA).

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SOCIAL ENTERPRISE MARKETING AND ARTIFICIAL INTELLIGENCE: FROM THE STATE OF THE ART TO THE FUTURE TRAJECTORIES

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ABSTRACT

The scope of the article is to analyse the existing marketing literature on social enterprises (SEs) and artificial intelligences (AIs) by a systematic literature review. Some scholars retain that marketing as social marketing can be a powerful "tool" for SEs (Madill & Ziegler, 2012). Bloom (2009) and Jenner (2016) retain that SEs really need marketing activities to improve their business performance, stakeholders' interactions and engagement. Srivetbodee et al. (2017) declare that SEs use marketing activities to create value for their community and get their mission more attractive for them (Mallin and Finkle, 2007). This is also supported by other scholars who believe that marketing skills and activities can "improve the effectiveness, efficiency and bottom line of SEs through identification of opportunity, diffusing an innovative solution and communication of benefits" (Bandyopadhyay and Ray, 2020; p.122; see also Chung et al., 2016; Glaveli and Geormas, 2018; Liu and Ko, 2012; Ma et al., 2012; Miles et al., 2014). In this vein, the social enterprise marketing is intended as the marketing activities defined by SEs, to meet their stakeholders, such as employees, volunteers and donors for sharing their mission, and customers with their offer (Bandyopadhyay & Ray, 2020).

However, SEs have low marketing skills due to resource limits and stakeholders' expectations (Bandyopadhyay & Ray, 2020). It has been noticed that they do not consciously develop a social marketing campaign (Andreasen, 2002). As Andreasen stated, "social marketing is, at base, a brand of individual behavior change." And so, the question that has emerged: *how SEs can be adjusted and driven by such change?* The need of full revolution come also from the digital transformation which has triggered the extensive use of new technologies like AIs (Chen et al., 2022). In this particular scenario, scholars have studied the use of AIs in SEs which has resulted as a "collection of social goods and services, marketing studies and promotion of social goods and services" (Popkova & Sergi, 2020). The application of AIs is predominantly relevant that it has been started to be taught in universities (Chen et al., 2022). AIs are still operating as a support to human skills which be empowered but not be replaced (Del Giudice et al., 2022; Del Giudice et al., 2023, Iaia et al., 2024).

Therefore, we aim to review past and current studies on how SEs have improved their social marketing skills and activities using AIs. The aim of this research will be achieved using the 'antecedents-phenomenon-consequences' framework (Narayanan, Zane and Kemmerer, 2011; Pisani and Ricart, 2016). We will conduct a systematic literature review on these topics in order to provide a deeper and complete understanding through: the identification and review of the previous research in this area, the elaboration of a theoretical framework that shows the most critical connections between social enterprises and artificial intelligence marketing, setting the future research path, based on the findings, unanswered questions, and knowledge gaps identified, for academics, as well as practical, political and social recommendations for practitioners, and policy makers.

Moving from others systematic literature reviews, we will conduct our analysis and address the research question following a proper protocol (Denyer and Tranfield, 2009; Gaur and Kumar, 2018; Fisch and Block, 2018). The research will be conducted using EBSCO Host Business Source Premier, which provides the broadest coverage in the business field (Kranzbühler et al., 2018). Articles will be selected from peer-reviewed journals ranked 3, 4 or 4* in the ABS 2021 ranking list to ensure high quality results (Christofi et al., 2021). Our analysis will focus on full-length articles, excluding book reviews, commentaries, editorials, conference proceedings, and responses to maintain the depth and rigour of our review.

The keyword formula elaborated to be used in the EBSCO database (titles, abstracts, and keywords provided by authors) (Christofi *et al.*, 2019) relates to previous systematic literature reviews on artificial intelligence (Glikson and Woolley, 2020; Mustak et al., 2021; Mariani et al., 2023) and social enterprises' marketing (Bandyopadhyay and Ray, 2020; Ali et al., 2023), and it consists in the following keywords: *("artificial intelligence" OR "machine learning" OR "computational intelligence" OR "soft computing" OR "data mining" OR "evolutionary computation" OR "evolutionary programming" OR "genetic algorithm" OR "genetic programming" OR "fuzzy systems" OR "deep learning" OR "robot" OR "automation" OR "big data" OR "neural network*" OR "text mining" OR "natural language processing" OR "chatbot" OR "soft computing" OR "fuzzy logic" OR "biometrics" OR "geotagging" OR "wearable*" OR "IoT" OR "internet of things")* **AND** *("marketing" OR "marketing strateg*" OR "marketing practic*") AND (social enterprise*" OR "social enterpr*").*

We are aware that it is a hard goal to be achieved due to the novelty of the study. As far as we know, this is the first study focuses on three prominent topics: social marketing; SEs and AIs. We are going to stimulate new thoughts to scholars and practitioners on the understanding the existing *status quo* of SEs in the use of AI and implementation of social marketing. We would like to understand if there is

any change comparing with the past (Andreasen, 2002) and if the AIs are facilitating the development of social marketing campaign although resource constraints.

ACKNOWLEDGMENTS

Keywords: social enterprise marketing; social enterprise; artificial intelligence; digital transformation; systematic literature review

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THE IMPACT OF EARNINGS MANAGEMENT ON PERFORMANCE EUROPEAN BANKING: THE MODERATING EFFECT OF ESG

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ABSTRACT

Objective – This article aims to examine whether earnings management and the performance of Environmental, Social, and Governance (ESG) practices influence bank performance. Furthermore, the authors investigate whether ESG moderates the relationship between earnings management and performance.

Design/ Methodology – The empirical study is based on a sample of 32 European listed banks during the period 2017-2021, using the Generalized Moments Method (GMM) as an estimation methodology for econometric models.

Results – The results obtained suggest that earnings management has a negative and significant impact on banking performance. Furthermore, the empirical evidence tends to suggest that banks' ESG performance positively affects performance, positively and significantly moderating the negative impact of earnings management on European banking performance. Thus, the results suggest that ESG performance builds trust in the banking institution from the stakeholders' point of view. In line with the conclusions of Pathak & Gupta (2022), stakeholders accept performance, alleviating the need for managers to print the practice of earnings management. The results also suggest that regulators should promote more standards encouraging ESG-related practices in the banking context.

Practical implications – The study contributes to the growing literature on earnings management and ESG in the banking context. It provides a better understanding of their role as determinants of banking industry performance. The results suggest regulators should promote more standards encouraging ESG-related practices in the banking context. To our best knowledge, the effect of ESG performance on the relationship between earnings management and the performance of the banking industry has yet to be studied.

Despite the results found in the present study, it is not exempt from limitations, which are likely to be overcome with future investigation. Such limitations are mainly related to the way the variables considered are measured. First, banking performance is measured by formulas associated with the calculation of Tobin's ROA, ROE, and Q, which may not reflect the best option despite being widely used. Thus, considering other formulas for calculating and even measuring performance is of future interest. At the level of the ESG variable that translates the ESG performance of each banking

institution, it was considered, based on previous research, as a weighted average of the scores obtained in each of its components. It should be noted, however, that previous research has also considered another way to measure ESG performance – a weighted average of the scores obtained in each of its components, discounted for the impact of negative information on the media (e.g., Menicucci & Paolucci, 2023; Miralles-Quirós et al., 2019). Thus, we suggest testing the hypotheses concerning other measures to test the results' robustness.

Originality – In the best knowledge of the literature, the effect of ESG performance on the relationship between earnings management and banking performance has not yet been studied.

Keywords: ESG; Banking performance; Earnings management; European banks; GMM.

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THE EUROPEAN GREEN DEAL AND TURKEY: CHANCES FOR GREEN TECH TRANSITION AND MARKET GROWTH. A BIBLIOMETRIC ANALYSIS AND A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

INTRODUCTION

The European Green Deal (EGD), which was made public by the European Commission on 11 December 2019 is the European Union's (EU) new growth strategy that aims to make Europe the world's first climate-neutral continent by 2050, with net zero greenhouse gas emissions. (Republic of Turkiye Foreign Ministry: Directorate for EU Affairs, 2024a; European Commission, 2019). In this context, this strategy aims to transition the EU to a fully sustainable economy within the framework of combating climate change.

Since the EGD is the strategy of a giant economic bloc like the EU and envisages a serious sanction mechanism such as the *The Carbon Border Adjustment Mechanism*, it directly affects not only EU countries but also other countries that have commercial and political relations with the EU. One of these countries is Turkiye, which has the status of a candidate country for the EU and has a *Customs Union Decision* and strong economic relations with the EU. The chapters in the membership negotiations with the EU and the Customs Union Decision require Turkiye to officially/mandatory follow a policy compatible with the EGD (Republic of Turkiye Foreign Ministry: Directorate for EU Affairs, 2024b; Republic of Turkiye Foreign Ministry: Directorate for EU Affairs, 2022; Official Journal of the European Communities, 1996). Turkiye's being one of the countries expected to be most affected by climate change, its strong economic relationship with the EU and the fact that the EGD offers Turkiye the opportunity to transition to modern and sustainable technology and increase its market share in the EU require Turkiye to voluntarily follow a policy compatible with the EGD. In this context, the Republic of Turkiye Ministry of Commerce determined a new growth strategy compatible with the EGD and declared it in 2021 under the name of *Turkiye Green Deal Action Plan* (Ministry of Trade: Republic of Turkiye, 2022).

Since the EGD is a very new strategy, studies on its impact on Turkiye are very new and insufficient. Studies on this subject generally focus on the result rather than the meaning. However, this study focused on its meaning. The research question is the following: What the EGD means for Turkiye?

Could the strategy be the opportunity for the transition of Turkiye to sustainable technology and to increase its market share in the EU market?

METHODOLOGY

The main components of a bibliometric analysis are performance analysis and science mapping that allow to evaluate the productivity and impact of research and contributors in a specific field and also analyze the key themes. (Lim et al., 2023). To answer the research question, this work employs two methodologies: Bibliometric analysis and Systematic Literature Review (SLR). This research will utilize Bibliometrix, an R-language software, to perform a comprehensive and meticulous Bibliometric analysis (Aria et al., 2017). The SLR methodology involves the processes of identifying, selecting, categorizing, and analyzing relevant articles on a specified subject (Rana et al., 2022). Considering that Bibliometric analysis and SLR require the selection of the papers which will be analyzed to carry out the work, criteria such as database (Web of Science, Science Direct, Scopus, etc.), time range, keywords and boolean operators must be determined.

EXPECTED RESULTS

The main finding of the research is that the EGD and compliance with the EGD are an opportunity for Turkiye and therefore Turkiye's current compliance with the EGD is based not only on officially/mandatory but also on volunteering.

LIMITATIONS

About the limitation of this study, it could be summarized in the number of papers selected through the keywords chosen and the boolean operators used. These factors could exclude some papers on which this work is interested to examine in order to answer the research question. It could be one of the starting points for future research. Additionally, the study may be limited by the availability of full-text access to certain articles, which could lead to a partial view of the existing literature.

FUTURE RESEARCH

Starting from the above mentioned limitation, one possible future step could be the collection of other papers using different criteria like time frame, keywords and boolean operators.

Keywords: *Clımate Change, European Green Deal, Sustainibility, Turkiye Green Deal Action Plan*

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DYNAMIC PRICING IN THE DIGITALISED LINER SHIPPING INDUSTRY

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ABSTRACT

In the liner shipping industry, digitalisation is gaining momentum and being positioned as the industry's future, much like various other sectors. This study seeks to uncover the drivers of dynamic pricing strategies and the managerial and technological skills liner shipping businesses need to adopt digitalisation best practices. It aims to contribute to the expanding field of research on digitalisation in liner shipping. Qualitative research is conducted through semi-structured interviews with industry professionals and a review of pertinent literature on dynamic pricing and digitalisation within this sector. Thematic analysis of expert interview transcripts is employed to identify the primary drivers for dynamic pricing adoption in liner shipping along with their potential benefits, as well as the essential managerial and technological competencies required for successful adoption. The findings provide valuable industrial insights and lay the groundwork for future research while also offering recommendations for improving management and commercial practices within the liner shipping industry.

INTRODUCTION

The liner shipping industry operates within a volatile environment characterized by fluctuations in bunker prices, inflationary pressures, and disruptions in the supply chain (UNCTAD, 2022). Amidst these challenges, the industry has been undergoing a profound transformation driven by digitalization trends and shifting customer preferences. To effectively navigate this evolving landscape and address complex customer demands while adapting to market fluctuations impacting freight rates, liner shipping companies are increasingly turning to digitalization, particularly in the realm of pricing strategies (Egloff *et al.*, 2018). While the notion of adjusting prices in response to competition, as exemplified by the airline industry, has long been recognized (Dean, 1950), the advent of "Dynamic Pricing" represents a more recent development, with digital transformations exerting a profound influence on contemporary work environments (Jeschke and Endress, 2023). Such rapid shifts in digital innovation necessitate industry-specific adaptations in business practices (Endress and Badir, 2023). However, the transition from static to dynamic pricing poses inherent challenges, requiring meticulous planning and implementation due to uncertainties surrounding customer

behaviour and the need for organizational change (Ellickson *et al.*, 2012; Kahneman *et al.*, 1986). In light of these considerations, this study aims to explore the key driving factors behind the adoption of dynamic pricing and the managerial and technological capabilities essential for its successful implementation within the liner shipping industry.

METHODOLOGY

The paper presents qualitative research based on semi-structured interviews with industry experts and reviews relevant literature on dynamic pricing and digitalization in the liner shipping industry. To gather the relevant information from the industry, a suitable method would be to gather experts' opinions, as it is necessary to gain access from the observers and mechanics through semi-structured interviews (Elster, 1998). The interview questions span wide across the research objectives to discover and discuss any underlying issues or challenges regarding the adoption of dynamic pricing and digitalization in the industry. The authors take a thematic analysis based on the text transcription of the interview data with the experts using NVIVO 14 to analyse and identify the key driving factors.

FINDINGS

The study provides the key factors driving the adoption of dynamic pricing and digitalization in the container liner business and its potential benefits.
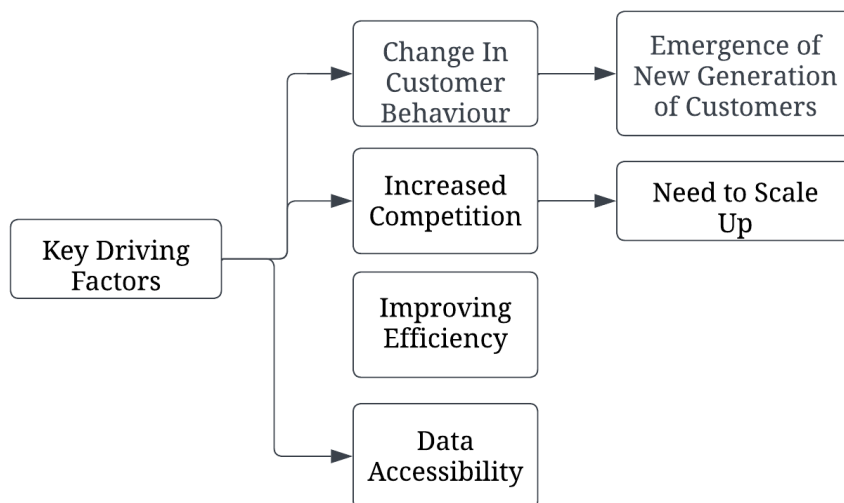
Figure 1 Key Driving Factors (Source: Author's compilation based on coding results from NVIVO14)

The findings underscore the intricate dynamics of dynamic pricing adoption within the liner shipping domain, accentuating its role in addressing evolving customer demands, enhancing efficiency, and

navigating heightened competition. Notably, the study also reveals a divergence in perspectives, with scepticism surrounding the perceived relevance and efficacy of dynamic pricing strategies in achieving overarching objectives among liner shippers.

CONCLUSION

In summary, the study delineates four primary catalysts driving the adoption of dynamic pricing within the liner shipping sector: evolving customer behaviours, intensified market competition, operational efficiency imperatives, and enhanced data accessibility. Significantly, a discernible shift in customer preferences towards online transactions underscores the urgency for swift and efficient transport solutions. Additionally, liner companies are compelled to leverage dynamic pricing strategies to maintain a competitive edge and elevate customer satisfaction levels. The implementation of dynamic pricing not only optimizes operational efficiency through process streamlining and data-driven decision-making but also mandates technological investments and talent augmentation. Furthermore, the study concludes by proffering actionable recommendations aimed at aiding liner shipping firms in adeptly navigating digital transformation and fortifying their competitive positions. These recommendations advocate for strategic investments in technology and workforce development, diversification of service portfolios, and strategic partnerships to expand service reach. Moreover, the study underscores the imperative for increased collaboration and standardization within the industry to effectively address the challenges and opportunities presented by dynamic pricing adoption. In addition, it is important to note that due to the chosen research approach, the findings of this study may lack generalizability. Therefore, researchers are encouraged to further test the proposed propositions to validate their applicability across diverse contexts within the liner shipping industry.

Keywords: Dynamic pricing, Digitalisation, Digital Transformation, liner shipping

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BENEFIT OR BURDEN? EXAMINING ECONOMIC IMPACT OF IMMIGRATION FOR THE HOST COUNTRY UNDER NEW CIRCUMSTANCES

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ABSTRACT

RESEARCH GAP/PURPOSE

The movement of people who cross state borders is a complex phenomenon observed all over the world. However, long-term data shows that international migration is not uniform across the world but is shaped by a number of factors, including economic, social, demographic, geopolitical and other factors, which result in distinct migration patterns (IOM, 2022; Bello Isaias, 1989). Mostly, migrants are moving to those states that offer the best economic opportunities. Furthermore, migrants are more likely to choose to immigrate to a country where human rights and freedoms are guaranteed and the level of discrimination is low. Moreover, recent large-scale migrations have been provoked by reactions to dangers posed by armed conflicts. For a considerable period of time, particularly since Lithuania's accession to the European Union in 2004, the country was perceived as a nation of emigration. In light of this, the topic of emigration of the Lithuanian population has been discussed in greater depth in scientific papers (Remeikienė and Gasparėnienė, 2018; Kasnauskienė and Kavalnis, 2021; Kavalnis and Kasnauskienė, 2022). However, since 2019, there has been a fundamental change in the demographic profile of the country, with the number of immigrants exceeding the number of emigrants (State Data Agency, 2024). Consequently, the new arrivals began to assume an increasingly significant role in the Lithuanian economy. One of the key questions on migration that has been widely discussed in the literature is the extent to which it benefits or costs the receiving economies. However, there is a paucity of knowledge regarding the impact of immigrants on macroeconomic indicators in the country following significant shifts in the direction of migration flows. Consequently, this paper seeks to address the aforementioned gap by identifying and analyzing the principal economic consequences of population immigration for the receiving country, namely Lithuania.

DESIGN/METHODOLOGY/APPROACH

The authors conducted a comprehensive literature review and employed a quantitative approach to examine the impact of immigration on key economic indicators. While there are numerous factors influencing the decision of immigrants to select a particular country, the availability of better employment opportunities remains a significant motivating factor. It is commonly assumed that an

increase in the number of immigrants will result in local populations becoming dissatisfied due to the rise in demand for employment, which makes it more challenging for them to find work. A substantial number of authors concur that substantial inflows of immigrants can influence the structure of the host country's labour market, thereby intensifying competition within it (Borjas, 2001; Edo, 2019; Edo et al., 2020). However, from an economic perspective, in a state that lacks a labour force, the arrival of immigrants can be viewed positively. On the other hand, if the labour market is already full of labour demand exceeding supply, incoming immigrants can raise the unemployment rate above the natural level and result in unemployment prevailing in the country. Moreover, the arrival of newcomers can affect the country's GDP, public finance, tax system, wages and the wider economy in the short, medium and long term (Tatay and Bándy, 2020; Hennessey and Hagen-Zanker, 2020; Edo et al., 2020; Glitz and Rapoport, 2024; Dritsaki and Dritsaki, 2024; OECD/ILO, 2018).

The empirical research presented here employs various methods and econometric techniques to address the issues identified in the use of State Data Agency quarterly data for Lithuania over the period from 2004 QIII to 2023 QI. These include the construction of autoregressive integrated moving average (ARIMA), vector auto-regression (VAR) and structural vector autoregression (SVAR) models. To ascertain the stationarity of the variables, Phillips and Perron (PP) unit root tests were employed. Furthermore, the Granger causality test was used to investigate the lag structure and identify exogenous variables in the VAR models.

The research question of our study is as follows: how may a receiving economy react to a change in immigration? The present paper focuses on three of the most frequently discussed dimensions of the economic impacts of immigration in the literature. In light of the aforementioned arguments, the following hypothesis are developed in the paper:

H1: An increase of the number of immigrants has a positive effect on the change in GDP per capita.

H2: An increase in the number of immigrants has a negative effect on the change in wages.

H3: An increase of the number of immigrants has a positive effect on the change in the unemployment rate.

FINDINGS/LIMITATIONS

The decision to reject or not to reject our hypotheses is taken based on the results of analysis of the data.

Empirical studies on the effect of immigration on GDP lead to different conclusions (OECD/ILO, 2018). Some researchers claim that in the long run, immigrants can increase the overall efficiency of the economy by bringing new skills, stimulating efficient specialization, and encouraging firm creation (Peri, 2014). There is, however, some general agreement in the literature that there is probably

a small positive effect on GDP per capita from immigration (Dustmann et.al, 2006).Our first hypothesis claimed that the increase of the number immigrants has a positive influence on GDP per capita change; however, the results of the study revealed the opposite relationship. Therefore, *H1* is *rejected*: an increase of immigration flows has a negative effect on GDP per capita in Lithuania.

Many studies in recent decades have analyzed the effect of immigration on the wages, assessing the magnitude and direction of the impact. Our results show that the change the increase of the number of immigrants has a positive effect on wages only after the first period, but after 5 periods, it has a negative effect, which is stronger than the positive one observed after the first period. Thus, the overall effect of immigration on wages in the long run is negative in case of Lithuania, and the second hypothesis *H2* is *not rejected*. These results are in line with the empirical evidence, which overwhelmingly suggests that there are zero or small negative effects of immigration on wages (Dustmann et.al, 2006; Peri, 2014).

The results of our analysis reveals that the amount of immigration does not have a direct impact on the change in the unemployment rate in Lithuania. Thus, the third hypothesis *H3* (the increase in the number of immigrants has a positive influence for the change in the unemployment rate) *is rejected*. It should be noted that in recent years, a number of studies have chosen many different ways and perspectives to look at the impact of immigrants on unemployment and wages leading the authors to the different conclusions. In other words, the results of these studies are too mixed to draw unequivocal conclusions. However, most of the empirical studies come to a consensus that in the *long term*, the impact of migration on employment and wages for the native population is either negligible or slightly positive, as outlined in Edo et al. (2020) and varies by geographic location. At the same time, the evidence is mixed regarding the *short term* effects of migration on employment and wages (Poledna et al., 2024; OECD/ILO, 2018).

It is worth noting some limitations of the empirical analysis. When conducting this kind of research, it is important to take into account the structural breaks of the studied variables, which may be present resulting from certain economic, geopolitical and other processes. When evaluating immigration in Lithuania, it is important to note that from the first quarter of 2022, due to the arrival of Ukrainians seeking asylum the amount of immigrants jumped sharply. In order to assess the economic impact of immigration in Lithuania more precisely and evaluate how the arrival of Ukrainians to Lithuania changed the dynamics of the economy, thus, to have a truer picture, period from the first quarter of 2022 should be excluded from the study.

Further research in the Lithuanian context is required to validate these findings and identify new correlations and meaningfulness. In light of the findings of other researchers, it can be observed that the impact of immigration may vary depending on the composition and qualification level of the

immigrant population. It is widely acknowledged that immigration has a more beneficial impact on economic growth when the immigrant flow comprises high-skill workers. Furthermore, the assessment of the impact of immigration on the Lithuanian economy could be enhanced by incorporating a structural shock into an econometric model. It can be observed that the quantity of immigration in 2022 increased considerably. Consequently, incorporating a structural shock into the model would result in more accurate outcomes.

ORIGINALITY/VALUE

Since 2019, the number of immigrants in Lithuania has increased significantly. It is a challenging task to assess the overall net benefit or burden to the host economy from immigration. Nevertheless, a comprehensive analysis of this subject matter reveals that establishing a correlation between GDP, domestic employment, wages on one hand and changes in immigration on the other will remain challenging in the Lithuanian context, particularly in light of the rising inflow and complexity of immigration. The study makes a unique contribution to the existing literature on the process of population migration and the identification of essential economic consequences in the case of a specific country. Furthermore, the findings of this research will inform future decisions, thereby enabling researchers and policymakers to gain a deeper understanding of the effects of inflows of migrants and to propose more effective, realistic, and proactive migration policies. It is also crucial to investigate the relationship between emigration and immigration flows and their impact on labour market outcomes (OEC/ILO, 2018). One of the principal channels through which migration affects growth is the skill level of immigrants (McCann, 2001; Nijkamp and Poot, 1998). This suggests that, given the challenges posed by an ageing population and a shortage of skilled labour, more open immigration policies, focused on attracting economically active immigrants with a balanced skill mix or slightly favouring the university-educated, would likely have a positive impact on the economy in the long term.

Keywords: Immigration, economic consequences, growth, unemployment, wages

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CAPACITY BUILDING IN THE HOSPITALITY INDUSTRY IN THE MAGHREB REGION

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ABSTRACT

The food sector is a major contributor to a country's cultural heritage, economy and even global reputation. By increasing their tourism potential, countries can improve their global competitiveness through the richness of their cuisine. Hence, interests in the food area might animate monetary development and open new revenue avenues. From a currently important and trendy social perspective, issues and patterns in the food sector such as organic food and sustainable food production straightforwardly affect the wellbeing and prosperity of society and mankind.

In addition, the activities of the food industry also have a significant impact on the currently much debated efficient use of natural resources, waste generation and climate change.

Current studies highlight the importance of education in promoting social sustainability in the food industry, particularly for marginalized groups. Both, Toussaint (2021) and Samkange et al. (2021) point to the role of education in promoting social sustainability and in bridging the development gap between privileged and marginalized communities. They recommend training programs to increase the awareness of employees and consumers. In this context, Valley et al. (2020) calls for the integration of an equity competency model in sustainable food systems education programs to address social inequities. Casanova-Correa et al. (2022) and Tippmann (2020), further, underscore the importance of education in promoting sustainable food production and consumption practices. However, O'Halloran and Silver (2022) challenge the assumption that sustainability related knowledge alone can trigger behavior change, suggesting the need for more diverse research in this area. These research gaps strongly imply that education and training for sustainability should be enhanced, integrating food producers in the process and to explore the potential for entrepreneurship to empower marginalized groups (Casanova-Correa et al., 2022; Samkange et al., 2021; Fagioli, 2024). Interestingly, Khojasteh (2020) focuses on the transformative potential of immigrant and smallholder food enterprises, respectively, in revitalizing communities and enhancing food security.

In this context, the digitalization of the food industry bears significant potential for sustainability and entrepreneurship (Kosior, 2022; Annosi et al., 2020; Amentae, 2021). Digitalization can enhance traceability in the food supply chain, reduce labor costs, and improve production time (Manjula et al., 2021). Key enablers of digitalization include blockchain, the Internet of Things, big data analytics, and

artificial intelligence (Amentae, 2021). However, the pace and scope of digital changes in the industry are still limited, with significant territorial inequalities in digitalization levels (Kosior, 2022). Furthermore, challenges in the adoption of smart technologies include infrastructure, cost, knowledge, and regulations (Annosi et al., 2020). Conclusively, the education/training and industry alike must effectively respond to environmental, social, economic and technological pressures in the food sector. Hence, future research should deepen our understanding of the interaction of internationalization, education/training, sustainability, climate changes, transformative digitalization and entrepreneurial opportunities in the food sector.

The project Food Routes (ERASMUS-EDU-2023-CB-VET- Capacity building in the field of vocational education and training (VET) aims to disentangle this complex web of challenges and intends to strengthen the VET ecosystem of the Maghreb region in providing a qualified young and entrepreneurial workforce in the gastronomy field in line with the aspirations of both private sector's stakeholders as well as those of young VET graduates. This will be done by empowering VET staff in supporting youth's career counselling and by providing new and relevant competence-oriented training to VET students for proactively seizing business opportunitiesin the gastronomy sector.

The main samples for Food Routes are employers, trainers, educators, and students in VET from the Maghreb region, in the Southern-Mediterranean.

Initially, this research aims to conduct a situation analysis on the aforementioned gaps and challenges of the food sectors in Tunisia, and Morocco comparing it with those of Germany, Italy and Greece to facilitate a comparison of perspectives and the transfer of best practice. The paper will provide an initial conceptualization to address research questions related to the aforementioned nexus between sustainability, technology and entrepreneurship. Initial findings of the first qualitative stage with respectively 8 employers and 8 employees/VET graduates in each country are provided to validate the initial conceptualization. The qualitative data are analysed via content analyis and the software MaxQDA.

Keywords: food, tourism, organic and sustainable food, professional education, training, entrepreneurship

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INDUSTRIAL SYMBIOSIS AND CIRCULAR ECONOMY UNDER THE FRAMEWORK OF INDUSTRY 4.0

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ABSTRACT

Research conceptualization. Industrial ecology is one of the most prominent philosophies related to sustainability and is not just a novelty in the constantly dynamic business environment. This multidisciplinary field emphasizes a fundamental concept, industrial symbiosis, to explain the holistic approach that describes the synergy between inter-organizational environmental management systems in aligning industrial systems with ecological principles, aiming for sustainability and reduced environmental impact.

Purpose. This article explains the value creation process enabled by industrial symbiosis to achieve the circular economy objectives under the framework of Industry 4.0. A circular economy, as opposed to a linear economy, represents a unique viewpoint that offers our society sustainable production and consumption while balancing the economic, environmental, and societal dimensions. Consequently, we conducted a bibliometric analysis to address the subsequent research inquiries:

RQ1: How is the research of the circular economy impacted by the advancement of Industry 4.0 and network approaches over time?

RQ2: How is the research of industrial symbiosis impacted by the advancement of Industry 4.0 and network approaches over time?

RQ3: What are the upcoming opportunities to consider in research into the circular economy to generate value through industrial symbiosis?

Methodology. A bibliometric analysis was performed to explore our data and to address our main research questions. This methodology is a widely employed and valuable approach that incorporates quantitative metrics and indicators to evaluate scientific and technological fields based on bibliographic data (Gutiérrez-Salcedo *et al.*, 2018; Pessin, Yamane, and Siman, 2022). Our research protocol has two primary parts: data set configuration and enhancement of results. The literature investigation was conducted by relying on the Scopus database, the most extensive database for abstracts and citations. We performed a search for articles based on titles, keywords, and abstracts by reviewing the literature on Circular economy, industrial symbiosis, network approach, and industry 4.0 (Araujo Galvão *et al.*, 2018; Fraccascia and Giannoccaro, 2020; Neves *et al.*, 2020; Sony and Naik, 2020; Alnajem, Mostafa and ElMelegy, 2021; Arruda *et al.*, 2021) and by employing our understanding throughout the field, to

establish relevant and accurate terminology. This method yielded the following keyword formula: ("industrial symbiosis" AND "circular economy" AND "industry 4.0" and "network analysis").

Research limitations. This study's limitations are related to a small sample of articles analyzed, a specific precise keyword algorithm on Scopus as a larger sample of articles and a different keyword algorithm applied at another search database could generate different outcomes. Those limitations need to be considered in future research.

Implications and contribution. This research emphasizes the importance of the circular economy as a prerequisite to lead toward sustainability and how industrial symbiosis can contribute to a circular economy according to the conditions defined by Industry 4.0. The technical aspects of the creation of new value are supported by the contribution of Industry 4.0, which provides new technologies that facilitate the functioning of the latest business models defined by the circular economy. This article also delineates practices that aim and intend to create the necessary context to promote a circular economy through industrial symbiosis. The network approach remains a crucial strategy to guarantee the participation of all interest groups and their inclusion by facilitating their contribution, as well as a more holistic approach that better enables the aims toward sustainability relying on the ecosystem approach (Baldassarre *et al.*, 2019).

Originality of the paper. Based on the main motives of this paper, we formulated this research to address the identified gaps and to contribute to providing a multidisciplinary framework for the exploration of industrial symbiosis and circular economy in Industry 4.0 in future research. Bibliometric literature analysis applies to industrial symbiosis and the circular economy. However, we find that there is enormous potential for bibliometric approaches to address the context of Industry 4.0 and its networks, try to provide a rigorous assessment of literature, and bring an ecosystem view (Baldassarre *et al.*, 2019; Oughton *et al.*, 2022) that ensures the universality of the actors involved. Furthermore, through the treatment of three research issues, our work contributes to the inter-disciplinary debate on sustainability, addressing not just the needs of the technological context and affecting the progress of the debate. Since the study's progress will occur at the intersection of three interdisciplinary fields: industrial synergy advancement, circular economy advancement, and industry 4.0 advancement, future research recommendations should focus on the integration of all fields and address important questions that must still be answered.

Keywords: Circular Economy, Industrial Symbiosis, Industry 4.0, Sustainability, Business, Transformation

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HOW DO MEANINGFUL WORK AND ALIGNMENT WITH ORGANIZATIONAL VALUES AFFECT ORGANIZATIONAL CITIZENSHIP BEHAVIOR?

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ABSTRACT

Drucker, the great management thinker, stated in his classic study (1955) that "the spirit that motivates, that calls upon a man's reserves of dedication and effort…decides whether he will give his best or just enough to get by". The concept of *'workplace spirituality'* is relatively new, recently arising in the organizational behavior domain of scholarly literature (Jena, 2022). While toxic culture was found as the biggest factor pushing employees out the door during the Great Resignation (Sull *et al.*, 2022), awareness of workplace spirituality is crucial (Stokes *et al.*, 2016). Our goal is to move away from the literature's primary focus on the direct relationship between social exchange, trust, and OCB, and thereby explore the nature of exchanges through workplace spirituality as a mediator among front-line service employees.

This study makes three major contributions. Recently, the study of the impact of spirituality on service employees has emerged as an empirical topic (e.g., Bayighomog and Arasli, 2019; Hassan *et al.*, 2021). Specifically, employees with a high level of spirituality translate it into their motivation for public service (Hassan *et al.*, 2021). The current study provides a framework and rationale for fostering workplace spirituality among service employees and further suggests that workplace spirituality is a beneficial resource for service organizations. Second, despite the rapid growth of the literature and interest on spirituality at work, identifying the drivers of workplace spirituality as well as its effect on OCB represents another avenue for needed research. Further research should pursue the relationship between workplace spirituality and performance while also probing possible moderators and mediators (Rathee and Rajain, 2020). The current study offers an innovative perspective on previous research by proposing and testing the mediating role of workplace spirituality between social exchange, organizational trust, and OCB. Finally, while Employee–Organization Relationship (EOR) framework serves as a foundation for understanding OCB (Shore *et al.*, 2006), a review of the empirical evidence shows that while mutual investment is a dominant element of EOR, research has not sufficiently differentiated between OCBO and OCBI (Coyle-Shapiro *et al.*, 2018). This research seeks to address this shortcoming in the literature by examining the relationship between the components of

workplace spirituality (i.e., alignment with organizational values and meaningful work) and OCBO and OCBI (see Figure 1).

Figure 1: Research Model
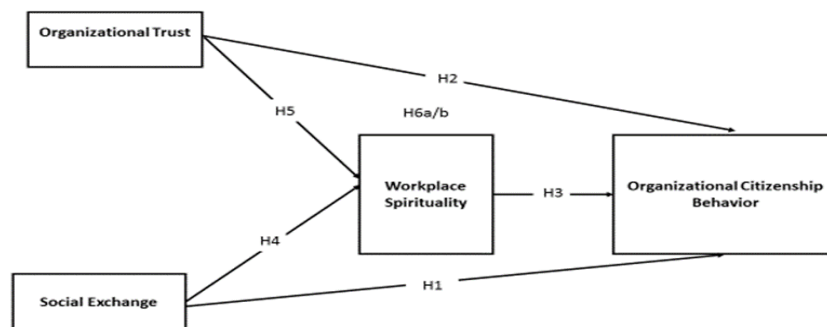
METHOD

An online survey was conducted at two different chronological points. The two questionnaire waves were paired, providing complete data for 350 participants. All items were measured on a Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). *Organizational Trust (T1)-* was assessed via a four-item measure developed and validated by Huff and Kelley (2003); *Social Exchange (T1)-* was assessed via a seven-item measure developed and validated by Shore *et al*. (2006); *Workplace spirituality (T2)-* was measured based on 15 items developed and validated by Ashmos and Duchon (2000) and modified by Milliman *et al*. (2003); *OCB (T2)-* was measured based on Williams and Anderson's (1991) scale. OCB is divided between two dimensions: Six-items measured OCBO and six-items measured OCBI; *Control Variables (T1)-* variables were controlled, including gender, education, and tenure to determine if demographic characteristics have any significant impact on a model. Previous studies showed that these demographic variables are potential predictors of OCB (Kim, 2014; Kirkman *et al*., 2009).

RESULTS

A measurement model was performed as a preliminary test for construct validity and this resulted in an acceptance model fit level and beyond (χ^2=1019.54, df=636, p<.001; CFI=.944, TLI=.938; RMSEA=.046, 95% CI [.037, .046]; SRMR=.054). Correlations between variables as received from the measurement model confirmed all the direct hypotheses (H1-H5). The final structural model included the control variables (i.e., gender, education, and tenure). The model Goodness-of-Fit met acceptance criteria (χ^2=1368.99, df=741, p<.001; CFI=.927, TLI=.920; RMSEA=.049; SRMR=.054) (Marsh et al., 2004). The mediating hypotheses (H6a-H6b) were tested within SEM. The mediating effect of workplace spirituality was tested through its two dimensions (i.e., alignment with organization's values and

meaningful work); additionally, we distinguished between the two outcome forms of OCB (i.e., OCBI and OCBO). The path from social exchange to OCBI was indirectly mediated through alignment with organizational values (indirect=.12, p<.05), as was the path from trust to OCBI through alignment with organizational values (indirect=.12, p<.05). Indirect effects were also found from social exchange and trust toward OCBO through meaningful work (indirect=.07, p<.05; indirect=.08, p<.05; respectively). All indirect effects were complete rather than partial. In sum, the findings support our original hypotheses and research model.

DISCUSSION

This study serves as stepping stones toward integrating workplace spirituality in the stream research concerning the EOR framework and OCB. Empirically testing workplace spirituality and OCB by their latent factors advances the field by exposing unique relationships rather than the general one. The current study is the first of its kind to address workplace spirituality as a mediator between social exchange, organizational trust, and OCB. We provide preliminary evidence that both social exchange and organizational trust relate to meaningful work, which, in turn, relates to OCBO. Vedula and Agrawal (2024) stated that spiritual needs are related to meaningful engagement in work. This perspective contends that incorporating meaningful work positively impacts service employees' attitudes toward their organization, including OCBO. Interestingly, another substantive insight this study provides concerns the mediating role of alignment with organizational values between social exchange, organizational trust, and OCBI of service employees. We expect that service employees who perceive an alignment with organizational values feel a sense of belongingness and are more likely to be psychologically attached to their colleagues. A sense of relatedness can increase empathy for others, which can motivate employees to act in ways that benefit others (Einolf, 2013). This finding contributes to the existing literature on EOR by opening a new research perspective on OCB. We trust that this study provides insights and inspiration on the application and incorporation of spirituality in work settings.

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HOW TO REAWAKENING WORK PASSION AFTER COVID-19 PANDEMIC?

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ABSTRACT

Beginning in 2021 and 2022 two key events profoundly affecting organizations have been labeled the 'great resignation' and 'quiet quitting' (Formicaa & Sfodera, 2022). These two significant workplace trends raise questions about employee's motivation. With this as background, the present study proposes a key assumption: Work-Family Enrichment (WFE/FWE) and trusting belief in managers can be perceived as resources that support, enrich, and enable employees to be more work passionate, and this, as a result, will decrease their turnover intention as well as increase their trusting behavior.

This study offers several theoretical and practical contributions to the discipline of motivation: First, although work passion mostly relies on one dominant theoretical perspective, we assume that investigating its various antecedents and outcomes should make use of multiple theoretical perspectives. Therefore, this study provides important theoretical underpinnings for our understanding of the interrelationship dynamics of the research model by synthesizing and extending the boundaries of both Conservation of Resources (COR) theory (Hobfoll, 1989, 2018) with Self-Determination Theory (SDT) (Deci and Ryan, 2000); Second, this study presents a unique perspective concerning the mediating role of work passion. Therefore, according to Vallerand (2015), a core element of passion is that it is generated in the context of a specific activity. Drawing on COR theory, WFE/FWE produces positive ideal conditions which permit employees to build resources that can increase their investment and passion at work and yield a 'caravan passageway' (Hobfoll, 2011). This dynamic reflects a gain spiral helping to predict less turnover intention, as well greater trusting behavior; Third, the current study provides novel insights about the sophisticated dynamics of resource investment and acquisition in the manager-employee relationship. The impact of the manager-employee relationship on employees' passion has not yet received adequate research attention (Egan *et al*., 2017). Using COR theory, we argue that an effective relationship can yield a positive resource caravan passageway (Hobfoll, 2011). Trusting belief in one's manager influences an employee's ability to develop resources, such as work passion, which subsequently yields trusting behavior. Following SDT (Deci and Ryan, 2000), this 'caravan passageway' suggests that *relatedness* plays a role in the maintenance of employees' work passion.

Figure 1: Research Model
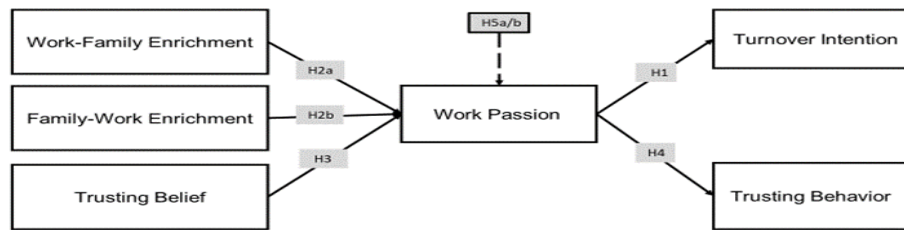
RESEARCH METHOD

The survey was conducted online utilizing iPanel, a broad and representative Israeli online database panel. The survey was administered in three waves within a period of two weeks between each wave to another. 352 respondents completed the three waves survey. All measures except trusting behavior were rated on a 7-point Likert-type scale ranging from 1 = strongly disagree to 7 = strongly agree. *Trusting belief* (T1)- was measured using the 4-item developed and validated by Robinson (1996); *Work-Family/Family* (T1)-*Work Enrichment*- was measured using the 6-item scale presented by Grzywacz and Marks (2000); *Work Passion* (T2)- was measured using the 7-item harmonious passion of developed and validated by Vallerand *et al*. (2003); *Turnover Intention* (T3)- was measured using the 3-item designed by Sjoberg and Sverke (2000); *Trusting behavior* (T3)- was measured using the 4-item designed by Clark and Payne (1997); *Control variables*- included socio-demographic characteristics, such as employees' seniority, education, gender affiliation and work place (hybrid working, work site only). For modeling we used the Mplus V.8.3 statistical package (Muthén & Muthén, 2018).

RESULT

The measurement model goodness-of-fit met required quality and showed an acceptable fit to the data: χ^2=378.97, df=231, p<.001; CFI=.968, TLI=.962; RMSEA=.043, 95% CI [.035,.050]; SRMR=.047 (Hu & Bentler, 1999) which provided the construct validity. Next, we tested the direct research hypotheses. The results of the structural paths providing support for H1-H4, excepting for H2b. Then, we analyzed the role of work passion as a mediator. A 95% confidence interval follows the indirect effect, which is the result of multiple resampling based on the bootstrapping technique ($n_{repeats}$=1000). Complete indirect effects were found in work-family and family-work enrichment on turnover intentions (indirect=-0.07, p<.05; indirect=-0.02, p<.05; respectively), thus confirmed hypothesis H5a. Note that although hypothesis H2b was found to be insignificant, the indirect effect is presented beyond Baron and Kenny original requirements for mediation effects (Hayes, 2009). Regarding H5b, work passion only partial mediated effects the relationship between trusting beliefs and trusting behavior (indirect=0.03, p<.05).

DISCUSSION

In the context of the big resignation and the quiet quitting, this study tried to give an answer on the way utilization of resources may create a fertile ground underlining how to reduce turnover intention and increase trusting behavior. First, using COR theory (Hobfoll, 2010), we argue that WFE and trusting belief are positive resource caravan passageway that can influence an employee's ability to develop work passion. Otherwise stated, according to the SDT orientations toward behaviors are assumed to develop from social contexts person's basic needs (Deci and Ryan, 2000). In this perspective, the internalization of passion relies greatly on how personal and environmental factors enable fully or to a certain extent integration of behavior (Curran *et al.*, 2015). Second, our theorizing suggests that WFE can help employees gain resources that could decrease the likelihood of turnover intention. Since the findings about the direct relationship between WFE and turnover intention were mixed (Hammond et al., 2020; Wang, 2020), this study presents a new perspective through the mediating role of work passion. Drawing on the COR theory, WFE produce positive ideal conditions which permit employees building resources that can increase their investment and passion at work and yield 'caravan passageway' (Hobfoll, 2010 2011). This dynamic reflects a gain spiral that help to predict less turnover intention. Third, the current study is the first of its kind that addresses the mediating role of work passion between trusting beliefs and trusting behavior. While people possess higher levels of resources, it would place them in a resource gain perspective (Halbesleben et al., 2014). Trusting belief in manager influences an employee's ability to develop resources such as, work passion which subsequently yields trusting behavior.

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DEALING WITH COMPLEXITY – THE CONTRIBUTION OF PARTICIPATORY MODELLING APPROACHES TO PROBLEM-SOLVING

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ABSTRACT

There is no doubt that the world we live in is full of complexity. Some notable events that have had a major impact on global complexity since the beginning of the new millennium have been the terrorist attacks in New York and their aftermath, the global financial crisis and its impact on almost every world economy, the recent pandemic which affected millions of people in complex physical and psychological ways, and the current wars in Ukraine and the Middle East with their devastating impact and frightening prospects. Furthermore, the ongoing problems of climate change, poverty, human trafficking, illegal immigration and lack of democracy in so many parts of the world do not seem to be fading away and are far from reaching a solution. Such global challenges are in many ways interrelated and have serious social, economic, geopolitical, cultural and other implications for the whole of humanity. Governments, organisations and societies around the world often find it very hard to respond to these problematic situations, which are often described as 'messy' or 'wicked'.

The decision-support discipline of operational research (OR) emerged in the period ahead of the second world war as an interdisciplinary approach to provide help in improving the strategic and tactical effectiveness of military systems. It was soon realised that the new discipline was able to provide a very powerful analytical approach to problems of increased complexity. The need to recognise the systemic nature of problems and to take a holistic approach in addressing them was implicit in the philosophy and actions of the pioneers of operational research. However, the new discipline soon appeared to take a very scientific and mathematical direction and to lose its interdisciplinary character and holistic orientation. Despite its undoubted record of success in areas such as optimisation, transportation, logistics, forecasting etc, operational research seemed to find it much harder to deal with complex problems involving multiple stakeholder groups and the existence of conflict.

In response to this inability of the traditional OR approach to deal with ill-structured and often messy situations, a range of participatory modelling approaches have been developed over the years. These are strong analytical approaches with a sound theoretical and epistemological basis but, at the same time, non-mathematical and therefore approachable to a wide range of people from different

backgrounds. Focusing primarily on how to enable the different actors to work together, these participatory modelling approaches have played an important role in addressing complex problematic situations in organisations and society.

This paper examines the contribution that participatory modelling approaches have made to problem-solving. The paper focuses on the particular characteristics that enable this domain of operational research to deal effectively with situations of high complexity. As a result, it is argued that participatory modelling approaches have expanded the entire decision-support discipline of operational research and significantly contributed to its holistic nature and problem-solving orientation.

Keywords: Complexity, decision support, participatory modelling, problem structuring methods, operational research, problem-solving.

THE ROLE OF CO-CREATION OF SOCIALLY SUSTAINABLE ACTIVITIES AND USER-GENERATED CONTENT: AN EXPLORATORY STUDY INTO GENERATION Z CONSUMERS' WELL-BEING

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ABSTRACT

Social networks have become a great communication channel that enhances interaction, engagement, and co-creation of activities or content. Recently, Appel et al. (2020) stated that businesses invested in digital media to enhance their development and customer engagement by 70% and 80%. Rosli et al., (2018) suggest that every company should adopt an engagement marketing approach, including company-customer interaction and collaborative systems (Rosli et al., 2018). The co-creation of socially sustainable activities through volunteerism and/or donations for sustainable causes (Sohier et al., 2023) followed by user-generated content regarding these activities has the potential to enhance Gen Z consumers' well-being (Bastos, 2020). Therefore, it is suggested that volunteerism related to sustainable activities can be an important tool for companies.

The following section introduces two preliminary conceptual models that can be tested through the collection and analysis of empirical data.

Co-creation of Socially Sustainable Activities

According to Tanvir et al. (2021), the success of sustainable activities of any company, could not be achieved without the involvement of customers through digital media and that is a point that needs further research effort. That is consistent with Trivedi et al. (2018), who stated that success is driven by the engagement of customers in sustainable actions. Sohier et al. (2023) specifically delved into the realm of volunteerism. They found that volunteering in socially sustainable activities could be of great importance to Generation Z and could strongly affect their well-being. This study showed how volunteerism linked to social activities, has the power to trigger strong emotions. The volunteers perceive themselves as 'co-producers', which subsequently, makes them feel proud, and in turn, enhances their well-being. Lee et al. (2021) attempted to expand the spectrum of participatory activities, by adding behaviors such as donating, volunteering, and more. This relationship leads to the first research question that will be empirically explored: Does co-creating socially sustainable activities such as volunteerism, donating and others affect Gen Z consumers' level of Eudemonic and Hedonic well-being? The proposed model that follows below, in Figure 1, shows this relationship.

Figure 1: Co-creation of socially sustainable activities and the relation to well-being.
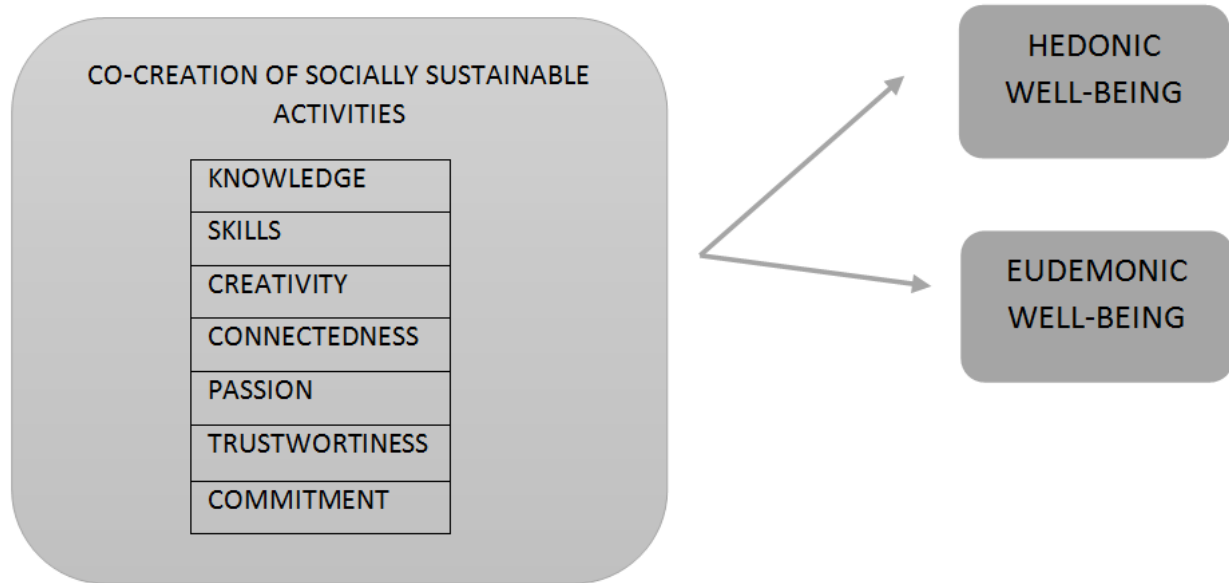
CCCV Scale by Merz et al. (2018)

Such experiences created through sustainable activities greatly contribute to Generation Z's well-being when they share it through social media, creating a sense of joy. Bastos (2020), uncovered that consumers attain comparable levels of happiness through conversations about either material possessions or experiential encounters. When the subject matter holds a high conversational value, equivalent to the extent of discussions generated by experiences, it engenders happiness equivalent to that derived from experiences. That is why shared content has a high level of importance in this procedure.

User-Generated Content

Fulgoni (2015) stated that the core of social media is user-generated content. Shao and Ross (2015) reported that companies should not ignore the huge potential of social media to collaborate with their customers to generate value. User Generated Content is any kind of available content, for instance, text, videos, pictures, and snapshots "created outside of professional rules and practices" (Kaplan and Haenlein, 2010, p. 61). User-generated content is a very appreciated marketing instrument because it enhances purchase intention (Mayrhofer et al., 2020). In addition, suggestions/complaints, interactivity with other consumers, active involvement in social platforms, and co-creation, can actively contribute to client experience by developing emotions and feelings that are important (Tanvir et al., 2021), and feelings related to hedonic and eudemonic well-being should be further researched. Khan et al. (2019) proposed that sustainable initiatives are very important towards creating customer engagement, not only because consumers can participate in product development but also in a social cause. In turn, the second research question proposed in this context is: Whether co-creating value through User-

Generated Content can affect the level of Generation Z consumers' engagement which in turn enhances Eudemonic and Hedonic well-being. This research question leads to the second preliminary model presented in Figure 2.

Figure 2: Co-creation through User-generated content and the relation with well-being.
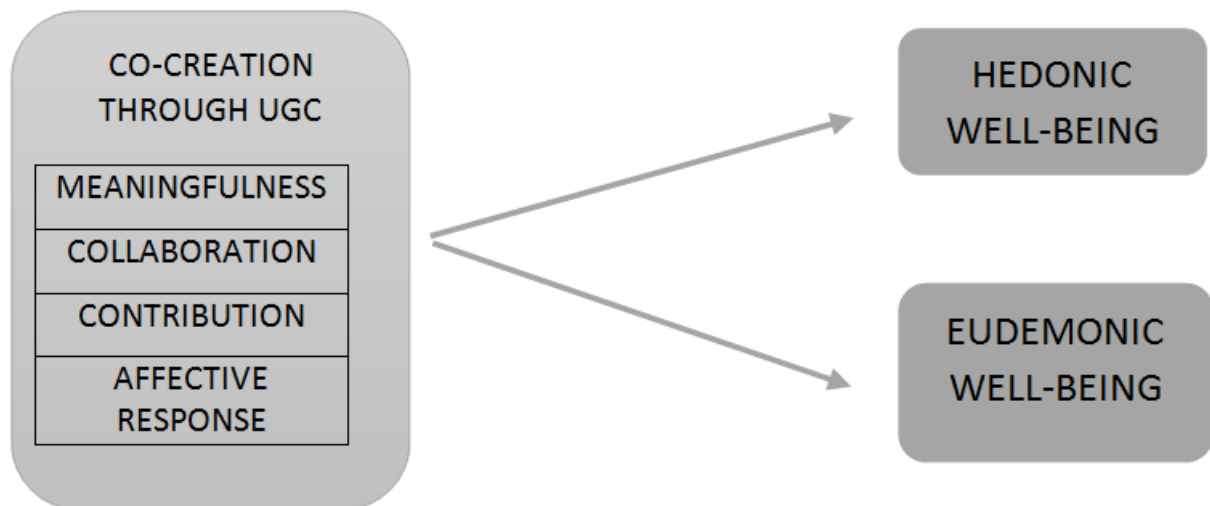
CCV Scale by Busser et al. (2018)

IMPLICATIONS OF THE RESEARCH

The proposed conceptual models that will guide the data collection will result in research findings that will have practical implications for businesses that invest in sustainability. The study presents an itinerary for businesses to successfully convey their dedication to sustainability and involve customers in co-creative activities by demonstrating the possibilities of media in the framework of sustainability. Particularly, the first proposed model of this research will highlight the specific dimensions of co-creation of socially sustainable activities that affect Generation Z's well-being to the highest degree. That could be through promoting the level of knowledge on the firm's activities, the skills needed to participate in sustainable activities, the level of creativity that participants feel that they use in the process, the degree of connectedness with others, or dimensions that drive consumer's motivation, such as passion, trustworthiness, and commitment.

Regarding the analysis of the effect of the User-Generated Content on GenZ well-being, this study will highlight which feelings that arise from the co-creation process through UGC have the most impactful result and, by taking advantage of this information, try to stimulate it through their social media. It could be the meaningfulness of the procedure (if it is important and valuable to the users), the level of collaboration (feelings of belonging to a team and working together for a sustainable purpose),

feelings of contribution with their knowledge and skills, and finally the affective response (feelings of joy, interest, and excitement).

All above findings can show the path to organizations, how to handle their social media and stimulate socially sustainable activities or promote co-creation through User-Generated Content, to denote their identity, increase customer loyalty, and enhance their efficiency. This can be especially beneficial for brands trying to revive their target market, increase revenue, and enhance competitiveness by focusing on sustainability effectively.

Keywords: Generation Z, well-being, co-creation, user-generated content, socially sustainable activities

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SPONSORSHIP, BRAND EQUITY AND SMES: A QUANTITATIVE STUDY

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ABSTRACT

INTRODUCTION- AIM OF RESEARCH

In the dynamic business landscape, characterized by a growing saturation of advertisements, companies, particularly small and medium-sized enterprises (SMEs), are compelled to explore alternative and more efficient methods of engaging with customers. This has transformed conventional marketing tools into a more efficient means of communication. Sports sponsorship may be seen as a strategic business-to-business (B2B) partnership between a sponsoring firm and a sports organization or athlete, with the aim of benefiting both parties (Farrelly & Quester, 2005). Companies participate in sponsorship activities to fulfil several aims, including fostering relationships, providing leisure for stakeholders, seeking alternative business prospects, and enhancing brand value (Funk et al., 2016). Although activities are sponsored by organizations of all sizes, the majority of academic research has concentrated on the endeavors of bigger organizations. Thus far, a significant proportion of research has overlooked the influence of sponsorship on brand equity of smaller businesses. The present research explores the impact of sport sponsorship antecedent factors on the brand equity of small and medium-sized businesses, and its subsequent effect on supporters' purchase and word of mouth behaviors.

THEORETICAL BACKGROUND

Involvement in sport is a valuable notion for comprehending the behaviors and attitudes of sports fans, and it has been connected with the degree of pleasure derived from a specific event. In the context of sports marketing, it has been shown that involvement with sports considerably affects the desire to acquire sponsors' products. In addition, empirical research shows that engagement modulates the connection among user-generated content and brand perceptions (Inoue et al., 2021).

The degree of congruence among the sponsoring firm and sports team can be delineated as the apparent resemblance between the image of the team brand and the sponsoring brand, as viewed by the supporters. Congruence fosters lucidity in the thoughts of supporters and improves their recall (Pradhan et al., 2020). Sponsor-brands that exhibit a high level of congruence with the club seem less bothersome and more readily accepted.

A sponsored team's success or failure may serve as the distinguishing characteristic by which audiences assess the brand and the club itself, given that "a fundamental principle of sports is that there are victorious and defeated" (Crompton, 2015, p. 27). Moreover, as Crompton (2015) argues, loss may be associated with failure and inferiority, which can have a detrimental impact on how viewers perceive the sponsored brand's dependability and competence. Additionally, customers' trust in a brand is influenced by their perception of the brand's dependability and competency (Chaudhuri and Holbrook, 2001). Hence, when individuals are exposed to the stimulus of a sponsored team's unsuccessful outcomes, it will have an adverse impact on the level of faith the audience places in the brand that sponsors the club.

According to Farquhar (1989, p. 7), brand equity refers to the extra value a certain brand brings to a commodity. Farquhar also argues that brand equity enables an item to be priced at a premium. Brand equity may be defined along four dimensions—awareness, associations, perceived quality, and loyalty— as proposed by Aaker (1991), who was the first to acknowledge the connection between consumers' ideas and perceptions and brand equity. Brand awareness pertains to a consumer's capacity to identify and acknowledge a brand, whereas brand loyalty includes any connections stored in memory that are associated with the brand (Aaker, 1991). Perceived quality refers to a consumer's subjective evaluation of the overall quality of a product or service, whereas brand loyalty indicates the likelihood of a customer switching to a different brand.
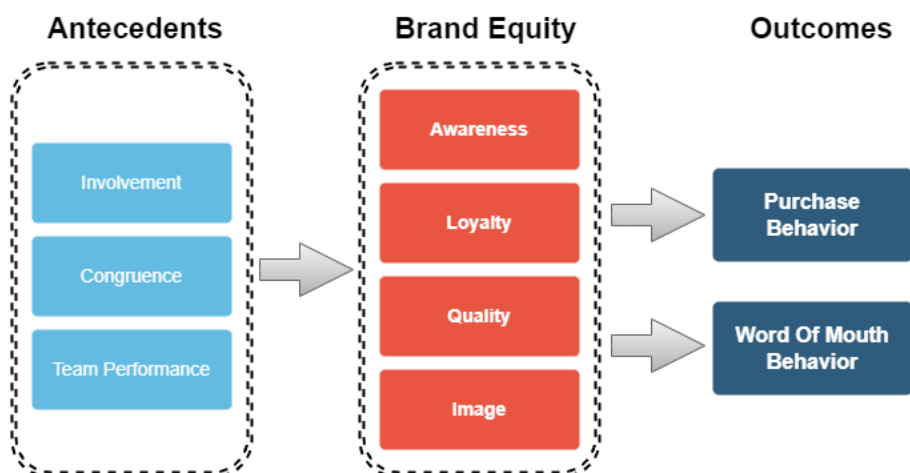
Figure 1. Proposed model

H1: Sport Involvement is expected to affect SME's brand equity.

H2: Congruence is expected to affect SME's brand equity.

H3: Team performance is expected to affect SME's brand equity.

H4,5: Brand equity of the sponsor is expected to affect spectators' purchase and word of mouth behavior.

METHODOLOGY, RESEARCH DESIGN AND DATA ANALYSIS

For the aim of the study, a quantitative methodology was employed, and online surveys were gathered from spectators attending Greek Division A and Division B football matches during the 2022-23 season. A total of 5,389 questionnaires were successfully completed and analyzed by SPSS and AMOS

RESULTS, DISCUSSION AND IMPLICATIONS/CONCLUSIONS

The hypothesized relationships of the model were analyzed via the use of Structural Equation Modeling (SEM). Explanatory Factor Analysis provided evidence of a robust Kaiser-Meyer-Olkin (KMO) index exceeding 0.8 for all scales, indicating their suitability for constructing more refined research inquiries or hypotheses to facilitate detailed investigation. The variance explained by factors across the 9 variables ranged notably from 16.3% to 90.4%, underscoring the substantial influence of the constructs under study. Moreover, Confirmatory Factor Analysis yielded favorable fit indices, with normed χ^2 values below 1, RMSEA values under 0.1, and NFI values exceeding 0.95, alongside CFI values surpassing 0.9 for all scales, signifying the robustness of the measurement model. Of particular significance was the observed strong correlation between team performance and purchase behavior (0.801), underscoring the interrelationship between these constructs within the model. Furthermore, correlations among the remaining variables ranged from (0.229) to (0.614), reflecting varying degrees of association among the constructs. Finally, the findings from the SEM provided substantial support for all proposed hypotheses (H_1-H_5), thereby reinforcing the theoretical framework underpinning the study and offering insights into the dynamics of the relationships among the variables examined.

Table 1: Structural Equation Model Weights

Affect				Estimation	P	S.E	Results
H1	Sport Involvement		Brand Awareness	0.775	***	0.169	S
			Brand Loyalty	0.848	***	0.101	S
			Brand Quality	0.762	***	0.152	S
			Brand Image	0.514	<.005	0.088	R
H2	Congruence		Brand Awareness	0.551	<.005	0.018	R
			Brand Loyalty	0.213	<.005	0.003	R
			Brand Quality	0.683	<.005	0.007	R
			Brand Image	0.904	***	0.195	S
H3	Team Performance		Brand Awareness	0.759	***	0.114	S

			Brand Loyalty	0.831	***	0.184	S
			Brand Quality	0.471	<.005	0.019	R
			Brand Image	0.163	<.005	0.031	R
H4	Brand Equity		Purchase Behavior	0.824	***	0.110	S
H5	Brand Equity		Word of Mouth Behavior	0.894	***	0.148	S

S=Supported, R=Rejected, SE=Standard Error, NFI = .951, CFI = .917, SRMR = .032, RMSEA = .047.

Keywords: sponsorship, brand equity, SMEs

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ENHANCING TOURISM THROUGH METAVERSE AND AI: A SHIFT TOWARDS DIGITAL CUSTOMER CENTRIC EXPERIENCES

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ABSTRACT

The tourism sector is under an unparallel shift that is transforming the traditional tourism business models, the tourism destination marketing and management, and also the visitor experience and engagement, inevitably leading tourism towards a more technology-enabled perspective (Leung, 2020; Neuhofer and Buhalis, 2012; Buhalis and Matloka, 2013; McKenna *et al.*, 2018; Serravalle *et al.*, 2019; Hadjielias *et al.*, 2022; Vrontis *et al.*, 2022). This study proposes the need to further explore this shift and evolution from the traditional tourism practices to the more innovative and technology oriented approaches, with a particular focus on how the metaverse and the artificial intelligence (AI) can be used to enhance tourism customer experience into destinations.

Aim of this study is to provide an analysis on the current condition and the future possibilities that these technologies create in enhancing tourism, focusing on the creation of more customer centric tourism experiences with the aid of technology. Within this framework, a historical review of the evolution of tourism and the gradual change towards digitalisation and technology enhanced experiences will be conducted, highlighting the need to understand the changes for the tourism sector in the current rapidly evolving digital age.

This study will use the integrative literature review methodology to explore relevant studies from various databases and broader sources (Whittemore & Knafl, 2005), delivering fresh perspectives and condensed information (Lubbe *et al., 2020*). The selected methodology will result in the improved analysis of the study's research question, that is: How the metaverse and AI transform the experiential landscape of tourism destinations?

The expected outcomes of this study are to reach a comprehensive understanding of how the new digital technologies or metaverse and AI will transform the tourism industry, providing insights into the changing customer preferences and their potential impact on destinations. Additionally, will be further explored the evolution of the technology-enabled customer centric tourism experiences.

The anticipated contribution of this research to the field is to shed light on the different parameters of the consumer behaviour and preferences that are changing due to the new immersive digital technologies, informing this way the travelers' engagement approaches and the related destination management strategies.

The study's outcomes could provide valuable perspectives for tourism professionals to gain insights into the way the modern tourists perceive and interact with the technology-enabled experiences. This could assist them design future tourism services and products that will better meet the customers' preferences and expectations, enhancing the tourist experience and as well create new revenue streams. For tourism policymakers this study could be helpful in developing policies towards a successful integration of technology into the tourism and hospitality sector, in a sustainable and responsible way that will balance innovation with environmental, cultural, social and heritage preservation.

Keywords: customer experience, metaverse, artificial intelligence (AI), tourism management, destination marketing, hospitality, tourism, digital transformation, technology-enabled tourism, destination management

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ECONOMIC THREATS AND ACCEPTANCE OF NEWCOMERS IN EUROPEAN SOCIETY

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ABSTRACT

Europe has been experiencing waves of immigration over the past years. Almost 3.4 million first permits to reside were granted in the EU in 2022 as opposed to 2.9 million in 2021; this is more than the 3.0 million permits that were granted in 2019 before the COVID-19 pandemic. In 2023, 8.5% of all EU inhabitants were born outside the EU (European Commission, 2023).

Willingness to receive immigrants has been widely discussed in recent years, as threats about its effects on the economy and culture have fueled a reaction against globalization (Brader, Valentino and Suhay, 2008). Numerous studies have investigated associations between threats and attitudes toward immigrants in Europe, but most of them evaluated immigrants as a generic category, not distinguishing them by ethnicity or religion. Using a general category of immigrants can be problematic as people may have diverse perceptions of various immigrant groups (Blinder, 2015). Recent research reveals that attitudes towards immigrants in Europe vary by ethnic or religious origin, with more negative attitudes towards ethnic minorities, particularly Muslims (Gorodzeisky and Semyonov, 2009; Ben-Nun Bloom et al., 2015; Hellwig and Sinno, 2017).

This study examined how the income of native and foreign-born residents of EU countries and the discrimination they experienced shaped their willingness to accept newcomers in the EU, and whether their effects were mediated by feelings of economic and cultural threats posed by newcomers. The willingness to accept newcomers was investigated among three groups of EU residents: native-born residents, immigrants from non-EU countries already living in the EU, and immigrants from one EU country who moved to another EU country. The study investigated whether immigrants themselves felt threatened by other immigrants, whether they were likely to receive newcomers, and whether their origin and the origin of newcomers mattered.

The study used data from the European Social Survey Round 10 Data (2020). This is an academic cross-national survey conducted in European countries; the 10th round covered 31 countries. For this study, only respondents 18 – 65 years old living in the EU were chosen. Of the respondents, 19,862 were native-born in the countries they lived in at the time of the survey, 1,136 were immigrants from

non-EU countries (hereafter, non-EU immigrants), and 409 were immigrants from EU countries (born in one EU country and living in another, hereafter EU immigrants).

The study found that income predicted both economic and cultural threats from immigrants reported by the native-born population, and also their willingness to accept newcomers. High income was associated with a higher willingness to accept. This relationship was mediated by economic and cultural threats from immigrants: the higher the income was, the lower reported levels of threats were, and the more likely native-born people were to accept newcomers of different ethnicity or the same ethnicity. However, the feeling of being discriminated against did not matter for the native-born population in predicting their willingness to accept newcomers.

For non-EU immigrants, the situation was the opposite: income did not predict their willingness to accept newcomers, but feelings of being discriminated against did. Those who felt discriminated against were more willing to accept newcomers. Threats mediated this relationship: the feeling of being discriminated against was associated with lower levels of threats, and lower threats, in turn, were associated with a higher acceptance of newcomers of either different ethnicities or the same ethnicity. One possible explanation is that experiencing discrimination can encourage people to look for solidarity and assistance from others experiencing similar challenges. It seems that the feeling of solidarity with newcomers and welcoming them prevailed over potential competition with newcomers.

Keywords: Economic threat, Cultural threat, Income, Discrimination, Acceptance of immigrants

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EXPLORING ACADEMIC AND CULTURAL CHALLENGES FACED BY INDIAN POSTGRADUATE STUDENTS STUDYING IN THE UK

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ABSTRACT

Globalisation in higher education has significantly increased the number of postgraduate students from different countries pursuing their studies abroad. According to data published by HESA, UCAS, the Home Office and ONS. In the UK, there has been an almost 89% increase in Indian students attending postgraduate programs, with nearly 118,000 students only in 2023. This growth can be attributed to the internationalisation of higher education and the opportunities created by Brexit, which has made it easier for students worldwide to study in the UK. To cope with the competition by globalisation, UK higher education institutions devote substantial resources to training employees on communicating and interacting effectively with those from other cultures. Hence, student academic challenges, life experiences, racial discrimination, and difficulties in adopting an inclusive learning experience, and the services provided by academic tutors, administrators, and the International Student Office (ISO) have remained unexplored (Mok *et al.*, 2021; Ammigan and Jones, 2018; Ahmad and Shah, 2018). Indeed, there is limited evaluation or regulation of existing policies in UK higher education institutions concerning staff engagement and appropriate training provisions for coping with this increasing international cohort of students. Similarly, while support and resources are provided to international students to facilitate their learning, important information on the challenges they experience during their academic journey is lacking.

 Scope of the Study: The main focus of this study is to investigate how postgraduate Indian students at one of the largest Business Schools in Yorkshire, UK, efficiently manage the process and practice of academic cultural shift within the classroom and how this shift positively affects their academic performance. Understanding these students' challenges is crucial for fostering an inclusive and supportive learning environment. This research seeks to enhance educational experiences and outcomes for PG Indian students, thereby promoting diversity and enriching the academic community.

Theoretical Framework: This study is grounded in a robust theoretical framework incorporating two key models. It aims to elucidate the academic and cultural challenges encountered by postgraduate (PG) Indian students at Leeds Business School (LBS). Firstly, the Zone of Proximal Development

(ZPD) model, as proposed by Vygotsky (1978), serves as a cornerstone of this research. The ZPD model emphasises providing appropriate support to learners, enabling them to engage in tasks slightly beyond their current capabilities with assistance from peers or educators. This scaffolding process facilitates academic independence and growth, highlighting the significance of social interaction, cultural influences, and language in shaping students' learning experiences and outcomes. Secondly, the study integrates the Expectancy-Disconfirmation Paradigm (EDP) and the SERVQUAL model (Oliver, 1980; Anderson, 1973) to assess student satisfaction among PG Indian students at LBS. The EDP, rooted in consumer behaviour research, evaluates students' perceptions and expectations regarding university services and teaching and learning experiences. The SERVQUAL model, developed by Parasuraman *et al.* (1985), measures service quality within higher education institutions across various dimensions. By applying these models, the study aims to identify service quality dimensions, assess students' overall satisfaction levels, and examine the impact of satisfaction on future recommendations and academic outcomes.

Methodology: Non-native English-speaking international students pursued a postgraduate degree in the UK**.** Unpacking their worlds can benefit prospective international students by navigating their experiences while studying in UK HE institutions. A mixed-method approach has been employed, consisting of a quantitative survey and qualitative interviews. The survey gathered data from PG Indian students at LBS, focusing on their academic experiences and satisfaction levels. Qualitative interviews further explored the challenges identified in the study and provided insights into these students' lived experiences. A purposive sampling strategy consisting of a smaller sample of students, course directors, and international office staff has ensured diversity and experiences. Quantitative data were analysed descriptively and statistically, while qualitative data underwent thematic analysis, identifying key themes and patterns in students' experiences and challenges while studying and living in the UK.

Key Challenges: This is still a work in progress. Preliminary findings generated from the questionnaire and semi-structured interviews revealed that postgraduate Indian students face various challenges, including academic expectations, cultural adjustment, social integration, and institutional support. Language barriers and a lack of preparation in their educational backgrounds can also make it challenging for international students to adjust to life in the UK. Qualitative interviews also provided rich insights into these students' lived experiences, shedding light on the specific factors contributing to their challenges and identifying areas for improvement in support services for international students studying in the UK.

Contributions: This research contributes to the existing literature on international student experiences by offering insights specific to PG Indian students studying at Higher Education Institutions in the UK. By employing a mixed-method approach and drawing on relevant theoretical frameworks, the study provides valuable insights for improving support mechanisms and enhancing the overall academic experience of international students. By identifying key challenges and potential areas for improvement, the study informs the development of targeted support initiatives and institutional policies to enhance international students' academic success and cultural integration. Ultimately, this research's findings have the potential to benefit not only PG Indian students but also the broader international student community and higher education institutions striving for inclusivity and excellence.

Keywords: Postgraduate Indian students; Academic challenges; Cultural adjustment; Higher education institutions; Internationalisation; Support services; Mixed-method approach; Zone of Proximal Development (ZPD); Expectancy-Disconfirmation Paradigm (EDP); SERVQUAL model.

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GREEK NURSING HOMES IN TURBULENCE: THE INTERPLAY OF SUSTAINABILITY, RESILIENCE, AND IMPACT

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ABSTRACT

This study aims to explore the association between sustainability, resilience, and social impact within the context of nursing homes in Greece. Considering the sector's complexity, especially post-COVID-19, this research addresses a significant gap in the healthcare management literature, focusing on how these entities can establish themselves as sustainable, resilient, and socially impactful organizations. Although there is an increasing interest on sustainability and resilience issues, little is known on how sustainability and organizational resilience are associated with the overall social impact of healthcare organizations. Our study draws on a sample of nursing homes in Greece, considering that this sector is not well-understood.

Employing a mixed-methods approach, this research utilizes Partial Least Squares Structural Equation Modeling (PLS-SEM) and fuzzy-set Qualitative Comparative Analysis (fsQCA) to analyze data from these institutions. These methods will enable us to test hypotheses concerning the relationships among sustainability, resilience, and social impact, and to identify configurations of factors that lead to optimal social outcomes.

In this healthcare system, the long-term care of the continuously growing senior citizens involves the public, private, and third sectors. This ownership and funding segmentation, calls for a thorough research on the paths through which nursing homes establish themselves as sustainable, resilient, and socially rewarding organizations, in an ex-post facto discussion of the COVID-19 pandemic effects.

Sustainable Human Resources Management (HRM) practices are essential for integrating sustainability into a social enterprise by ensuring that human resource policies and practices support long-term environmental, social, and economic advantages. Ethical leadership that is part of HRM practices drives sustainability by guiding SEs with moral convictions and honesty. Research also

indicates that transformative and democratic leadership can boost an organization's innovation efforts and commitment to sustainability goals (Wang et al., 2021). Gender diversity in senior management teams can also lead to a variety of viewpoints and strategies to tackle sustainability issues. Additionally, collaborative networks with stakeholders (i.e., social capital) often help SEs to exchange resources, information, and best practices enhancing their sustainability efforts. These networks are vital for them, as they often have limited resources (Feeney et al., 2022).

Resilience refers to an organization's ability to predict, be ready for, deal with, and bounce back from disturbances to keep functioning, protect stakeholders, and take advantage of chances for development and enhancement (Linnenluecke, 2017). Resilience is essential for SEs to maintain competitiveness and profitability notwithstanding market instability and upheavals. These SEs depend on a strategic combination of risk management, innovation, and agility to adjust to changes, guaranteeing long-term viability (Thomas et al., 2015).

Studying nursing homes in Greece, offers a unique research setting. Nursing homes, as essential healthcare facilities, have specific difficulties like regulatory demands, and budgetary limitations. SEs in unstable institutional settings, like those in Greece are often resource-constrained. The Resource-Based View (RBV) paradigm (Barney, 2001) discusses how SEs use their resources to generate social impact and achieve a competitive advantage (Mamabolo & Myres, 2019). This approach is particularly applicable to SEs, emphasizing the significance of internal resources such as human capital in fostering the production of social value. To maintain patient safety and organizational sustainability, measures such as using local networks, adopting flexible operational techniques, and promoting a culture of continuous learning and adaptation may be used (Senbeto, 2020). Fostering resilience for social enterprises is essential and can be achieved through enhanced supply chain security and innovation (Voss & Williams, 2013), potentially leading to an increased social impact.

We conceptually argue that sustainability, developed through sustainable HRM practices, ethical leadership, and collaborative networks, is instrumental in fostering organizational resilience, which in turn, is a key determinant of the SE's social impact within the healthcare sector. Indeed, sustainable HRM practices are crucial for SEs to enhance their endurance and adaptability. These practices improve human capital, which directly affects the quality of elderly care and the societal impact of these institutions. Emphasizing ethical leadership and diversity in top management teams is crucial for fostering a culture of integrity and inclusiveness within organizations (Wang et al., 2021). Collaborative networks with stakeholders enhance organizations' resilience by combining knowledge,

resources, and support, which is especially important for SEs in challenging environments. In nursing homes, social capital fosters the exchange of best practices and innovations, enhancing the ability to provide consistent care during crises (Negri et al., 2021). We argue that resilient and sustainable practices are crucial for the economic and social sustainability of nursing homes, where social performance is linked to community welfare (Pinheiro et al., 2021).

We anticipate our findings will demonstrate how sustainable HRM practices, ethical and transformative leadership, and collaborative networks enhance the resilience and social impact of nursing homes. We expect to reveal the critical factors and configurations that effectively integrate sustainability into operational practices, promoting long-term environmental, social, and economic benefits.

The originality of this study lies in its focus on nursing homes in Greece, a sector not well understood in terms of its sustainability and resilience strategies. By examining these institutions within the unique context of Greece's healthcare system and its segmentation across public, private, and third sectors, our research provides new insights into creating sustainable and resilient enterprises. This research will contribute to theoretical frameworks by linking sustainability and resilience to social impact in a sector influenced by economic and regulatory challenges. Practically, it will provide insights into effective strategies for nursing homes to manage resources, adapt to changes, and ensure high-quality care through sustainable practices.

Keywords: social enterprises, nursing homes, impact, Greece

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THE CHALLENGES OF WOMEN IMMIGRANT WORKER: A PROPOSAL BY ENTREPRENEURSHIP WITH ITS MOTIVATION AND CHALLENGES

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ABSTRACT

Although the number of studies addressing the entrepreneurial phenomenon have increased in recent years (Agy, 2019), no research to our knowledge, have focused on the entrepreneurial process by combining motivations, challenges, and obstacles according to gender and cultural origin.

Studies on the entrepreneurship of immigrants are interested in the cultural resources of the ethnic group to which the entrepreneurs belong, the socio-economic environment in which they operate (Sall and Wade, 2014), the motivational factors for entrepreneurship among immigrants (Cobbinah and Chinyamurindi, 2018) and the obstacles (exclusions, adaptation criteria, etc.) encountered (Griffin-El and Olabisi, 2018). Cultural, ethnic, and religious diversity is a major challenge for socio-professional integration (Karimi, 2018). According to several studies, the difficulties of socio-professional integration (employment) of immigrants in Quebec, Canada are mainly associated with language barriers, the non-recognition of prior learning and skills, the discriminatory practices, as well as the lack of social networks (Aaltonen and Akola, 2012). These challenges, often combined with social disadvantage (Allali, 2010), encourage immigrants to lean towards an entrepreneurial career. As Song-Naba (2015) points out, faced with the various discriminations experienced in the host country, creating one's own business often proves to be the best alternative for economic and social integration for the immigrant.

This research is in partnership with "Le Collectif", a non-profit organization helping immigrants in Quebec, Canada and funded by Mitacs Acceleration. This survey tried to identify the difficulties encountered by women entrepreneurs according to their origin (Canadian or foreign native) with the aim of facilitating the accompaniment and support services specific to their professional project and situation.

This research favored an empirical-inductive approach and uses a qualitative methodology to be able to make connections between the research objectives and the interviews conducted in the field (Thomas, 2006). Data collection was carried out in the field with women entrepreneurs who had created their business. In-depth interviews were conducted lasting from 1h30 to 2h, allowing rich and

rather developed discussions. An interview guide with mostly open-ended questions was used to allow the entrepreneur to freely tell us about her journey. The research team had to frame the discussion in order to bring out the motivations and the obstacles (challenges and constraints) encountered by the entrepreneur during the process of developing her business project. In addition, the interview guide included four (4) grids containing statements taken from the literature review: 1. motivations; 2. the importance given to perceived benefits; 3. the importance of the disadvantages and 4. their perception of their level of satisfaction with life in general as an entrepreneur. The grids use a Linkert scale of 5 (5 being very important to 1 not important and 0 not applicable) in order to identify the nuances according to each person's perception. Following recognized methodological standards (Patton, 2002), the interviews were recorded, transcribed, and anonymized in the following days.

The sample of entrepreneurs interviewed is made up of 20 immigrant women entrepreneurs (of different cultural backgrounds) and 12 native (Quebec) women entrepreneurs. Recruitment has been done through the networks of researchers, or during networking activities (immigration fair, 2022) and found on the pages of groups of entrepreneurs (Montreal Chamber of Commerce, etc.). All interviews are anonymized with the code for "Female Entrepreneur Immigrant" (FEI) and "Female Entrepreneur Native" (FEN)" followed by an alphabetical letter and the initials of the researcher or assistant that conducted the interview. For example, the first Female Entrepreneur Immigrant with principal searcher initial NL is code FEIaNL, and the second one from same searcher is FEIbNL, etc. The sample of 32 women entrepreneurs will be presented at the conference.

The results were analyzed considering the categories for the analysis with NVivo and the comparison of the 32 perception evaluation grids. The analysis of the verbatim took into account the keywords of the categories and the results of the searches were compared between the 32 interviews and then between the two groups of women entrepreneurs (FEI or FEN).

The analysis of the results makes it possible to highlight the motivations, challenges, and obstacles of women entrepreneurs. The analysis highlights the motivations : the confidence of being able to succeed in one's business project and having enough knowledge and skills, having a social mission, the desire not to have a boss or to gain more flexibility in one's schedule or work and finally, to earn a better income. The difficulties that emerge from the data analysis are related to the business or family network, the work-family balance, the complexity of the administrative framework in Quebec and are caused by some forms of discrimination. Finally, one of the main challenges put forward is: How to get started / navigate the entrepreneurial ecosystem?

Keywords: Entrepreneur, Women, Immigrant, Motivation, Challenge

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AUTHENTIC PRIDE AND MUSEUM APPEAL: A POTENT MIX FOR BOOSTING SUGGESTIONS

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ABSTRACT

INTRODUCTION

The journey of a visitor is a fluid process that encompasses experiences before, during, and after the visit (Falk and Dierking, 1992; Sheng and Chen, 2012). A museum is also a journey for a visitor and can confer a kind of cool factor. Warren and Campbell (2014) identified key characteristics of 'cool' things or ideas that are widely agreed upon in literature. Firstly, coolness is a social construct, as objects and individuals are only deemed cool if perceived as such by others. Secondly, coolness is subjective and dynamic. The perception of what is cool can evolve and vary from one consumer to another, although those with similar interests often concur on what they find cool (Leland, 2004). The third characteristic, which is quite intuitive, is that cool is seen as a positive attribute. Warren et al. (2019) associated the concept of coolness with brands. They suggested that certain brands (a museum can be viewed as a brand) gain advantages from being cool, but the traits that differentiate cool brands from uncool ones have not been pinpointed by previous research. As a result, Warren et al. (2019) created a metric for brand coolness to distinguish between cool and uncool brands, revealing ten themes related to cool brands, including usefulness/extraordinariness; aesthetic appeal; energy; high status; originality; authenticity; rebelliousness; subcultural; iconic, and popularity. Loureiro (2019) contributed to the comprehensive understanding of the concept of perceived authenticity and its connection to notions like authentic pride. Loureiro (2019) proposed that visitors who perceive a museum exhibition as authentic are more likely to feel a sense of pride during their visit. After conducting a survey at the National Museum of Ancient Art in Lisbon, Portugal, Loureiro (2019) asserted that authentic pride is more closely linked to perceived authenticity than to self-expression via word-of-mouth. Visitors experience a sense of self-value when they perceive a museum as authentic. In the context of museums, one of the strategies a brand can employ to convey its authenticity is through corporate museums. These museums are recognized for aiding organizations in preserving their brand identity and image, typically focusing on the company's history, historical photos, documents, and products (Carù et al., 2017). When effectively managed, corporate museums can amplify the brand's heritage and tradition, thereby enhancing the brand's overall value. Carù et al. (2017) thus claimed that a corporate museum can play a pivotal role in fostering a strong bond between the brand and the visitor. As per Holbrook and Gardner (1993) and Antón et al. (2018),

recommending a museum following a visit can be equated to content generation, which involves visitors sharing their experiences with others in the digital realm. To this end, they can post reviews and comments on social media and travel websites, which are deemed trustworthy by others (Presi, et al., 2013; Antón et al., 2018).

Regarding recommendation, another dominant concept is word-of-mouth (WOM), which is the information shared by past consumers with potential consumers, based on their past experiences (Wang *et al.*, 2016). WOM is a powerful tool for purchase decisions because it consists of information communicated by people who are considered trustworthy (Wang *et al.*, 2016; Day, 1971) rather than being communicated from the brand itself. Nowadays traditional WOM has gained the electronic element which can constitute an influential social interaction and can have very wide dissemination (King *et al.*, 2014). Therefore, we suggest that both museum coolness (H1) and authentic pride (H2) enhance the recommendation of the museum.

METHODOLOGY

A survey was prepared to get data to test the hypotheses. Before launching the questionnaire, a pretest was performed with the help of 10 past visitors to analyze the content validity and guarantee that the questions were understood by the respondents. Only a few adjustments were made.

We spread the survey to four selected museums. The National Coach Museum and the MAAT are located in the same area in Lisbon, Belém. The Orient Museum is also located in the city center, in Avenida Brasília, Alcântara. The farthest museum is the National Tile Museum, located in Xabregas.

Before starting, participants were informed that the questionnaire was completely anonymous, and it would only be used for academic purposes. Participants were asked to specify their level of agreement with each item on a 7-point Likert scale (1 [strongly disagree] to 7 [strongly agree]).

A final sample of 308 participants remained for the final analysis, representing a usable response rate of 90%. The sample was well-balanced in terms of gender. Regarding age, most of the respondents belong to the 18-24 age group (35.7%), 57.5% of the respondents are between 18 and 34 years old, which represents more than half of the total respondents. The age group with less weight is composed of participants with more than 65 years old (2.9%). Bachelor's Degree (46.4%), whereas few respondents have a Professional Course (1.3%) or a Doctorate Degree (2.9%).

RESULTS AND IMPLICATIONS

Considering the multivariate analysis, the results support H1 and H2.

Intention to Recommend = 1.055 + 0.435 * Museum Coolness + 0.304 * Authentic Pride + Σ

$$(t=3.316)\ (t=5.064) \qquad\qquad (t=4.783)$$

R^2 = 33.4%, **VIF** < 3.33, so there is no multicollinearity.

Data allow us to claim that when visitors consider a museum as being useful, valuable, and helpful for visitors, they are more prone to recommend the museum to others. From the diverse characteristics of coolness, useful is the one that influences more deeply they recommend. This implies that when museum visitors consider the museum valuable, extraordinary, and helpful, they are more willing to revisit it.

Achievement and meaningfulness, two facets of authentic pride, affect positively the recommendation. Thus, when museum visitors feel successful, accomplished, as well as confident, and useful, the likelihood they will recommend the visit to that museum is higher. This is aligned with Loureiro's (2019) claim that the feeling of authentic pride is a predictor of word-of-mouth and, thus, of recommendation intention.

Managers should develop interactive quizzes and games throughout the exhibitions so that visitors augment their feeling of success and self-worth by responding to challenging questions. The second suggestion relates also to technological implementations. It would be beneficial for the managers to develop an online app where the games could be continued, with different levels, and containing curiosities about the exhibitions displayed in the museum. Thus, the proposed activities would allow practitioners to stimulate visitors into being more engaged with the museum, its progress, and its exhibitions.

Further research can claim: Will Portuguese museums survive the economic crisis caused by the pandemic? Will people be more prone to visit museums and more enthusiastic regarding cultural attractions? Future research could answer some of the questions that, for now, are unanswered.

ACKNOWLEDGMENTS

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GROWTH HACKING FOR SMES RESILIENCE AND INTERNATIONALIZATION: EXPLORING STRATEGIES, IMPACTS, AND OPPORTUNITIES FOR ACCELERATED GROWTH

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ABSTRACT

Small and medium-sized enterprises (SMEs) play a significant role in the global economy, contributing to job creation, innovation, and economic growth (European Commission, 2023; Jean et al., 2024). International expansion has emerged as a crucial strategy for SMEs to capitalize on global market opportunities and address increasing competitiveness (Hutchinson et al., 2009). A study conducted by the European Commission (2010), analyzing data from 2007 and 2008, found that SMEs engaged in international activities experienced higher turnover growth (over 50%) compared to those that did not (around 33%). Internationally active SMEs also exhibited greater employment growth, with exporters and importers reporting higher rates than non-exporters and non-importers. Furthermore, SMEs demonstrated a strong correlation between internationalization and innovation, successfully launching new products/services and implementing process innovations more than their counterparts. Moreover, the recent literature points to the positive relationship between internationalization and resilience (Martins et al., 2022; Wang et al., 2024).

However, international expansion presents complex challenges for SMEs, as they must navigate factors such as cultural, regulatory, and market differences, manage limited financial and human resources, and adapt their business strategies to international contexts (Braito et al., 2021; Paul et al., 2017). In this regard, the combination of digitization and internationalization has proven highly effective in overcoming some of these barriers and facilitating global growth for SMEs (Jafari-Sadeghi et al., 2021a, 2021b, 2020). Digital technologies enable SMEs to overcome geographical constraints, expand their customer base, and improve operational efficiency (Gaweł et al., 2023; Kolagar et al., 2021). Additionally, implementing growth strategies can stimulate innovation in SMEs' business models, further enhancing their competitive edge in the global market (Matarazzo et al., 2020).

One strategy that has proven effective for managers is the adoption of growth hacking (GH) strategies, which are crucial for enhancing business growth and scalability (Ellis and Brown, 2017; Ries, 2011). The significance of GH and its various applications are increasingly being investigated in different contexts (Bohnsack and Liesner, 2019; Conway and Hemphill, 2019; Troisi et al., 2020). A recent study

explored the international markets arena, proposing several research propositions regarding the capabilities and routines that companies develop to tackle international markets and facilitate international expansion (Bargoni et al., 2023).

This highlights that adopting the right growth strategies, such as GH, especially during the scaling phase, and expanding into international markets can serve as powerful catalysts for SME growth. However, the existing literature in this research domain remains limited. Specifically, there is a lack of comprehensive knowledge regarding the impact and potential opportunities associated with GH in terms of scaling SMEs and enabling accelerated growth during their internationalization process. To the best of our knowledge, further research is needed to explore and elucidate the potential influence and opportunities of GH for SMEs during their internationalization journey. In addition, we urge studies to explore whether GH can foster firm's resilience and internationalization.

The objective of this research is to examine in-depth the role of GH in supporting SMEs during the internationalization phase, with a focus on its potential to facilitate faster growth and capitalize on opportunities arising from international expansion. By analyzing the influence of GH strategies, this research seeks to understand how these strategies can contribute to overcoming barriers and leveraging opportunities during SMEs' internationalization journey. The research question addressed is as follows:

RQ1: What is the impact of GH on the scalability of SMEs and the achievement of accelerated growth during their internationalization process?

RQ2: what is the role of GH in fostering SMEs' resilience through internationalization processes?

To address this research question, an inductive qualitative approach is proposed, involving multiple case studies (Eisenhardt and Graebner, 2007; Gioia et al., 2013). These case studies will investigate SMEs that have undertaken internationalization journeys or have utilized GH and associated or similar strategies for expansion. The study will also encompass open-ended essays to the collaborators involved in the internationalization process, across various business sectors to ensure a comprehensive analysis, thereby enhancing the overall validity and reliability of the research findings.

Based on the above, the expected results of this research are as follows. First, we expect to identify business development patterns and strategies adopted by SMEs during the internationalization process. Second, we expect to evaluate the effectiveness of GH and related strategies in accelerating the growth of SMEs during the internationalization process. Third, we expect to assess the impact of GH on the scalability of SMEs during the internationalization process. Finally, we expect to identify best practices and lessons learned from SMEs that have used GH to expand their international operations.

Our study will contribute to two different streams of research. First, it will bring new empirical evidence to the GH literature investigating the impact and prospective opportunities of the scaling process during SMEs' internationalization. Second, it will contribute to enrich current knowledge on internationalization and growth strategies of SMEs and, particularly, on GH.

As for managerial implications, our results may be useful for gather empirical evidence to investigate the impact that GH strategies has had on SMEs and the opportunities that have arisen. Firstly, SMEs might consider incorporating GH techniques into their international expansion plans to enhance growth results. Secondly, they could learn from GH best practices and adapt them to their own internationalization efforts. Finally, SMEs might explore and leverage digital technologies and innovative growth-oriented approaches to overcome barriers and reach global markets more effectively.

Keywords: Growth Hacking, Big data, Digital transformation, Experimentation process, Test, Growth strategies, Business growth

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THE ROLE OF EMOTIONS IN MARKETING: A BUSINESS PERSPECTIVE

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ABSTRACT

The role of emotions has recently come under the spotlight in Marketing research. Emotions are psychological forces that affect the strategic behaviour of key decision-makers in firms' internationalisation activities such as, for example, international relationship building processes (Couper et al., 2020; Hassett et al., 2018; Leonidou et al., 2019; Wang et al., 2020), foreign direct investments (Li et al., 2019), and in many others (Grappi et al., 2020). However, it has been pointed that the state of existing IB research today with a focus on emotional processes (such as emotional regulation processes, emotional intelligence e.g., Leonidou et al., 2019; Quintillán & Peña-Legazkue, 2020) consists of largely fragmented insights and particularities. There is noticeable lack of a much-needed synthesis of existing knowledge on emotions in IB in order to clearly identify (i) how specific emotions of international entrepreneurs are associated with internationalisation phenomena (e.g., scope of internationalisation, speed of internationalisation), and (ii) how the interplay of emotions at different levels (e.g., individuals, teams, business) shape IB strategies, besides the generic claim that emotions can affect judgements in international decision-making (Vahlne & Johanson, 2020; Vahlne & Schweizer, 2022).

Without this knowledge scholars cannot fully explain managerial choices in the internationalisation context, such as international uncertainty avoidance or the aptitude to progress in small steps rather than in big ones in the context of internationalisation (Vahlne & Johanson, 2020). Hence, there is an increased risk of developing inconsistent and contradictory findings in the IB literature, and therefore the ability to develop or improve internationalisation theories is limited (Newbert et al., 2022).

With the current research proposal, we aim to fill this gap in the literature and advance our understanding of international entrepreneurship behaviour by systematically reviewing the existing IB literature on emotions in internationalisation, and in addition enriching and synthesizing it with insights about emotions from the latest research within the psychology literature (e.g., Lteif et al., 2023). In particular, our research purpose is to unearth the antecedents, processes and mechanisms of emotions of international entrepreneurs, as well as the outcomes of the emergence of emotions in the context of internationalisation.

In order to synthesize the existing knowledge, we conduct a large-scale systematic literature study based on the last decades' published work on emotions and internationalisation. Our research aim is

to understand a) how emotions emerge at different levels (e.g., individuals, teams, business), b) how these can shape IB strategies, and c) what are the implications for internationalisation growth and performance.

Keywords: Emotions, Family Businesses, Marketing, Financial Performance

SEAPLANES AND TOURISM

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ABSTRACT

The noun ''hydroplane'' or ''hydro'' means a powerboat designed for racing that skims the surface of the water, but it also has the meaning of seaplane. On 28 March 1910, Henri Fabre successfully flew the first true seaplane, the Fabre Hydration (Defensebridge, 2023), six years after the historical flight of the Wright brothers, on 17 December 1903. The current research focuses on this means of hybrid transport. It takes an approach to innovative seaplane business, from the point of view of tourism development.

The authentic version of the current phenomenon of tourism emerged in the era of Industrial Revolution, when people began to work as salaried industrial workers and acquired the right to paid vacations (Jégouzo, 2018). Hydroplanes emerged in that first revolution of tourism. Nowadays, in the context of third revolution of tourism, the shift of the center of gravity of the world economy towards the East, global hypercompetition, waves of technological innovation but also societal transformations and the emergence of new social demands contribute to shaping an unstable, complex and uncertain environment, to which tourism adapts while participating in its dynamic of evolution (Clergeau, 2016). The cross-sectorial nature of tourism is exemplified by the case of transports, through seaplanes or other means, being available for tourists as well as other travelers. A sui generis form of tourism is cruise tourism, with the cruise ship being considered a floating hotel. In 1844, the first passenger cruises were introduced, to conduct sea tours from Southampton to Athens, Malta and Gibraltar. Their role was enhanced four years earlier, as the same company started to deliver mail to Alexandria of Egypt, via Gibraltar and Malta (Anonymous, 2014). It is notable that this fact was the birth of modern-day cruises (Anonymous, 2014). In a comparable way, the British firm Supermarine operated the world's first flying boat service in 1919 (Hollings, 2020). Four years later, the government of the UK ordered five aviation firms to merge into their state-owned ''Imperial Airways of London'', providing distant colonies with both passenger and mail transport links (Hollings, 2020). A challenge for the tourism development consists in combination of seaplanes with cruises, for the conduction of excursions of cruise passengers to other destinations, such as nearby islands. There is also the issue of the possible interconnection of two neighboring States with no land frontiers by seaplanes, as it is the case of Greece and Italy, being emblematic in terms of littoralization, a phenomenon which has become mainstreaming, since the 19th century (Maniatis et al., 2023). The question is not new, as that

interconnection in form of a European Union co-funded program was attempted in 2013, with a pilot flight from Brindisi to Corfu.

Since 2014 the European Union Strategy for the Adriatic and Ionian Region (EUSAIR), with tourism as an official thematic area, has been in existence, let alone indefinitely. Nevertheless, it is not widely known and, as a result, it is essentially too distant from both the inhabitants of the ten countries involved and visitors. It is odd for tourists to realize trips without having an idea on the existence of the novelty of ''Macroregion'', which includes not only European Union countries but also others. It is undervaluing for the Union itself that even the inhabitants of the unionist polities concerned are usually unaware of the existence of the macro-regional level (Maniatis, 2023). Furthermore, the macroregional novelty has been partly blackened by the ongoing war in Ukraine, a country which is actively involved in one of these Macroregional Strategies, hence a question of undervaluation and threat against the values of the international peace and security (Maniatis, 2023).

Besides, it is worth clarifying expressions relevant to leisure and potentially to tourism, such as ''diporto'' and ''diportista nautico'', in Italian, as well as ''plaisance'' and ''plaisancier'' respectively, in French, especially because of their autonomy from the common concept of leisure. The noun ''diporto'' means pleasure and is mainly connected with the idea of movement, including yacht boating. In a comparable way, in French the word ''plaisance'' signifies navigation when practiced as a hobby whilst the general sense of pleasant character is considered ancient. Pleasure boating, namely ''plaisance'' in its maritime sense, has been developed since the 19th century, with the appearance of sailboats intended for the pleasure of sailing. What's more, the French adjective ''nautique'' is related to navigation, but also has a specific meaning, consisting in swimming and other recreational activities conducted in the water. Leisure constitutes an important naval good after the emergence of the Industrial Revolution, especially in the dual conceptualization of the Navy, namely maritime and aeronautical. On the one hand, it is about the nautical meaning, symbolized by the sailboat. It is to signalize that sea tourism is mainly symbolized by cruise ships, which emerged and began to develop their activity in the same century of the devotion of sailboats to recreational purposes. On the other hand, leisure and tourism are endowed with a more recent, aeronautical meaning, symbolized by the seaplane. Nevertheless, if hydroplanes currently have been associated to a leisurely pace against the pace of landplanes, about a century earlier they were faster than that alternative.

To sum up, seaplanes are a new trend, given that they had almost been marginalized in the post-war era. A quite old type of vehicle is back, being this time one of the symbols of a very dynamic and strong market, such as tourism, which leads the period of third revolution. It would deserve to be

interpreted as a great challenge for innovative business, especially of the private sector which has constituted diachronically the real protagonist in the field of leisure and tourism. Companies, including startups, could enact a dynamic role on the matter, especially boosted by advertisement. In this highly recommended entrepreneurial context, generic institutions, such as EUSAIR, could become brand names for tourist destinations, mainly of mainstreaming tourist and archaeological countries, such as Italy and Greece. Last but not least, commercial promotion could be based inter alia on the important terminology of maritime leisure and tourism, in the framework of various languages and national cultures.

Keywords: cruise; European Union Strategy for the Adriatic and Ionian Region (EUSAIR); hydroplane/hydro; innovative business; seaplane; tourism

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JAPANESE SPACE EXPLORATION AND BUSINESS

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ABSTRACT

Japan is an interesting country, due to its economic growth and its tendency to research and development. It has achieved a very high standard of living, based on new technologies, in spite of the fact that it lost the WWII and was subject to international occupation for some years. These remarks are valid, even in the current era of globalization, which is extremely competitive, whilst nowadays outer space has evolved into the fourth dimension of military force, beyond the classical set of the land, the air and the sea (Kolovos, 2006). During the occupation, General MacArthur's plans turned from demilitarization and democratization, being mainstreaming axes of the postwar Constitution of 1946, to re-militarization and economic stabilization (Goto-Jones, 2009). Furthermore, Japan has been traditionally distinguished by its tendency to international democratization of consumption, being exemplified by watches (Maniatis, 2024). The current study focuses on the space exploration and potential exploitation by the Land of the Rising Sun.

Pursuant to the U.S.-Japan Treaty of Mutual Cooperation and Security, concluded initially in 1960, Japan was not allowed to develop aviation and aerospace technologies whilst those restrictions were loosened in 1969. Japanese authorities elected to merge the three groups being competent for space, into one, in 2003, by creating a single independent administrative agency, the ''Japan Aerospace Exploration Agency (JAXA)''. That fusion was a landmark moment in the process of emergence of this polity as an important space power. Five years later, the Parliament modified the Basic Space Law, to bring Japan in line with the Outer Space Treaty, which has been the mainstreaming international treaty of space law, to date (Vijayakumar, 2020). That amendment has enabled the country to deploy defensive capabilities in space, paving the way for increased military use of outer space, for various reasons (Vijayakumar, 2020). Japan has contributed to the democratization of the use of space, as it is the case of the ''BIRDS'' project (Joint Global Multination Birds Satellite Project), having demonstrated a successful model of technological assistance in facilitating space launches for non space-faring nations, such as Nigeria, Mongolia, Bangladesh, and Ghana (Vijayakumar, 2020).

After being the world's second largest economy, in terms of gross nominal domestic product, from 1968 until 2010, Japan fell behind China and since 2023 also behind Germany, to fourth place, whilst the U.S. keeps occupying the first place. It slips into recession, but it achieved a smooth landing on the

Moon with an uncrewed spacecraft, the Smart Lander for Investigating the Moon, called SLIM, on 20 January 2024. It is designed to land within a 328-foot (100-meter) zone, far smaller than previous lunar landers which have had landing zones spanning multiple kilometers and, as a result, this technology could assist future landings by allowing spacecraft to land in relatively small areas amid rocky or uneven terrain (Borowitz, 2024). JAXA's launch comes only six months after India's Moon landing and just weeks after a failed attempt by a U.S., non-public company, commonly referred to as Astrobotic, whilst both Russia and the private enterprise iSpace made unsuccessful landing attempts in 2023 (Borowitz, 2024). The latter is a Japanese private company, which was founded on 10 September 2010 in Tokyo and develops robotic spacecraft and other technology to compete for transportation and exploration mission contracts from space agencies and other industries which do not belong to the public sector. The robotic Hakuto-R aimed to become the first private spacecraft, and the first Japanese-built vehicle, ever to land softly on the surface of the Moon, but in vain. In the meanwhile, the Texas-based private company ''Intuitive Machines'' made this achievement. Its spacecraft landed near the Moon's south pole on 22 February 2024, the first U.S. touchdown on the lunar surface in more than half a century and the first ever achieved by a private entity. It was also the first time any spaceship had visited a spot so far in the Moon's south, down in a region where ice is preserved in permanently shadowed craters (Kluger, 2024). The second lunar mission of the Japanese company aims to perform a soft landing in late 2024. Besides, iSpace is not the unique player in the domain of space business in Japan. This market is dominated by four private companies, such as ''Mitsubishi Heavy Industries (MHI)'', which manufactures solid fuel rockets, ''IHI Aerospace'', being involved in the liquid-propellant rocket market, ''Mitsubishi Electric Corporation (MELCO)'', and ''NEC Space Technologies'' (International Trade Administration, 2021). These enterprises are supported by venture capital-backed startups, such as Astroscale, specialized in debris removal demonstrations and missions, the aforementioned iSpace, Axelspace, engaged in launching a constellation of microsatellites for Earth observation and GITAI, dealing with production of robots to conduct activities in space (International Trade Administration, 2021). The U.S. and Japan have been two of the eight initial signatories of the Artemis Accords on the exploration of outer space, including the Moon, demonstrating their foundational commitment of peaceful space exploration. JAXA has partnered with the U.S. and taken on a very important component of the NASA's Artemis missions – the development of a pressurized lunar rover, which is a new and complex technology that will be critical to human missions on the Moon, in coming years (Borowitz, 2024).

To sum up, an institutional isomorphism has resulted, with the creation of the Japanese independent agency, JAXA, following the model of NASA, with which it has fostered important bonds. Moreover, Japan has realized a positive reform in its internal law, to take full advantage of the Outer Space

Treaty, and has been endowed with elements of technological perfection on the matter, due to the active involvement of the private sector, which has proved to be very successful. Last but not least, it has enacted an important role of democratization of consumption on an international scale, not only in land but also in space.

Keywords: democratization of consumption; Japan; Japan Aerospace Exploration Agency (JAXA); iSpace; space business; space law

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ARTEMIS PROGRAM AND BUSINESS

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ABSTRACT

The current study focuses on the Artemis Program and the Artemis Accords. It is also related to the relevant role of the private sector, especially in combination of specialized public agencies.

Grounded in the Outer Space Treaty, which has been called Magna Carta for the Outer Space Law (Argyrou, 2021), the Artemis Accords are a non-binding set of principles designed to guide civil space exploration and use in the 21st century (U.S. Department of State, 2023). They arose from the Artemis program of NASA, which will land the first woman and first person of color on the Earth's natural satellite. The program seeks to put the first crew there in late 2026 whilst the official target, in September 2020, was to achieve this mission in 2024. This delay is indicative of the difficulty of the mankind's comeback. If Artemis goes well, then the near future might also see NASA and partners developing a space station in lunar orbit that could serve as a gateway to destinations on the Moon's surface – and beyond (Drake et al., 2020). Indeed, it is possible to launch from the Moon heavier spaceships to Mars or elsewhere more easily (Elafros, 2022). Those Accords were launched on 13 October 2020 whilst the Hellenic Republic became just the 35th country to have signed them, on 9 February 2024. Greece created, a few years ago, an ad hoc agency, which in its current form is officially called ''Hellenic Space Center''. This non-profit organization is a legal person under private law whilst the previous carrier had the specific nature of société anonyme. This option is related to the recent tendency of privatization and commercialization of activities related to the exploration and exploitation of outer space, on international scale. Pursuant to Section 9, the Signatories intend to preserve outer space heritage, which they consider to comprise historically significant human or robotic landing sites, artifacts, spacecraft, and other evidence of activity on celestial bodies in accordance with mutually developed standards and practices. In 2020, three rovers from the Apollo 15, 16 and 17 missions were given historic landmark status in the US state of Washington, home of their manufacturers, Boeing, being a competitor in contracts to develop technologies to return to the Moon (Gorman, 2020), namely with reference to the Artemis Program. This action has combined cultural heritage with ''engineering heritage'', whereby a technology or company can prove it has a track record in space (Gorman, 2020). More precisely, Boeing Company, which was founded by William Boeing in Seattle in 1916, is an American multinational corporation, which designs manufactures and sells airplanes, rotorcraft, rockets, satellites and missiles on an international scale. It

is classified among the largest aerospace manufacturers, worldwide. It is about the fourth-largest defense contractor in the world, according to 2022 revenue. As far as Artemis Program is concerned, Boeing is responsible for designing, developing, testing and producing the core stages, upper stages, and avionics suite for the Space Launch System fleet of rockets. This System is a powerful rocket that will carry astronauts and also cargo to the Moon, Mars, and beyond. Furthermore, Boeing's involvement includes the Artemis II mission, in which the crewed Orion spacecraft will orbit the Moon and return. This mission is regarded as suitable to pave the way for missions to Mars.

Besides, the U.S. position is that the Outer Space Treaty does not ban the exploitation of space resources and the Commercial Space Launch Competitiveness Act of 2015 stipulates that the '' *United Nations citizen engaged in commercial recovery of an asteroid resource or a space resource under this chapter shall be entitled to any asteroid resource or space resource obtained, including to possess, own, transport, use, and sell the asteroid resource or space resource obtained in accordance with applicable law, including the international obligations of the United States* '' (Bartóki-Gönczy et al., 2023). However, it is about a controversial matter, in particular because the term ''exploitation'' is fully absent in the entire text of the Treaty, so the economic exploitation of space resources seems to be rather a taboo.

Finally, it is also notable that companies involved in space exploration are also engaged in the air transport domain, unlike the fact that space law is basically different from air law. At least some of those enterprises have a strong reputation, which they take care to preserve, especially against their competitors. For example, in 2013 a company specializing in aircraft engines was informed by an airline that one of the four engines of an aircraft during a very long international flight in the airspace of a third country had failed. As the manufacturer considered that it would be an affront to its prestige if this became known to the third State, from which competing manufacturers originate, it instructed the carrier not to land in that State but to continue on to another one, where it would make use of another airplane to transport passengers to their final destination, as there was not enough fuel to complete the originally planned flight. This project was successfully conducted, in secret.

To sum up, Artemis Program has been marked by a very intense ambition of its creators to send astronauts on the Moon's surface, very soon, which turned out to be an unaccomplished ambition, as the Moon is still particularly dangerous to explore, even for unmanned missions like that of Odysseus. Space exploration and exploitation have been gradually based, to a great extent, on private financial initiative. For instance, Boeing's participation in Artemis Program has proved to be very significant. The project of exploration of the cosmos constitutes a challenge, not only for business but also for systemic cooperation between the public sector and the private one, let alone in an international

context, as promoted by the Artemis Accords (international cooperation, interoperability, etc.). Besides, both commercial prestige and trade secret are of major importance in the air transport market and, probably, also in the space market.

Keywords: air transport market; Artemis Accords; Artemis Program; Boeing; commercial secret/trade secret; Moon; private sector business

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THE DETERMINANTS OF NEW BUSINESS DENSITY IN THE WORLD: COMPARATIVE ANALYSES

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ABSTRACT

The present study investigates the determinants of new business creation in developed and developing countries in comparative analyses. The literature extensively studies new business creation. Various countries have contrasting environments for new business creation: economic factors, industry and infrastructure, and country institutions.

Sternberg & Wennekers (2005) analyzed the determinants of new business creation, indicating that new venture creation is a hallmark of entrepreneurship. They found a positive effect of entrepreneurial activity on economic growth for highly developed countries but a negative effect for developing nations. Dyck and Ovaska (2011) emphasized the impact of the business environment on creating new firms. Nica (2021) focuses on the relationships between economic development and new business creation, suggesting a continuous decline in business creation rates in the USA. The availability of venture capital investment positively affects the rate of new business creation (Popov & Roosenboom, 2013).

The study's data sources, which have been meticulously selected, include the World Bank's open access data resources and country assessment indices of the Heritage Foundation, the Freedom House, the Transparency International, and data of other entities. The dependent variable is new business density (NBD) defined by the World Bank as the net surviving new businesses per 1000 working age population. The independent variables are 42 country economic and institutional indicators. The data processing technique is an OLS estimation, ensuring a comprehensive and robust analysis.

The results of the present study indicate that overall, NBD significantly depends on seven factors (Table 1). Two of them (human capital and structural changes) negatively impact the current NBD in developed countries, indicating that countries have expensive human capital/labor, strict regulations, and competition from imports. In developing countries, different factors determine weak NBD: government corruption, restricted civil liberties, and raging inflation.

Future research should use more advanced statistical techniques to determine causal relationships between NBD and economic development under the instrumental influence of country institutions.

Table 1: OLS Estimation – the economic and institutional factors affecting small business density

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	F	R2 /R2Adj.
Independent variables	B	Std. Error	Beta				
All Countries							
Constant	-5.420	2.687		-2.017	0.046		
Economic freedom	0.141	0.050	0.272	2.833	0.005		
Information/communication technologies	0.464	0.103	0.636	4.501	0.000	21.5**	.537/.512
Human capital	-0.165	0.057	-0.441	-2.880	0.005		
Civil liberties	0.100	0.026	0.313	3.857	0.000		
Foreign direct investment	4.762E-05	0.000	0.269	3.992	0.000		
Structural changes	-0.345	0.095	-0.375	-3.633	0.000		
Ease of getting construction permits	0.081	0.034	0.191	2.378	0.019		
Developed Countries							
Constant	-43.826	14.336		-3.057	0.004		
The role of private sector	0.893	0.198	0.547	4.515	0.000		
Structural changes	-0.593	0.132	-0.370	-4.480	0.000	26.11**	.798/768
Human capital	-0.460	0.082	-0.636	-5.606	0.000		
Information/communication technologies	0.525	0.155	0.342	3.383	0.002		
Judicial effectiveness	0.151	0.065	0.320	2.336	0.026		
Developing Countries							
Constant	-19.403	7.862		-2.468	0.015		
Government integrity	0.091	0.024	0.337	3.819	0.000	12.51**	.281/.259
Civil liberties	0.073	0.021	0.307	3.497	0.001		
Inflation	0.065	0.032	0.180	2.064	0.042		

**. $p < 0.01$

Dependent variable: New business density (The World Bank)

Keywords: New business density, entrepreneurship, developed countries, developing countries, institutions, human capital, information technologies, structural changes

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SOCIAL INDICATORS TO ASSESS SUSTAINABILITY: SIMILARITIES AND DIFFERENCES BETWEEN TWO WINE REGIONS

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ABSTRACT

Among the three traditional pillars of sustainability, the social dimension stands out as the least investigated (Massuça et al., 2023). Additionally, many social indicators used in sustainability assessment models lack scientific rigor, primarily focusing on the internal dynamics of companies (Rasmussen et al., 2017), thereby neglecting the comprehensive global perspective of the agribusiness sector and the regions they pertain to (Hovardas, 2021). Furthermore, existing sustainability assessment models suffer from various drawbacks, including biases in "political and territorial" management, lack of comparability, and, most importantly, a failure to empower end users, namely stakeholders. Trigo et al. (2023) and Santiago-Brown et al. (2014) also emphasize the importance of adapting models to the specific analysis context, especially in the case of highly complex winegrowing systems intricately connected to their surrounding environments. As in other contexts, regional considerations dictate stakeholders' priorities concerning the aspects deemed crucial for assessment within the realm of social sustainability. Consequently, it is imperative to solicit diverse stakeholder input during the development of a model intended for replication.

In the specific context of the wine industry, the main objective of this study is to identify and prioritize indicators for assessing social sustainability, aligning them with the genuine concerns of stakeholders. Additionally, the goal is to ensure that these indicators are tailored to the unique geographical and social characteristics of specific regions. To achieve this, a participatory approach involving stakeholders was implemented in two distinct geographic areas: the Vinhos Verdes region and the Demarcated Douro region, situated in the northwest and northeast of Portugal, respectively. Through this method, the goal is to discern differences and commonalities in the selection of social indicators across regions, as well as to evaluate levels of agreement and seek consensus among the diverse stakeholder perspectives in varying contexts.

The research begins with an exhaustive compilation of social indicators derived from a comprehensive literature review on sustainability assessments applied to agribusiness. Subsequently, a participatory and collaborative methodology was employed to streamline the selection process, where the most relevant social indicators from this list were carefully chosen for inclusion in a tailored sustainability

assessment model designed specifically for the wine industry. In the two regions under analysis, a diverse array of stakeholders from the wine industry were engaged, including small vineyard producers, company/farm managers, field staff, grape and wine specialists, local wine associations, oenologists, wine tourism operators, as well as civil and government institutions. To identify, integrate, and establish consensus among these diverse expert groups, and to pinpoint the most crucial indicators to be considered within each specific context, we utilized the Real-Time Delphi method - a digital adaptation of the traditional Delphi method.

The findings reveal a notable level of consensus rather than divergence. Points of convergence between the two regions center around the importance placed on Fair Wages, Access to Healthcare, and Safety. However, the relative importance of Migration and Continuity of Agricultural Activity has been perceived differently by the two groups. These shared priorities suggest a common set of values that transcend regional boundaries, highlighting universal concerns within the context of sustainability.

Conversely, the observed disparities provide illuminating insights into the multifaceted dynamics of social sustainability, highlighting where regional perspectives or contexts diverge. It is imperative to delve deeper into the underlying factors driving these variations, taking into account elements such as cultural norms, economic landscapes, and environmental conditions. Understanding these nuances is crucial for devising inclusive and effective sustainability strategies that address the diverse needs and perspectives across different regions.

By establishing a foundational framework of social indicators through consensus, this research significantly contributes to bridging the identified gap in the social dimension of sustainability assessment. Simultaneously, it not only lays the groundwork for evaluating sustainability more comprehensively, but also underscores the significance of acknowledging and addressing socio-cultural disparities. The study advocates for a more equitable and inclusive approach to sustainability, emphasizing its practical implications for decision-making and intervention strategies at both managerial and governance levels.

Furthermore, it provides practical guidelines for policymakers and stakeholders to utilize the research findings effectively in developing social sustainability initiatives. By identifying commonalities and differences, it offers insights into potential implications for policy-making, territorial management, resource allocation, and community development efforts in diverse regions.

Central to this approach is a strong emphasis on stakeholder involvement and participatory methodologies. By promoting ongoing dialogue and collaboration among researchers, practitioners, and communities, we ensure that sustainability indicators are not only relevant but also reflect the diverse perspectives and priorities of different stakeholders. Incorporating these perspectives into

assessment frameworks enables a more nuanced understanding of social sustainability dynamics and facilitates positive social change towards a more sustainable and inclusive future.

ACKNOWLEDGMENTS

Keywords: Sustainability indicators, Social dimension, Sustainability assessment, Public participation, Collaborative selection.

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OPTIMISING THE PROFITABILITY OF MARITIME PINE FORESTS IN THE CONTEXT OF TIMBER AND RESIN EXPLOITATION

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ABSTRACT

Forests play a crucial role in sustainable development, providing significant environmental benefits (Wang et al., 2023). Moreover, recognizing their socio-economic potential, including value creation and job generation, can catalyse significant dynamics within the territories (Melo, 2017). In this context, it is imperative to construct tools that effectively highlight the value of forest products, as well as to implement robust technical and economic management systems for production and decision-making support.

In Portugal, maritime pine stands out as one of the dominant forest species, covering 22% of the forested area (ICNF, 2015). There exists comprehensive knowledge about its production system, supported by various management tools such as tree volume equations, production tables (e.g., Fonseca and Carneiro, 2019), and growth simulation models (e.g., ModisPinaster, Fonseca et al., 2012). However, a notable absence persists in the realm of economic and financial analysis models that amalgamate both technical and economic insights. This paper aims to address this gap by presenting an optimisation model designed to facilitate economic and financial analysis of maritime pine plantations across diverse scenarios, over a 40-year timeframe.

Information sources for the model included collaborative work between academics and specialized technicians from the forestry sector; thematic literature; data tables containing reference costs for afforestation, reforestation, forest improvement, and exploitation, as provided by the Monitoring Committee for Forestry Operations (CAOF, 2022a, 2022b, 2022c). This collaborative effort facilitated the identification of various technical operations, options, and constraints, both during the establishment phase and throughout the development of the forest stands. Additionally, it enabled the

identification of products, quantification of associated yields and costs, and consideration of complementary factors such as afforestation, reforestation, forest improvement, and exploitation.

Furthermore, market research and simulations of maritime pine forest growth and production, conducted using ModisPinaster model, contributed to the development of an economic-financial model. ModisPinaster (Fonseca et al., 2012) simulates the growth and yield of maritime pine forests during a specific period of evolution chosen by the user. The output data includes the characterisation of the stand in each year of the planning horizon and the date on which specific forestry interventions, such as thinning, are carried out. The execution of interventions can be based on the specification of the thinning weight, in number of trees, or on factors or indices of average spacing between trees, such as the Stand Density Index (SDI) or the Wilson Spacing Factor (Fw). Interventions can also be imposed by the user at chosen stand ages. The characterisation of the woody material removed in each thinning, as well as the characterisation of the standing stand in each year of the planning horizon, which provides important data for the practice of resin extraction, are input data for the optimisation model.

Then, the optimisation model was developed aimed at maximizing profitability, considering the time factor and various technical and production constraints. The contemplated scenarios involve timber production with thinning at 20 and 30 years, as well as scenarios without this operation, in conjunction with or without resin extraction. There are two options for resin harvesting: less intensive resin harvesting, which begins when the trees reach a minimum diameter of 20 cm, or more intensive resin harvesting between the ages of 37 and 40, when clearcutting takes place. A homogeneous stand of 1500 trees per hectare, ten years old, is assumed.

The optimal solution identifies that the most profitable pine forests are those implementing thinning operations at 30 years, with the removal of 500 trees per hectare having the smallest diameter. Additionally, resin extraction is conducted in a more intensive manner during the last four years before the final cut at forty years.

Furthermore, alterations in the update rates reveal that the chosen scenario remains robust, indicating the model's resilience to fluctuations in this variable.

The developed model emerges as a crucial asset, offering precise profitability indicators that enable the evaluation of maritime pine production systems' performance. Moreover, it significantly contributes to the decision-making process by identifying optimal strategies to enhance the current production model and enhance overall outcomes.

Keywords: Business profitability; decision making; maritime pine; production system.

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WHAT ABOUT INTEGRATING BIODIVERSITY CONSERVATION INTO VINEYARD MANAGEMENT STRATEGIES? A BIBLIOMETRIC ANALYSIS AND SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

INTRODUCTION

The loss of biodiversity has become a crucial challenge for the whole world. Unfortunately, it depends on different causes to which it is necessary to find immediate solutions for its protection. Among these, the main causes are above all linked to human activities such as intensification of agriculture, pollution, imports of goods that, at the same time, transport alien species that destroy species that exist within a country, exploitation of resources, and last but not least climate change (Sun et *al.*, 2022; Caro *et al.*, 2021; Kleespies *et al.*, 2020). The EU Biodiversity Strategy for 2030 aims to address these issues through a comprehensive approach that includes expanding protected areas, restoring degraded ecosystems, and promoting sustainable practices in agriculture and forestry. By taking these measures, the EU hopes to lead by example and inspire global action to combat biodiversity loss (EC, n.d.).

The biodiversity provides a series of peaks both for the earth and for humans. Specifically, the presence of a variety of animals, microorganisms and vegetation contributes to the creation of a sustainable environment and to the stability of ecosystems that, in consequence, guarantee food security and food safety for humans (Dannenberg *et al.*, 2023). This is closely linked to several Sustainable Development Goals (SDGs), such as Goal 2 (Zero Hunger), Goal 3 (Good Health and Well-being), and Goal 15 (Life on Land), which emphasize the importance of biodiversity for human prosperity and environmental health. In this specific case, biodiversity plays a fundamental role allowing citizens to cultivate and to consume products rich of vitamins and minerals indispensable for human well-being (Fiore et al., 2017; Antonazzo et al., 2015). This can be applied to the production of grapes, which are cultivated for wine. In the world, there are many wine producing countries and production environments are characterized by ecosystems and the presence of animals and vegetation, which give to the final product certain features (Sánchez-García *et al.*, 2024). This concept, known as terroir, reflects how the unique combination of soil, climate, and living organisms in a

specific area influences the characteristics of wine, imparting distinctive flavors and qualities to the grapes grown in that region (Wilson, 1998; Oyuela Aguilar et al., 2020).

To the best of our knowledge, there has been limited research that comprehensively examines the interplay between vineyard management practices and biodiversity, particularly within the context of the wine industry's terroir. For this reason, this work aims to analyze the importance of biodiversity in relation to a product like wine and, above all, to understand the impact that vineyard management, both sustainable and unsustainable, has on biodiversity. Consequently, the research question is formulated as following:

How do sustainable and unsustainable vineyard management practices impact biodiversity, and what are the resulting effects on the environment and the quality of wine?

As stated by the EU Biodiversity Strategy for 2030, strategies and policies have to focus on restoring nature and protecting biodiversity to ensure sustainable development and a healthier planet while simultaneously improve the quality of products. Specifically, the research aims to analyze the importance of individuating vineyard management strategies from wine producers that allow preserving biodiversity to create, in consequence, positive effects on the environment and on the quality of the wine product.

METHODOLOGY

To carry out this research, the work will make use of two methodologies: Bibliometric analysis and Systematic Literature Review (SLR). Bibliometric analysis allows to analyze a huge quantity of scientific data for studying the contributions of research constituents and for the production of science mapping focused on the relationship between research constituents related to a determined topic in a specific time frame (Donthu *et al.*, 2021).

The work will make use of Bibliometrix, a software written in the R-language to allow the execution of a detailed and careful Bibliometric analysis (Aria *et al.*, 2017). The SLR methodology consists of the operations for detecting, selecting, categorizing, and analyzing relevant articles on a specified subject (Rana et al., 2022) and for carrying out a depth review for understanding and collecting considerations of previous scholars connected to the selected topic in a specific time frame (Christofi et al., 2019) Indeed, for the selection of the papers which will be analysed by the methodology mentioned above, this work will individuate selection criteria like: the words used for the research with the Boolean operators; the time frame; the databases (Scopus, Web of Science, etc..).

EXPECTED RESULTS

The present research aims to understand the relationship between biodiversity and vineyard management strategies. Specifically, this work investigates how the choice of vineyard wine producers management strategies impacts on biodiversity, on environment and on wine produced. Both sustainable strategies and unsustainable strategies will be considered in order to understand which strategies are widely adopted, the tendency of wine producers and the different impacts on biodiversity.

The findings from this research can provide valuable insights for wineries by highlighting the benefits of adopting sustainable vineyard management practices. These practices not only help in preserving biodiversity and promoting environmental health but also potentially enhance the quality of wine, thereby increasing market value and consumer satisfaction. For consumers, understanding the connection between vineyard management and biodiversity can influence purchasing decisions, encouraging support for wines produced through environmentally friendly practices. Additionally, policymakers can use these insights to develop regulations and incentives that promote sustainable agricultural practices in the wine industry, contributing to broader environmental and public health goals.

LIMITATIONS

Limitation of this study could be the number of papers selected through the criteria mentioned above. Furthermore, the decided criteria could not select papers related to the identified topic or the research could not be able to collect useful considerations in support of research questions. Despite this, the work can open the development of new lines of research.

FUTURE RESEARCH

Starting from this research, one possible future step could be the collection of the best vineyard strategies already adopted by wine producers and the dissemination of them to other wine businesses in order to improve the impact on biodiversity as well as on the environment.

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SUSTAINABLE ENTREPRENEURSHIP - FROM SOCIAL NEEDS TO BUSINESS: THE SMARTWAY EXPERIENCE

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ABSTRACT

Despite the increasing scholarly interest towards social entrepreneurship, literature has highlighted that additional insights are still needed to shed light into the intersection of tourism and sustainability, especially concerning its three (Environmental, Social and Economic) dimensions (Zhang et al., 2024; Li et al., 2022; Heidari et al., 2018). Several studies have emphasized the intertwinement between the different forms of tourism (*e.g.*, cultural, wine, food, and sport) and sustainability (Walker et al., 2021; Li et al., 2022; Pato, 2024). In particular, the need to promote local development while preserving environmental and social needs provide an interesting pathway for the rise of sustainable entrepreneurship, that can differ depending on the personal attitudes of the entrepreneur and the surrounding environment (Altinay et al., 2016; Haldar, 2019; Walley et al., 2022). This is even more evident with respect to "rural tourism" where disadvantaged local areas can significantly benefit from employment opportunities and increased income of local residents (Yang and Phan, 2022; Podovac et al., 2019) deriving from the creation and development of sustainable start-ups.

Our research (i) describes the journey of an innovative Italian start-up, Smartway, that has been able to surf the wave of COVID-19 pandemic, boosting social innovation in rural areas, and (ii) investigates its economic and social impact on the local area where it was born (Montepulciano, Tuscany). In doing so, we employed a mixed methodology aimed at leveraging quantitative approaches to define the *economic* impact of the enterprise on the community, and exploiting interviews and questionnaires to understand the *social* impact that the company is able to convey by facilitating interaction among workers, organizations, and the community (Sigala, 2016). The entrepreneurial idea has initially stemmed from the desire to revitalize Italian villages that have experienced significant depopulation in recent decades, by promoting and facilitating smartworking practices and cultural exchange between workers and locals. At the same time, while the pandemic has temporarily disrupted the ability to travel, it has also contributed to the success of the idea by exponentially reinforcing the concept of agile work and creating new corporate needs aimed at promoting social well-being and interaction. Smartway's offering is based on two main types of products. The first, which they define as "Offsites," presents itself as a team-building event aimed at strengthening bonds or expanding the

network of people who participate in it. The second, called "Workation," proposes experiences organized in line with the growing phenomenon of so-called "digital nomadism." Relying on a well-established network within the territory, Smartway, in addition to guaranteeing the necessary quality standard to carry out work activities, allows the worker to integrate into the social fabric that will host them. From an economic perspective, after reviewing several studies based on the use of Input-Output matrices, the financial information provided by the start-up and other information delivered by the participants through a questionnaire, the results show that for every euro conveyed by Smartway's activity, the production activated by Smartway within the municipality of Montepulciano amounts to 1.34 euros, distributed as follows: 1.01€ direct impact; 0.05€ indirect impact; 0.28€ induced impact. From a social perspective, the Smartway experience fosters significant social effects by facilitating interactions between participants and local actors, enhancing friendships and collaboration among colleagues, and positively impacting the community's economy and social cohesion. Through its platform, Smartway acts as a catalyst for social innovation, creating participatory networks between users and local organizations, thus enriching the cultural and economic fabric of the regions it operates in. As highlighted in Bacci (2007), consumption and entrepreneurship tend to be more densely concentrated territorially than the population and, for this reason, the economic importance of tourism appears to be less relevant in large urban centers. After an era of agglomeration towards major urban centers, Smartway aims to create synergies in an alternative way. This start-up has taken advantage from how the pandemic has transformed the way people work, accelerating the adoption of agile work forms such as telecommuting and remote work (Ismail et al., 2023) and drastically altering the relationships (interactions and socialization) between employees (Kähkönen, 2023). Conscious of this, Smartway has effectively generated value for both the territories in which it operates and its client companies. This has been achieved by facilitating the transition to alternative systems that are capable of generating economic and social capital in a more sustainable manner for the entire ecosystem.

Keywords: sustainability, Entrepreneurship, Start-up, social innovation, Tourism.

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THE ROLE OF FEMALE ENTREPRENEURS IN ACHIEVING SUSTAINABLE DEVELOPMENT GOALS IN DEVELOPING COUNTRIES: CASE STUDY NIGERIA AND THAILAND

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ABSTRACT

This exploratory study aims to assess how female entrepreneurship affects the achievement of the Sustainable Development Goals (SDGs) in developing countries. Further objectives refer to identifying factors that affect female entrepreneurs in driving SDGs in developing countries and to explore areas that can be optimized to aid female entrepreneurs in achieving SDG in developing countries. The work contributes to closing the research gap on the roles of female entrepreneurs in advancing SDGs in developing countries, highlighting the importance of understanding their networking, opportunity-seeking, and their understanding (Raman et al., 2022). Previous literature acknowledges an increase in female entrepreneurship as well as opportunities but also challenges for female entrepreneurs in developing countries, indicating a need to better understand factors that are critical to entrepreneurial success. There is potential for development in terms of technology, entrepreneurial education, and support groups, but gender gaps and cultural barriers still block the way. The study is conducted from a female entrepreneur perspective in developing countries: Nigeria and Thailand were selected as case study settings to examine approaches for optimization and contributions of female entrepreneurship to SDGs. The qualitative data of this study was retrieved from 8 female interview participants from Nigeria and 8 female interviewees from Thailand, hence achieving a total sample size of 16 participants. They were contacted via social media platforms such as Facebook and LinkedIn, and the participants' selection criteria were owning a business in any industry for more than 2 years and being between 20 and 60 years old. The findings were analyzed via content analysis and the software MaxQDA. The interview participants showed differing levels of understanding of the SDGs. They revealed linkages between achieving goals and leveraging entrepreneur education, technology, and support groups that contribute to achieving the SDGs. The study found gaps and concerns in Nigeria and Thailand, emphasizing barriers to achieving the SDGs by 2030. Many of the respondents stated that they are running businesses based on the requirements and pain points of current market trends rather than making a commitment to the SDGs. Furthermore, access to information, training opportunities, funding, mentorship programs, and technology were all noted as critical factors that have a significant impact on building businesses and navigating challenging times. Moreover, the use of social media along with application support on business tracking is part of

technology that help female entrepreneurs run their business smoothly. Apart from technology, continuous learning and self-development are crucial for female entrepreneurs. Support groups were identified to be important for female entrepreneurs to access opportunities such as training, funding, resources, and equipment either in formal groups or informal groups. Summarizing, participants from both countries agree that it is unlikely to achieve SDGs goal by 2030 with many of issues that have been seen as obstacles. A more detailed comparison between the two countries and differentiated conceptual frameworks will be provided at the conference.

Keywords: Entrepreneurship, Female Entrepreneur, sustainable development goals (SDGs), developing countries, technology, entrepreneurial education, social groups

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SHAPING TOMORROW'S ENTREPRENEURS: INSIGHTS AND INNOVATIONS FROM THE ERASMUS+ ENTREPRENEURSHIP TRAINING PROGRAMME

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ABSTRACT

The Entrepreneurship Training Programme (ETP), funded by the Erasmus+ Programme, is an innovative, short-duration course designed for higher education (HE) students. It aims to cultivate an entrepreneurial mindset and develop skills through the integration of game design and maker-centered learning. The development of the ETP involved a rigorous testing process across five European Higher Education Institutions (HEIs), leading to a refined final version accredited for international implementation.

During the pilot phase, the ETP was tested in three iterative rounds, engaging 175 students from diverse academic backgrounds and 15 entrepreneurship educators, surpassing initial expectations. The course content, structured around the EntreComp Framework, includes six modules focused on fostering competencies through written assessments, group projects, and practical tasks. The iterative testing process enabled continuous refinement of the course, ensuring its effectiveness and relevance.

To evaluate the ETP's impact, a combination of qualitative and quantitative data collection methods was employed. Students maintained learning journals, completed final reflective assignments, and provided feedback through quality surveys. Facilitators also contributed to the evaluation, offering insights for ongoing improvement. Additionally, product pitch evaluations were conducted to assess the practical application of learned skills.

The iterative approach of the pilot test involved three rounds, each building on the feedback and outcomes of the previous one. Starting in February 2024, the first round gathered initial feedback and analysis, leading to adjustments for the second round. The final round involved the last phase of training, culminating in a comprehensive evaluation of the programme's overall impact.

Feedback from participants indicated high levels of satisfaction and the effectiveness of the programme, with suggestions for incorporating more interactive elements and balancing module content to fit time constraints. This feedback was crucial in shaping the final version of the ETP.

The successful pilot testing phase not only exceeded participation goals but also provided invaluable insights for course improvement. The final ETP International course, to be held at the University of Aveiro with participants from all partner countries, is set to establish a robust framework for future international editions. This initiative promises to enhance entrepreneurial education by introducing innovative teaching methodologies, ultimately enriching the educational experience and better preparing students for future challenges.

OVERCOMING EVIL WITH GOOD: THE ROLE OF NGOS IN COMBATING MODERN SLAVERY

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ABSTRACT

Background: Patterson (1982) conceives of slavery as a "relation of domination" that is inherently violent, equating slavery with social death and comprehensive loss of belonging and human dignity. Moreover, "The essence of slavery is that the slave, in his social death, lives on the margin between community and chaos, life and death, the sacred and the secular" (Patterson, 1982: 51). There is a fundamental relation of power, between those who control and benefit from slavery and those who are its radically oppressed victims. In recent years, the conceptualization of "modern" slavery has attracted considerable attention from academics, policy makers, legislators, and other actors (e.g., Bales, 2012; Crane 2013). Differences between historic forms of slavery and "modern" slavery are, for some, marginal. For example, significant continuities can be drawn between old abolitionist movements and more contemporary approaches to fight modern slavery (Brace, 2018). Such is the abhorrent nature of slavery, that many have utilized that most evocative of terms, "evil", to describe it. Several countries have introduced legislation to respond to the growing crisis. And these legislative interventions have required businesses in multiple jurisdictions to disclose what they are – or are not – doing to respond to the risk of modern slavery in their supply chains. In addition to governments and the actions of businesses themselves, other stakeholders such as civil society and non-government organizations (NGOs) have emerged as key actors in the struggle against modern slavery. However, NGOs remain an under-explored actor in the modern slavery landscape.

Aim & Purpose: A plethora of anti-slavery NGOs, and broader social-justice focused organizations with an interest in modern slavery, exist across different countries (Ewart-James and Fischer-Daly, 2019). Such organizations often assume important advocacy and support roles – agitating for change while also supporting victims and survivors of modern slavery. The literature highlights how NGOs are heterogenous actors (Saunders & Roth, 2019; Vakil, 1997). They assume different functions, focus on different risk areas and subjects, operate at different levels (e.g., community, city, national, regional, and international) and are founded on different world views. Given our assumption that modern slavery is evil, we draw on both philosophical and religious conceptualizations (e.g., Formosa, 2013; Kekes, 2005; Koehn, 2003) and inquire how such evil might be addressed by NGOs. It therefore seems pertinent to explore faith-based NGOs. Our paper will examine the case of

International Justice Mission (IJM), a large faith-based and global NGO founded in Washington D.C. in 1997 that brings a Christian religious framing, alongside pragmatic legal-judicial interventions, to address the evil of modern slavery.

Methodology: As our investigation found, the idea and practice of evil has been examined from both secular and religious philosophical perspectives. This background shaped the selection of the case study NGO with respect to the research question that sought to inquire into how the evil of modern slavery can be remedied. Preliminary investigation into a range of anti-slavery NGOs revealed that International Justice Mission (IJM) was one very large organization that was underpinned by a Christian orientation and yet it also appeared to embrace a range of methods that were largely secular and not necessarily exclusive to a particular religious view on addressing modern slavery. There is much publicly available material about IJM including the organization's website, materials that have been published by IJM staff, and several articles written by independent scholars about IJM. In addition, the first-named author was involved in a different project that had researched social compliance auditors, the role of technology and collaboration between different actors in the fight against modern slavery. This project received university ethics approval and interview data from a series of key informants had been conducted. This included an interview with a senior member of the IJM Australia leadership team in late 2021. The data collection period for IJM was quite extensive for the simple reason that it was important to help build a comprehensive understanding of this NGO over time. The breadth of sources used also provided considerable confidence about how IJM operated, including some of the challenges it faced.

Main Findings: NGOs are an important actor alongside governments, businesses and others that seek to address the evil of modern slavery and other forms of oppression and extreme exploitation. In general, they help confront systemic injustices that may not be prioritized to the same extent by other key actors, such as business firms. Specifically, anti-slavery NGOs provide relevant care and support for victims so they can begin the journey of restoration (D'Souza & Marti, 2022). The work of IJM in freeing those in modern slavery is highlighted, along with their unique efforts to strengthen legal (justice) systems in countries where oppression and slavery are more prevalent. Such legal advocacy is important to help build capacity and capability in local justice systems which may not have the ability (and sometimes the will) to secure expeditious and successful prosecution. The analysis also reveals some of the challenges anti-slavery faith-based NGOs can face when they undertake activities to emancipate and rehabilitate victims and bring perpetrators to justice. These include difficulties in engaging with those in positions of authority who do not wish the visibility around modern slavery that IJM's investigations or operations may generate. Such challenges are not exclusive to IJM; governments and agents of government such as law enforcement (police) can be hostile towards, and

hinder NGO efforts, in their fight against modern slavery (Nolan and Boersma, 2019: 180). Other challenges stem from feminist scholars who raise objections regarding the construction of victimhood by IJM (e.g., Desyllas, 2007). For critics, IJM embodies a deeply problematic paternalistic and racialized colonial vision of rescuing the non-white woman subject (see Govindan, 2013).

Contribution and Originality of Study: The research illustrates how NGOs focused on global human rights can address modern slavery in often specific ways based on their vision, priorities, and methods. While there can be several differences between NGOs seeking to eliminate modern slavery, they all seek to emancipate those caught in modern slavery and similar practices. Our case study focused on International Justice Mission (IJM), a Christian faith-based NGO. The fact that many diverse NGOs operate in the world to combat modern slavery is encouraging, but nonetheless this pluralism can, from time to time, attract criticism. There may be many grounds for criticism, not least of which might be the politics of religious identity that are not shared among NGOs, or those who object to the assumptions held by an NGO along with its enactment of what that NGO deems is a 'good' operating model and method (see also Unerman and O'Dwyer, 2006; Weidenbaum, 2009). However, it is important to remain mindful that modern slavery can be highly profitable for those who perpetuate it, but harmful and traumatic for those who experience it. Our argument is that periodic criticism should not detract from the very important role played by a plethora of NGOs – including IJM – in their collective efforts to overcome the evil of modern slavery.

Keywords: modern slavery, evil, non-government organizations (NGOs), case study, International Justice Mission (IJM).

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SUSTAINABILITY INTEGRATION IN ARTS AND GRAPHIC DESIGN STUDIES: INSIGHTS FROM EUROPEAN FUNDED RESEARCH IN CYPRUS, PORTUGAL AND SPAIN

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ABSTRACT

The fusion of sustainability principles with arts and graphic design education is a growing as an imperative in addressing contemporary environmental challenges. This paper presents insights gathered from a European Funded project *ARDES: Short Learning Program of Art & Design & sustainability with special focus on environment and climate change, co-funded with support from the European Commission ((Ref: 2021-1-ES01-KA220-HED-000032193)*. The study focuses on the last phase of the project, when our researchers examined the integration of sustainability into arts and graphic design studies before and after implementing the training of a collaborative research with students and teachers within the context of a 4 module course tested at both undergraduate (70%) and postgraduate (30%) levels in Cyprus, Spain and Portugal. By synthesizing academic literature, project findings, and first-hand experiences, this paper offers valuable perspectives on the multifaceted nature of sustainability in the context of art related studies.

The paper begins by contextualizing the significance of sustainability in arts and graphic design education, elucidating its relevance within the broader discourse on environmental stewardship, the role of SDG (Sustainable Development Goals, https://sdgs.un.org/goals) and societal responsibility. It emphasizes the need for a paradigm shift and the transformative potential of creative practices in design education in promoting sustainable behaviours and fostering ecological consciousness in a more holistic and environmentally cognizant approach. Drawing upon seminal works by scholars such as Adams (2016) and Fletcher (2013), the paper highlights the transformative potential of graphic design in promoting sustainable behaviour and raising awareness about pressing environmental issues. Through critical analysis of scholarly works by authors like Lupton (2014) and Berman (2012), the paper emphasizes the need for a paradigm shift in design education towards a more holistic and environmentally conscious approach.

Through surveys, interviews, and participatory workshops, the project sought to assess attitudes, perceptions, and challenges related to sustainability integration in arts and graphic design curricula. Key themes emerged from the research, including the importance of interdisciplinary collaboration, the need for sustainability-focused pedagogies, and the role of experiential learning in fostering environmental literacy.

Moreover, the paper explores innovative approaches and best practices identified through the project, highlighting examples of sustainability-driven projects and initiatives spearheaded by students and educators. Case studies from participating institutions demonstrate the diverse ways in which sustainability principles are being incorporated into arts and graphic design education, ranging from eco-friendly materials sourcing to community-engaged design projects to promote modern artivism (Alonso-Fradejas *et al*., 2022) among other techniques.

Methodology wise the paper consists in evaluating semi structured surveys pre-pilot (93) and post-pilot (70) (see Annex 1. Demographic Data of the Research) of the learning materials which consists in a creative interdisciplinary matching of varied art related cases in the context of sustainability and climate change (see Annex 2. Responses to specific qualitative questions of the Survey).

Furthermore, the paper presents a series of case studies and best practices that exemplify innovative approaches to sustainability in arts and graphic design. It explores initiatives such as sustainable printing techniques, eco-friendly materials sourcing, and community-driven design projects that prioritize social and environmental impact. By examining real-world examples from organizations like the Sustainable Graphic Design Project (SGDP) and AIGA's Design for Good initiative, the paper illustrates how designers can leverage their creativity to drive positive change and advance sustainability goals.

By integrating insights from academic literature with empirical research findings, this paper offers practical recommendations for enhancing sustainability education in arts and graphic design studies. It emphasizes the importance of curriculum development that integrates sustainability across disciplines, fosters critical inquiry, and nurtures a culture of sustainability within creative communities. The paper also advocates for ongoing collaboration between academia, industry, and policymakers to advance sustainability goals and address systemic barriers to change.

In conclusion, this abstract highlights the evolving landscape of sustainability integration in arts and graphic design studies, informed by research conducted as part of a European Funded project: It underscores the pivotal role of education in shaping future generations of designers and artists who are equipped to address complex environmental challenges and drive positive social change. By leveraging interdisciplinary collaboration, experiential learning, and innovative pedagogies, arts-based institutions have the opportunity to cultivate a new generation of creative practitioners committed to integrating sustainability into arts and graphic design for a more sustainable and equitable future .

Keywords: Sustainability, Climate change, Higher education, Artivism

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Sustainable Development Goals https://sdgs.un.org/goals

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Annex 1. Demographic Data of the Research.

Fig.1. Students Respondents Pre-Pilot Test and Post-Pilot Test by Country, Gender and Age.
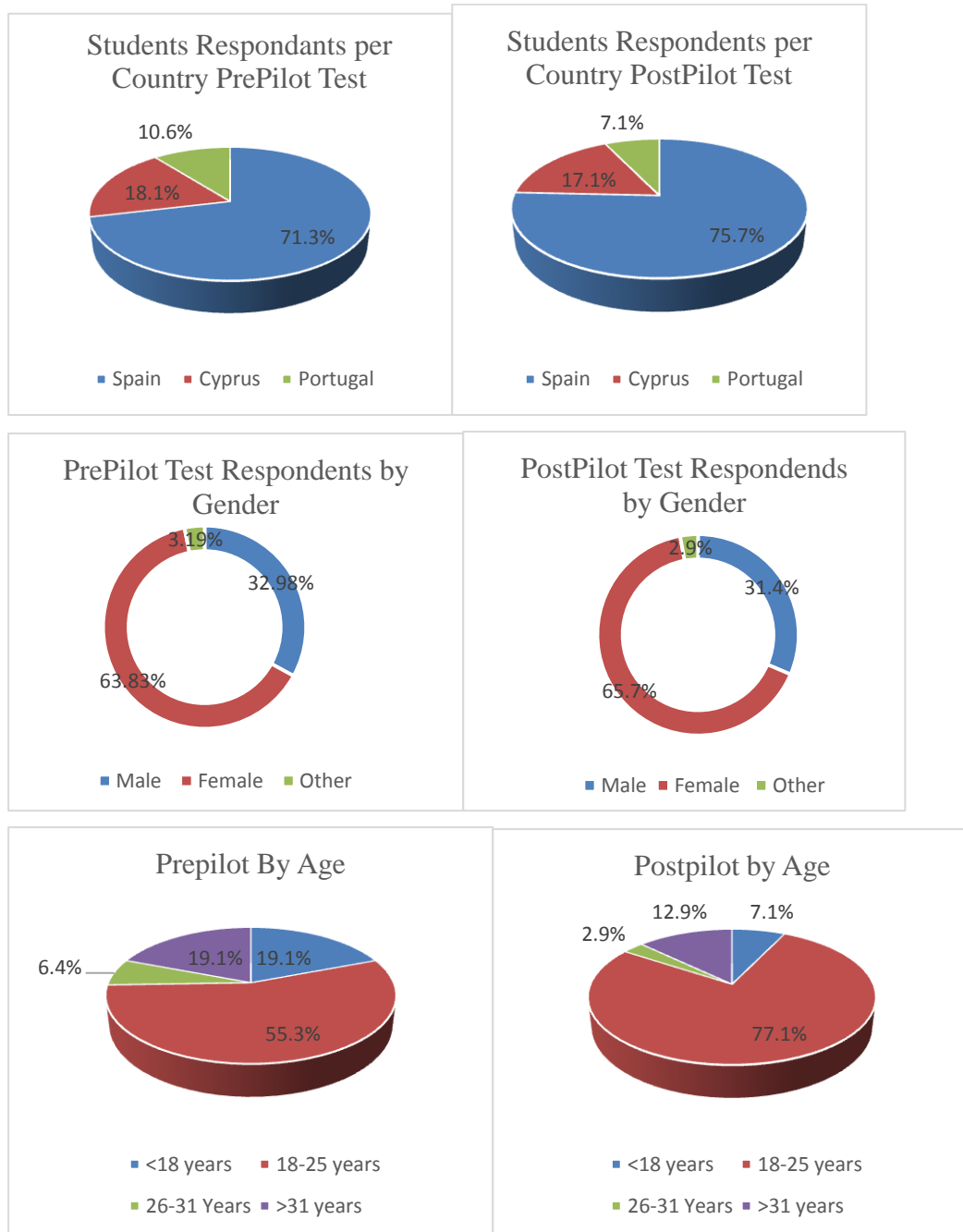
Annex 2. Responses to specific qualitative questions of the Survey.

Fig. 2. Question 1. What was the part you liked most? Please give as much information as possible.

Fig. 3. Question 1. Indicate 3 expressions/ keywords by which artists and designers may contribute to

sustainable   practices   through   their   creations.

Fig.4. Responses on Questions 7.a, 7c and 7 f.

Q7.a. How much did the course to enhance your knowledge/ intention on the following topics? [a. Sustainability concept]

Q7.c. How much did the course to enhance your knowledge/ intention on the following topics? [c. Links between Sustainability and Art and design]

Q7.f. 7. How much did the course to enhance your knowledge/ intention on the following topics? [f. How to take action on enhancing sustainability in society through your artwork and design?]
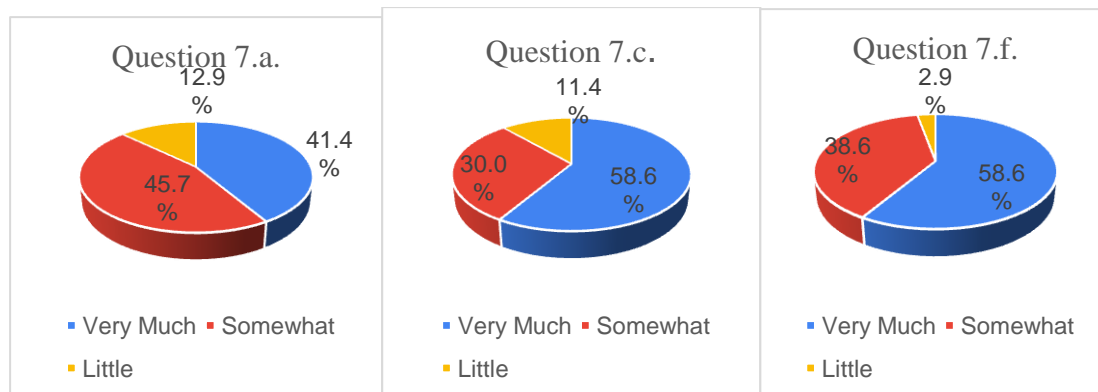
ENVIRONMENTAL CONSCIOUSNESS AND INVESTMENT CHOICES ACROSS GENERATIONS

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ABSTRACT

Introduction: Global sustainability awareness is growing, evident in its increasing role in politics, notably through the adoption of the 2030 Agenda for Sustainable Development by the United Nations (UN), which includes various Sustainable Development Goals (SDGs) (UN). The Paris Agreement represents a significant milestone in addressing climate change on an international scale (BMZ; European Commission). Despite international efforts, there are disparities in sustainability levels among countries, with developing nations often trailing behind due to limited resources (Robeco; Guex and Grunder, 2022).

Literature Review Findings: Regulators are increasingly encouraging private investors towards sustainable investments, emphasizing the need for appropriate metrics (European Commission). ESG ratings, assessing companies' economic, social, and governance responsibilities, underpin "ESG investing," aligning financial returns with positive social and/or environmental impacts (Kilic et al., 2022). Conversely, traditional financial investments prioritize maximizing shareholder value, guided by market efficiency theory (Boffo and Patalano, 2020; Fama, 1970). In ESG investing, the balance between social/environmental and financial returns depends on individual preferences (Boffo and Patalano, 2020). Kilic et al. (2022) note that sustainable stocks are less financially appealing in developing countries, prompting further investigation into how environmental awareness influences investment decisions. Globally, investors increasingly consider ESG factors in their decisions, employing ESG integration, value-based investing, and impact investing strategies (Capital Group, 2023; Galbreath, 2013; Giese et al., 2019). Companies can boost their ESG ratings to attract capital market attention, as higher ratings correlate with future ESG news predictability (Liu and Hamori, 2020; Kilic et al., 2022; Serafeim and Yoon, 2023). Improved ESG scores benefit companies by enhancing their value, earnings, and efficiency, leading to better long-term stock returns and ratings (Earnhardt and Lizal, 2007; Khan et al., 2016; Albuquerque et al., 2020). Market reactions to news trigger increased investor attention and trading volume (Berry and Howe, 1994; Barber and Odean, 2008). Younger individuals are often more attracted to sustainable companies and willing to prioritize sustainability over income (Waples and Brachle, 2020; Alonso-Almeida and Llach, 2019), but disparities exist between environmental concern and behavior (BMUV, 2023).

Purpose: This research aimed to examine how sustainability awareness affects investment decisions among private investors, particularly focusing on generational differences. Studies show conflicting results regarding sustainable behavior across age groups, with some indicating higher levels among older generations (Sun et al., 2019; Casalengo et al., 2022). Possible factors include affordability constraints for younger consumers and resistance to behaviour change favouring sustainability (Jain and Kaur, 2006). Given these variations, further research is needed. This study aims to address the following research questions *(RQ1): Do younger generations, despite valuing sustainability more, exhibit lower sustainable behavior compared to older generations?* Private investors, institutional investors, and investment institutions display different levels of sustainability concern, with private investors frequently incorporating personal values into their decisions (Jansson and Biel, 2011). This study, focused on private investors, examines the impact of sustainable behaviour on investment decisions, leading to the following research questions: *RQ2: Does sustainable behaviour influence a private investor's consideration of sustainability in investment decisions? RQ3: Does a private investor's sustainable behaviour level positively affect their willingness to prioritize sustainability over financial returns in investments?*

Design/methodology/approach: Age influences sustainability awareness and behaviour, impacting investors' willingness to prioritize sustainability over financial returns (Kilic et al., 2022). The study explores these dynamics across generations through literature review, methodology, analysis, and conclusions, suggesting avenues for further research. This study follows a positivist research philosophy, using deductive and explanatory methods. Data was collected through a quantitative approach using a survey distributed online over three weeks during 2023, using a 5-point Likert scale. The survey aimed at private investors aged 18 to 77, yielding 103 valid responses out of 112 collected after removing responses from non-investors. The study utilized the statistical software JASP 0.18.3.0 to process quantitative data. Cronbach's alpha assessed questionnaire reliability for overall environmental awareness, environmental concern, and sustainable behaviour. Reverse-scaling was applied to ensure consistency. The Mann-Whitney-U-test analyzed age group differences due to the ordinal nature of variables. Logistic regressions explored relationships between environmental concern, sustainable behaviour, sustainable investment, willingness to sacrifice financial returns, with age and gender as control variables. Significance was determined at $p < 0.05$.

Findings: Significant variations were observed in sustainability awareness, encompassing environmental concern and sustainable behaviour. Sustainable behaviour positively influenced investors' consideration of sustainability, while age had a negative effect. Moreover, environmental awareness significantly impacted investors' willingness to prioritize sustainability over financial returns, with sustainable behaviour being the determining factor. These findings have implications for

governments seeking to encourage private investments in sustainability and for companies aiming to understand investor behaviour. Transparent communication and expanding investors' knowledge about sustainability are crucial for fostering trust and promoting sustainable investment decisions. Also, the study findings support Jansson and Biel (2011), indicating that some private investors prioritize sustainability over financial returns, aligning with their norms and values. Similarly, Gutsche and Ziegler (2019) discovered a positive correlation between environmental awareness and willingness to sacrifice financial returns. Environmental concern and sustainable behaviour significantly affected the willingness to accept reduced returns, with age also playing a significant role. This echoes Jain and Kaur's (2006) observation that younger generations, often financially less stable, are more cautious with their money. The level of acceptable loss was mainly influenced by sustainable behaviour, emphasizing the value-action gap. Therefore, also RQ3 is answered, albeit with the inclusion of environmental concern.

Limitations include reliance on a questionnaire and the potential for additional variables, like financial status, to improve precision. Future research could explore the influence of origin on investor behaviour and track changes over time as sustainability awareness evolves

Originality/value: In summary, this study sheds light on the connection between sustainability awareness and investment decisions, offering insights for policymakers and businesses.

Keywords: behavioural investment, sustainability, ESG, investments, generations, financial commitment.

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UNDERSTANDING THE ROLE OF REASONING IN EXPLAINING PUBLIC ACCEPTANCE OF VERTICAL FARMING PRODUCT

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ABSTRACT

INTRODUCTION

To solve environmental pressures brought about by conventional food systems much interest has lately been devoted to indoor food production in urban areas. Vertical farming is currently gathering momentum as the most technological and recent form of application of indoor urban agriculture (Despommier, 2010). This food production method, combining agriculture with technology and architecture in the urban context, shows several advantages. Anyhow, some challenges still need to be addressed to fully develop its potential (Oh et al., 2023). Among them lay the fact that people usually perceive foods made by high-technological production processes with suspicion, seeing them as unnatural (Mina et al., 2023). Thus, it is important to analyse public perception to understand the potential role these technologies will play in future sustainable food systems.

OBJECTIVE AND HYPOTHESES

This study aims to understand if the reasons for and against vertical farming adoption influence consumer attitudes and intentions towards these products. To analyse this research question, a model has been proposed starting from Behavioural Reasoning Theory (BRT) (Claudy et al., 2013; Westaby, 2005). Vertical farming products involve peculiar production techniques and context-specific reasons for and against compared to traditional agriculture. Therefore, this study aims to analyse if those reasons can attenuate how consumers perceive the technological implications of vertical farming products. While some authors have studied the role of reasoning for other food products (Ryan & Casidy, 2018; Tufail et al., 2022), showing the usefulness of this framework in understanding consumer behaviour, no previous studies have applied it to vertical farming products. Therefore, it is useful to test whether consumer attitudes and behaviour are influenced by the pros and cons of vertical farming products. To this end, a questionnaire was proposed to potential Italian consumers, with a final sample of 244 responses. The collected data were then analysed using PLS-SEM. Figure 1 reports the proposed model which has been derived from the one by Claudy et al. (2013) and adjusted for the specific context of this study.

The first aim of the model is to test whether the attitude toward vertical farming predicts consumer intention and behaviour (H1). Subsequently, the current study argues that consumer reasoning has significant effects on attitude. Specifically, it is analysed whether consumers who have strong reasons for (against) consuming vertical farming are likely to have a positive (negative) attitude toward it (H2). Westaby (2005), also postulates that reasons for and against could have a direct impact on behavioural intentions as people tend to use reasons to defend and justify their anticipated actions. Therefore, reasons for and against could have a direct, not-mediated effect on behavioural intentions (H3). BRT further proposes that reasoning does not happen independently from people's beliefs and values (Claudy et al., 2013). Therefore, this study aims to understand how sustainability values and beliefs influence reasoning in the context of vertical farming (H4), as well as if they have a direct effect on attitudes (H5).
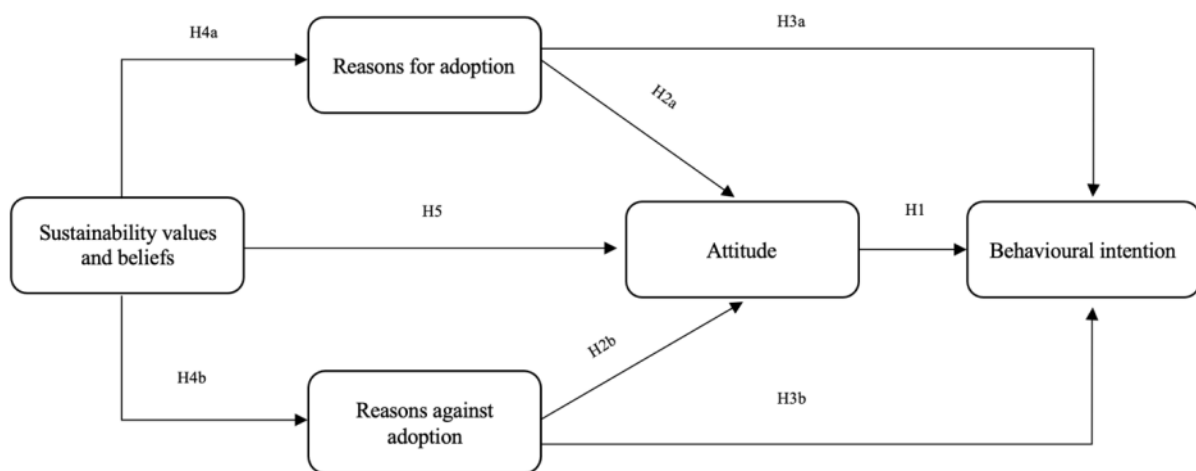
Figure 1: Proposed model

MEASUREMENTS

To measure consumers' values and beliefs on environmental issues four statements related to the sustainability of food production were used (Jürkenbeck et al., 2019). Subsequently, three statements accounting for reasons in favour of vertical farming, and two accounting for reasons against vertical farming adoption were used (Mina et al., 2023). To measure consumers' attitudes towards vertical farming it was chosen to use two statements accounting for vertical farming technological features (Mina et al., 2023), and one statement accounting for how people perceive the future role of this production technique (Perambalam et al., 2021). This choice was made to test whether the reasons for and against it influence consumers' perception of vertical farming's high technological production process. All the statements were measured through a five-point Likert scale. To test the behavioural intention, respondents were asked to report with a three-point Likert scale whether they were

interested in purchasing vertically grown products. To evaluate the measurement and structural model it has been followed the procedure proposed by Hair et al. (2016).

RESULTS AND IMPLICATIONS

The structural model results confirm that there is a positive and statistically significant relationship between consumers' attitudes toward vertical farming and behavioural intention to buy products in the future (H1). Interestingly, reasons for and against vertical farming influence how consumers perceive this technological production process (H2). On the other hand, the direct effect of reasoning on behavioural intention (H3) does not emerge as significant. Finally, environmental values and beliefs only influence the reasons for vertical farming adoption (H4a), while no significant effect has been found for the reasons against (H4b), nor consumers' attitudes (H5). Interestingly, the indirect effect of reasons for adoption on intention is positive and significant, showing the role of attitude as a mediator of reasons for adoption on behavioural intention. These results highlight interesting practical implications as they suggest that increasing information on the positive features of vertical farming could be an effective strategy to improve consumers' attitudes and behavioural intention to try these products in the future. This is especially true for sustainability-conscious consumers. Therefore, managers, as well as public policies, should address this issue to increase the acceptability of this food production technique. Theoretical implications include an increased knowledge in the field of behavioural reasoning theory, as well as proposing a new framework to explain how consumers perceive technology in food production.

Keywords: Vertical Farming, Urban Agriculture, Consumer Acceptance, Behavioural Reasoning Theory, Structural Equation Modeling.

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HEALTHCARE PRACTITIONERS' PERSPECTIVES AND SERVICE ORIENTATION IN THE AGE OF DIGITALIZATION

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ABSTRACT

This study maps the patterns of digital transformation within healthcare organizations and its implications on service quality. By examining the perceptions and experiences of medical professionals, the research highlights the challenges and barriers encountered during the process of organizational change. Employing a robust theoretical framework and an extensive literature review, the investigation delves into the dynamics of service orientation in the healthcare system and the significant impact of digitalization on service delivery. The aim is to provide a nuanced understanding of how advancements in technology are redefining the landscape of healthcare services, thereby underscoring the pivotal role of digital transformation in either enhancing or hindering the effectiveness of service provision within the healthcare sector.

Healthcare organizations are embedded within a multifaceted ecosystem influenced by various external factors, including policymakers, legislators, funders, competitors, and management teams (Counte et al., 2019; WHO, 2019) This array of elements, coupled with the ongoing pressure to curtail public health expenditure, fosters a precarious and competitive setting that significantly impacts the delivery and administration of health services. The situation is further complicated by financial constraints, prompting the health sector to seek innovative solutions and adopt business and managerial practices tailored to thrive in an increasingly dynamic and competitive marketplace (Counte et al., 2019; Naamati-Schneider & Salvatore, 2023). Therefore, in recent years, healthcare organizations have been navigating the challenges of the 21st century and the competitive landscape by increasingly adopting competitive strategic business models (Naamati-Schneider, 2021;2022).

This shift towards more commercially oriented strategies underscores the sector's efforts to improve service provision and operational efficiency against the backdrop of budgetary pressures and external competitive forces (Naamati-Schneider & Zaks, 2022)

Despite these strategies and efforts to stay competitive, there remains a notable variance in the adoption and implementation of these new strategies across the sector. Resistance among medical and administrative personnel is not uncommon, driven by concerns over the implications of integrating

business-oriented strategies into healthcare. This apprehension stems from a traditional view of medicine as being separate from, and even incompatible with, business practices. Such a perspective often raises ethical concerns, including the potential for increased inequity in healthcare access and delivery. These ethical dilemmas highlight the complex balance between advancing healthcare organizations' efficiency and competitiveness and maintaining the core values and equitable principles of medical practice (Naamati-Schneider, 2021;2022 Bin-Nun, 2019)

Digitalization stands out as a pivotal strategy for modernization and maintaining competitiveness within the healthcare system. The integration of new technologies inevitably triggers a cascade of organizational transformations aimed at enhancing performance, optimizing processes, and achieving more efficient resource utilization. By adopting technological advancements, organizations aim to establish a foundation of stability and sustainability, positioning themselves to better navigate the challenges of an evolving healthcare landscape (Schwab, 2017; Keasberry, 2017)

Digital technologies in healthcare, such as telemedicine and patient access to medical information through apps, have transformed service delivery and patient engagement, improving safety and care management. However, the costs and effects on mortality rates of such digitalization are yet to be fully understood. Despite the benefits, integrating new technologies poses challenges for both patients and healthcare providers, highlighting the complex impact of digital advancements in healthcare (Ricciardi et al., 2019; Sinsky et al., 2016; Sobral et al., 2015)

The findings from the research reveal a restrained acceptance of change at both systemic and organizational levels, with noticeable inconsistencies observed across these dimensions. Additionally, the study sheds light on the various obstacles and challenges impeding these change and development processes. These insights could prove invaluable for policymakers aiming to facilitate smoother transitions, reduce resistance, and foster a more customer-focused and service-driven ethos within healthcare settings. By implementing such changes, there is potential to enhance patient empowerment, ensure more judicious resource utilization, and improve customer value. Ultimately, these advancements could lead to greater efficiency and stability within the healthcare system, benefiting both patients and healthcare professionals alike.

Keywords: Customer Orientation, Strategic Change, Digitalization In Healthcare, Hospital Management, Digitalization In Service Delivery, Digital Transformation

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ADVANCING NON-PROFIT HEALTHCARE THROUGH DIGITAL INNOVATION

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ABSTRACT

Over recent decades, significant shifts have occurred due to technological progress, automation, and the rise of digital and virtual environments. Concurrently, there's an increasing realization that today's world is defined by its volatility, uncertainty, complexity, and ambiguity (VUCA), a concept that, while originating in military strategy, has found broad relevance in the field of management. This acknowledges the complex challenges organizations navigate in today's dynamic landscape (Otter, 2019).

This reality's implications, along with the need to address the global VUCA environment and its resulting intricate challenges, have significantly affected healthcare systems worldwide and the diverse organizations that constitute them (Worley and Jules, 2020)

Healthcare organizations are under constant pressure to develop and improve their operational strategies in order to survive in an environment characterized by constant change and intense competition (Naamati-Schneider, 2020;2021;2023) This imperative to adapt is driven by several dynamic factors, including significant shifts in population demographics that alter healthcare demands; economic trends that influence funding, affordability and resource allocation; and policy changes that mandate changes in practice standards and healthcare delivery models. At the same time, these institutions are engaged in a critical balancing act aimed at effectively managing public healthcare costs and achieving a sustainable model that ensures accessibility and quality of care for the population (Counte et al., 2019; Naamati-Schneider & Salvatore, 2023; WHO, 2019)

COVID-19 served as a pivotal catalyst, necessitating healthcare organizations to adapt and embrace digital solutions. This adaptation was driven by financial strains, notably from decreased revenue due to a decline in non-COVID patient services and the financial implications of pandemic management, which led to a significant reduction in cash flow (Argenziano et al., 2020; Naamati-Schneider & Zaks, 2022). In response to these challenges, the healthcare sector accelerated the adoption of telemedicine, underscoring the critical role of digital innovations in maintaining service delivery during the crisis (Salvatore and Fanelli, 2021).

Digital transformation is increasingly recognized as a vital strategy for organizational survival (Marques and Ferreira, 2020; Schwab, 2017; Kraus et al., 2021).

However, its implementation is often only partial, hindered by internal challenges and resistance. This scenario underscores the complexity of integrating digital technologies within established systems and cultures, where reluctance to change and operational obstacles frequently impede full-scale adoption (Naamati-Schneider & Salvatore, 2022)

The objective of embracing these processes of adaptation extends beyond enhancing business performance, user experience, and organizational processes. It also encompasses the adoption of innovative business models that can introduce advancements, stability, and sustainability within non-profit healthcare organizations. This multifaceted aim highlights the importance of not only refining existing frameworks and systems but also pioneering new approaches that can fundamentally transform the operational and financial paradigms of these entities, ensuring their long-term viability and effectiveness in delivering healthcare services (Marques and Ferreira, 2020; Schwab, 2017).

This study presents and map preliminary qualitative findings that explore the pivotal role of digital technology in catalyzing substantial organizational changes, with a focus on enhancing business processes and user experience. It posits that digital strategies represent a crucial lever for survival, empowering organizations to excel and deliver increased value to patients. Consequently, this leads to organizational sustainability within the turbulent healthcare industry, underscoring the strategic importance of digital transformation in ensuring long-term viability and success. The ramifications of these findings can be of great value to healthcare managers and key stakeholders as the digital transformation within not-for-profit healthcare organizations illuminates critical components necessary for successful deployment. By deepening knowledge and tackling these challenges, healthcare organizations can not only adjust to the evolving healthcare environment but also establish a robust platform for ongoing enhancement and innovation in patient services.

Keywords: Hospital Management, Healthcare Market In Times Of Crisis, Digital Transformation In Hospitals

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THE MEDIATING ROLE OF PSYCHOLOGICAL EMPOWERMENT IN THE RELATIONSHIP BETWEEN INCLUSIVE LEADERSHIP AND EMPLOYEES' INNOVATIVE BEHAVIOUR IN A SAFE PSYCHOLOGICAL ENVIRONMENT

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ABSTRACT

The present study examines the mediating role of psychological empowerment in the relationship between inclusive leadership and employees' innovative behaviour in a safe psychological environment. Scholars have posited that employee innovation is influenced by both internal and external factors, and that managers' leadership has a significant impact on employee innovative behaviour (Javed et al., 2019; Khan et al., 2020; Liu et al., 2023; Mehmood et al., 2020). A significant proportion of research in the field examines the relationship between managers and employees and how different leadership styles affect employees. However, there appears to be a lack of clarity regarding which leadership styles have the greatest impact on employee innovative behaviour. A substantial body of research explores the relationship between leadership style and employee innovation behaviour; nevertheless, the majority of these relationships are studied using classical leadership styles such as transformational, transactional, authentic, or laissez-faire leadership. In comparison to more established leadership styles, the concept of inclusive leadership is relatively novel. Consequently, the research investigating the relationship between inclusive leadership and innovative employee behaviour remains limited and requires further investigation (Liu et al. 2023; Mehmood et al., 2020; Randel et al., 2018).

In order to ascertain the efficacy of novel styles, it is imperative to conduct rigorous scientific research on their impact on employees' innovative behaviour. Inclusive leadership is defined by openness and inclusivity, which can facilitate the establishment of trust and garner the support of employees (Roberson and Perry, 2022). This, in turn, can lead to employees feeling respected and empowered (Wang et al., 2021), fostering their innovative potential and encouraging innovative behaviour (Zhang and Zhao, 2024). The scientific literature highlights the importance of psychological empowerment in promoting employees' innovative behaviour (Javed et al. (2019), Khan et al. (2020), Liu, et al. (2023), Mehmood et al. (2020), Zhang and Zhao (2024)). However, there is a paucity of research on how inclusive leadership, mediated by the aforementioned psychological empowerment, can help

employees to innovate. Consequently, this study aims to ascertain whether psychological empowerment serves as a mediator in the relationship between leadership style and employee innovative behaviour.

Furthermore, a moderator was selected to enhance the study, namely a safe psychological environment within the team. Previous research has demonstrated that a positive impact on employees' inclination towards innovative behaviour can be achieved in such an environment (Bani-Melhem et al., 2018; Liu et al., 2023; Miao et al., 2019). Therefore, this study examines the effect of psychological safety on the relationships between the constructs. This study employs an empirical approach to investigate the relationship between inclusive leadership, psychological safety, psychological empowerment and employees' innovative behaviour. The study presents, for the first time, the theoretical mechanism through which inclusive leadership affects employees' innovative behaviour and constructs a theoretical mediation model.

The aim of this study was to address the aforementioned gaps by employing a quantitative research method, utilising a survey questionnaire. The questionnaire was developed using scales from Carmeli et al. (2010), Janssen (2000), Edmondson (1999) and Spreitzer (1995). Data from 220 anonymously completed questionnaires, obtained through a random sampling method, were analysed using IBM SPSS software to test the hypotheses as follows:

H1: Inclusive leadership has a positive influence on innovative behavior of employees at work.

H2: Psychological safety in the team moderates the relationship between psychological empowerment and innovative behavior at work: the greater the psychological safety in the team, the greater the influence of psychological empowerment on innovative behavior of employees at work.

H3: Team psychological safety moderates the relationship between inclusive leadership and employee innovative behavior: the greater the psychological safety in the team, the less inclusive leadership impacts innovative behavior of employees at work.

H4: Psychological safety in the team moderates the indirect relationship between inclusive leadership and innovative behaviour through the mediating role of psychological empowerment.

In conclusion, all four hypotheses of the study were validated: inclusive leadership consistently exerts a positive influence on innovative behaviour. This is evidenced by the direct effect of the variable on the dependent variable (t=6.311, p<0.00) and the moderating influence of psychological safety. Thus, the second hypothesis, which posited that psychological safety in the team moderates the relationship

between inclusive leadership and innovative behaviour (t= -2.1907; p=0.0295), was also confirmed. Meanwhile, the statistical analysis indicates that the effect of leadership on innovative behaviour decreases as psychological safety increases. The third hypothesis, that psychological safety in the team moderates the relationship between psychological empowerment and innovative behaviour, was also supported (t=3.1651; p=0.0018). The statistical analysis confirmed that as psychological safety increases, so does the effect of empowerment on innovativeness. Hypothesis four, which posited an indirect relationship between inclusive leadership and innovative behaviour, mediated by psychological empowerment, was also supported (Index = 0.0987, BootLLCI = 0.0341, BootULCI = 0.1738). The statistical findings demonstrate that as psychological safety rises, the indirect influence exerted by inclusive leadership on innovative conduct through psychological empowerment increases as well.

The findings of this study demonstrate that all relationships between variables in the model have been empirically validated. The results of this research confirm the previously identified direct relationship between inclusive leadership and innovative behaviour (Javed et al., 2019; Mansoor et al., 2021; Sürücü et al., 2023). While this relationship is significant, psychological empowerment also plays an important mediating role, as our study has revealed. This finding is significant, as previous studies have only identified a direct relationship between psychological empowerment and innovative behaviour (Singh and Sarkar, 2012). Furthermore, the relationships between inclusive leadership and innovative behaviour are enhanced when psychological empowerment is taken into account in our model. The results of our research indicate that psychological empowerment is a crucial factor for organizations to cope effectively with the challenges presented by a volatile environment. Finally, our study indicates that psychological safety serves to moderate the relationship between inclusive leadership and psychological empowerment with innovative behavior. This factor has not yet been studied in this context, and our study has demonstrated that psychological safety can positively moderate the relationship between inclusive leadership and innovative behavior, as well as psychological empowerment.

This study has delineated and explicated the crucial role of a specific, inclusive leadership style in managing employees' innovative behaviour. This finding is of importance to both corporate leaders and middle management, as it signals a shift in the way these groups should manage employees. It can be concluded from this study that inclusive leaders should prioritize the psychological empowerment of company employees. Ultimately, managers should allocate sufficient resources for the creation of a positive and safe work environment for their employees as this is an essential factor for companies seeking to remain innovative both in the present and in the future. The findings of the

study indicate that an inclusive leadership style and employee innovation behaviour are significant factors in the achievement of long-term human resource management programmes and organisational goals. This provides a theoretical reference for companies to manage their employees and stimulate their innovative behaviour, thus making their human resource management practices more resilient.

Keywords: inclusive leadership, innovative behavior, psychological safety, psychological empowerment.

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DIGITALIZATION FOR SERVICE QUALITY IMPROVEMENT

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ABSTRACT

PURPOSE

Digitalization has become a challenge and an opportunity for companies. Up to now, some previous studies have analyzed the influence of innovation on digital transformation (Suder *et al.*, 2022; Zaragoza-Saez *et al.*, 2024), while others have examined the impact of digitalization on innovation (Tsou and Chen, 2023; Lu *et al.*, 2023). However, it is still an emerging topic and there is little research that analyze the effect of digitalization on the competitiveness of companies, in general, and in the hotel industry in particular. The purpose of this study is to analyze: a) the direct relationship between digitalization and service quality in hotels, and b) the indirect relationship between these variables via incremental and radical innovation.

METHODOLOGY

To achieve this purpose, a structural equation model is analyzed using Partial Least Squares (PLS). A postal and online questionnaire was sent to the population of hotels from 1 to 5 stars in the Valencian Community (Spain) (786 hotels) in three waves in 2023. A pretest was performed. Finally, 268 establishments responded to the questionnaire (34.1% response rate, 4.86% sampling error for a 95% confidence level). The variables measured based on previous literature were the following: digitalization (6 items), incremental innovation (6 items), radical innovation (6 items), and service quality (6 items). All variables were measured using a 7-point Likert scale. Chain affiliation, hotel size, and category were used as control variables.

FINDINGS

The results show that digitalization has a positive and significant effect on innovation (incremental and radical) and on improving service quality in hotels. Likewise, it is found that innovation plays a mediating role between digitalization and service quality. There is a partial positive mediation of innovation (incremental and radical).

CONTRIBUTIONS

This study contributes to increasing knowledge about how digitalization is related to the improvement of hotel service quality through incremental and radical innovation. From the point of view of business management, Spain is a leading country in the tourism sector, and its companies must be capable of leading this digital transformation. With this study we provide empirical evidence that digitalization can help innovate in hotels, and in this way increase their competitiveness through improving service quality. Therefore, hotels must take advantage of this digital transformation as an opportunity.

ACKNOWLEDGMENTS

Keywords: Digitalization, innovation, service quality, hotels

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FINANACIAL RESILIENCE OF MANUFACTURING SMALL AND MEDIUM ENTERPRISES IN PORTUGAL

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ABSTRACT

Objective – The COVID-19 pandemic severely impacted the global economy, raising questions about how firms, particularly SMEs, can remain resilient in extreme uncertainty. Resilience has gained renewed attention, especially in understanding how companies can survive, grow, and maintain successful businesses during crises. Organizational resilience involves the ability to anticipate, respond to, and recover from disruptions, with financial resilience being a key aspect. Financial resilience refers to the capacity to adapt to changes and shocks by managing resources effectively to survive and seize opportunities. Due to the impact of the pandemic on the global economy and Small and Medium Enterprises (SMEs) in particular, managers and researchers have been interested in understanding what organizational and financial resilience is, how they are related, and how to achieve such desirable features, especially within an uncertainty environment. The main objective is to investigate specifics firm characteristics that may explain SME financial resilience in the manufacturing sector in Portugal from 2005 to 2021. This study aims to explore SME financial resilience in Portugal's manufacturing sector from 2005 to 2021. It investigates the relationship between firm characteristics—such as financial slack, operational leverage, internationalization, size, and age—and financial resilience, as well as the impact of the 2008-2011 financial crisis and the 2020-2021 pandemic crisis.

Design/ Methodology – A quantitative research design with logistic regression analysis is applied, using secondary account-based data extracted from the SABI database from 2006 to 2021. The Resource-Based View (RBV) is a prevalent theoretical foundation in financial resilience studies and it is used in this study. Hillmann (2021) suggests that resilience research enriches the RBV and dynamic capabilities debates by offering insights into why some companies survive and thrive. Financial resilience studies often examine the role of financial, human, and political resources under the RBV, as resource availability is crucial for resilience (Lee & Chen, 2022; Leuridan & Demil, 2022).

Results – For each unit increase in the variable cash, the chance that SME in the sample belongs to the resilient category increases about 28.8 times. Regarding firm size, with each unit increase in this variable, the chance of the SME belonging to the category of resilient companies increases by approximately 35.1%. For the year 2020, 45% of the SMEs were categorized as resilient, with the

highest proportion found in food manufacturing (45%), followed by fabricated metal products (43%) and textiles (28%). Geographically, North Portugal had the largest number of resilient SMEs (53%), followed by Centre Portugal (24%) and Lisbon (20%). Descriptive statistics revealed that resilient SMEs maintained a higher proportion of financial slack, averaging 10% of assets compared to 6% for non-resilient SMEs. Additionally, non-resilient SMEs had higher operational leverage on average. The logistic regression analysis showed that increased financial slack and larger firm size were positively associated with resilience, with odds of resilience increasing by 28.8 times and 35.1%, respectively. On the other hand, higher operational leverage, greater internationalization, and older firm age were negatively associated with resilience, reducing the odds by 86.4%, 26.3%, and 42%, respectively. Both the financial and pandemic crises significantly decreased the odds of resilience, with the pandemic having a more severe impact. Concerning both crises, results suggest that the chances of an SME belonging to the resilient category were lower during the pandemic than during the financial crisis of 2008-2011.

Practical implications – This study contributes by providing a discussion of organizational and financial resilience theoretical and empirical approach. Regarding the empirical contributions, this study aims to provide insights into SMEs' financial resilience during the Covid crisis period. This study is also expected to provide insights to academic researchers and public policymakers, especially into how to stimulate SMEs' resilience in crisis period.

Keywords: SME; Financial Resilience; Financial performance; ROA; Covid crisis.

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SCIENCE MAPPING ON GENDER PARITY LAW AND POLITICAL EQUALITY: EMPHASIS ON PORTUGUESE GOVERNMENTS STUDIES

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ABSTRACT

Objective – Gender disparities in various societal sectors are well-documented (Pilkina & Lovakov, 2022). Although women's representation in top positions has increased (Simone et al., 2018), they remain under-represented in global politics (Dhima, 2022; Profeta & Woodhouse, 2022). As of January 2021, women held 25.5% of national parliamentary seats, up from 24.9% in the previous year, but still lower than 11.7% in 1997 and 19.2% in 2013[1].

Gender quotas have been implemented in many countries as a solution (Rosen, 2017). In 2020, 25 out of 57 countries with elections had gender quota systems (Inter-Parliamentary Union, 2021). These quotas, initially intended as temporary measures, set legal minimums for female representation to correct gender imbalances (Spaziani, 2022).

In Portugal, the Parity Law (Organic Law nº3/2006) mandated 33% female representation on candidate lists. It was updated in 2019 to a 40% minimum threshold, with stricter penalties for non-compliance. Despite these laws, gender inequality persists due to factors like the glass ceiling (Folke & Rickne, 2016), party strategies (Verge & Espírito-Santo, 2016a), and cultural resistance (Amâncio & Santos, 2021).

This paper *conducted a scientific mapping on gender parity law and political equality and aims to provide an overview of the state of the art in this thematic area to better understand its evolution, characteristics, and central debates with an emphasis on Portuguese government studies.*

Design/ Methodology – This study uses science mapping to analyze gender representation research, focusing on global and Portuguese contexts, and *use a sample of 2435 articles published from 1958 to 2022, retrieved from the Web of Science (WoS) and Scopus databases* results.

The research questions of this study are:

- What are the characteristics of the global research sample, including publication trends, countries, knowledge areas, journals, authors, and topics?

- What are the conceptual and intellectual structures in this field?

- What are the key studies on gender parity and political equality in Portuguese government contexts, and what are their main contributions?

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[1] Data retrieved from Inter-Parliamentary Union

Results - *The sample analysis showed the growth in the number of articles published on gender parity law and political equality, especially in the last decade, representing about 76.5% of the total articles published. The results showed that scientific production by country is higher in the US, followed by the UK. However, from the perspective of the continents, Europe leads the scientific production in this area. The studies that investigated this theme only in the Portuguese context focused mainly on the reasons for adopting the parity law in Portugal, its impact on the women's representativity in political bodies, and how society interprets them. Few studies analyzed the Portuguese context, and the reality of local government is under-researched compared to the national government.* The analysis suggests that increasing women's representation in local government is crucial for diverse and effective decision-making. Future research should expand to include quantitative studies in fields like accounting and finance to assess the financial impact of female political representation. Additionally, employing diverse bibliometric techniques could further advance understanding in this area. Despite the comprehensive nature of the databases used (WoS and Scopus), incorporating a broader range of sources, such as Google Scholar, could address potential limitations in the analysis.

Practical implications – Science mapping helps understand the intellectual structure and trends in scientific research, guiding policy-making and identifying research gaps (Aria & Cuccurullo, 2017; Ellegaard & Wallin, 2015). This study, based on 2,435 articles from WoS and Scopus, aims to advance understanding of gender political representation and inform legislative processes. The study also contributes to the growing literature on gender political representation. It provides a better understanding of their role as determinants on *gender parity law and political equality*.

Keywords: Gender; Parity Law; Political Equality; Women Political Representation; Portuguese Local Governments; Portuguese Governments; Science Mapping; Scopus; Web of Science.

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THE EFFECT OF INDUSTRY 4.0 ON ENTREPRENEURIAL ECOSYSTEMS: AN INTERNATIONAL PERSPECTIVE

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ABSTRACT

In the last decade, entrepreneurial ecosystems (EE) have attracted increasing attention from researchers, managers, and policymakers as important instruments to achieve long-term economic growth (Henn et al., 2022; Rocha & Audretsch, 2022). Although, researchers do not share a unified definition of an EE, it is rooted in the cluster literature (Bouncken & Kraus, 2022; Rocha & Audretsch, 2022) and can be described as a "set of interdependent actors and factors coordinated in such a way that they enable productive entrepreneurship within a particular territory" (Stam, 2015). Theodoraki and Catanzaro (2022) highlight four axes that frame entrepreneurial ecosystems literature, namely, the structural axis, the systemic axis, the spatial axis and the evolutionary one.

The structural axis is crucial to identify and characterise the composing actors and elements of EE and propose a configurational-based approach (Theodoraki & Catanzaro, 2022). The second axis, the systemic one, further enriches the configurational approach by emphasising on the different dynamics and interactions established among the actors and elements (Ferreira et al., 2023; Theodoraki & Catanzaro, 2022). The spatial axis anchors the EE in a specific local or regional context and considers EE as an outcome of territorial strategies (Acs et al., 2017). The evolving process and the temporal maturity of the EE lies in the last axis, namely the evolutionary one. It allows to explain how EE has evolved over time depending on the culture, history and institutional settings (Mack & Mayer, 2016). Yet, most studies neglect the last two axis and consequently we lack a dynamic view of entrepreneurial ecosystems (Theodoraki et al., 2023; Walsh, 2019) and its spatial evolution. However, understanding the EE evolution processes in response to contextual changes is an indispensable prerequisite. It will ensure EE sustainable development and mitigate the gap between practice and theory (Colombelli et al., 2019; Theodoraki et al., 2023).

Most of the contextual changes arising in todays' global economy are induced by the adoption and use of innovative digital technologies, known as Industry 4.0 (I4.0). I4.0 has significantly affected entrepreneurship and their ecosystems (Ratten, 2020). In particular, with research suggesting that I4.0 can support globalisation and others that it can hinder it, such technologies are predicted to question

the geography of firms' activities (Bettiol et al., 2021). However, little is known about how I4.0 transforms EE morphology in terms of activity and member location over time (Götz, 2020; Grashof et al., 2021; Kolagar et al., 2022). To capture a broader context of the possible consequences of I4.0 regarding the evolutionary and spatial axis, this research calls for a "glo-cal" approach and an international lens (Theodoraki & Catanzaro, 2022).

The research will be conducted in the automobile / mobility solutions industry in both France and Italy. Two EE will be studied using qualitative analysis based on secondary data (i.e. members' list and addresses and press releases over the years) and semi-structured interviews to better understand how Industry 4.0 impacts the spatial and evolutionary axes of entrepreneurial ecosystems. The first EE selected is located in a north-west region of Italy called "Piedmont". It has been historically the centre of Italy's industrial economy, gathering major industries. In particular, it is the cradle of transportation and automotive production (Pezzini et al., 2007). The second EE is located in an Est region of France called "Rhône-Alpes-Auvergne". It is the first Industrial region in France, and represents 14.7% of the French employment (Service Intelligence Economique et Territoriale, 2021). The European EE for mobility solutions "CARA" is located there (*CARA European Cluster for mobility solutions*, 2024).

Findings will be synthetised in a conceptual model which highlights the evolution of the EE morphology and depicts the role of Industry 4.0 technologies. The findings of the research will allow to present theoretical, managerial and policymakers implications. First, by conceptualising the effect of I4.0 on EE morphology using an international lens, the paper will participate in the scholarly conversation on the current EE overlapping and fragmented view. Results may provide additional evidence to differentiate it from related concepts such as clusters (Theodoraki et al., 2023) and allow scholars to draw future promising research. Second, results will create interesting insights for managers and policymakers to understand the entrepreneurial arising challenges and adapt current policies.

Keywords: Industry 4.0, Entrepreneurial ecosystems, International, evolutionary perspective

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HAPPINESS AND WELFARE IN CORPORATE SOCIAL RESPONSIBILITY (CSR) IN IRAN

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ABSTRACT

INTRODUCTION

Recently, there has been a growing interest in the concepts of welfare and happiness. Initially, these discussions were primarily reserved for the domain of philosophy. However, over time, other scientific disciplines have increasingly engaged with this topic (Rela et al., 2020). Empirical studies have since focused on happiness, particularly within the fields of physiology, social and personality psychology, and sociology (Núñez-Barriopedro et al., 2020). Today, disciplines such as politics, economics, and corporate social responsibility (CSR) have developed substantial bodies of knowledge concerning employee welfare, satisfaction, and happiness.

Across all scientific disciplines, a common distinction is made between external and internal models of satisfaction, happiness, and welfare. Satisfaction is understood as a feeling derived from the process of interpreting and evaluating outcomes against expectations. In many countries, satisfaction is considered one of the most crucial variables for achieving long-term business success (Ardakani et al., 2015). External happiness, or happiness "from the outside," is associated with objective conditions such as material prosperity or consumption (Yoshida et al., 2021). Conversely, happiness "from within" is a state dependent on internal, subjective judgments. In the context of research on business organizations and empirical findings on prosperity and welfare, it appears reasonable to treat happiness "from within" as a phenomenon of internal states that are partially influenced by external factors such as welfare and well-being (Rodríguez et al., 2020).

According to the World Happiness Report (WHR), there has been a significant surge in interest in happiness, especially in response to the challenges posed by global health crises. This underscores the universal desire for happiness. From this perspective, CSR plays a crucial role in fostering welfare and happiness within society. This role is not only about the current efforts but also about enhancing the corporate image of companies committed to the well-being of their human capital and stakeholders. This commitment operates under the philosophy that monetary benefits are not mutually exclusive with the guiding principles of corporate social responsibility, environmental respect (Basile et al.,

2022), emotional consumption, and happiness management (Ravina-Ripoll et al., 2019). Therefore, the primary aim of this work is to examine CSR through the lens of happiness and welfare.

LITERATE REVIEW

If happiness is understood as a reflection of welfare, then companies and SMEs must adopt management models that integrate organizational, psychological, communicative, and social factors to foster corporate happiness and satisfaction within their organizations (Jiménez-Marín et al., 2021). Moreover, companies need to recognize that the term "happiness" can be used interchangeably with concepts such as subjective welfare, life satisfaction, and utility (Cuesta-Valiño et al., 2020). Research indicates that workers' happiness is closely linked to their performance, satisfaction, and sense of responsibility (Momparler et al., 2021).

In the current climate of rapid economic and social change, society increasingly demands socially responsible behavior from organizations (Tiwari et al., 2021). Implementing a management methodology that prioritizes satisfaction and welfare can guide organizations toward a more meaningful engagement with society. Therefore, the strategic objectives of companies and organizations should focus on maximizing the satisfaction of both their consumers and their human capital, as this represents a sustainable source of competitive advantage (Núñez-Barriopedro et al., 2021). Such an approach is inherently responsible and sustainable.

PURPOSE

Such studies can have substantial practical implications for both practitioners and public administrations by helping them identify the significant economic and sustainable benefits that actions aimed at improving corporate satisfaction among creative talent can yield (Sorribes et al., 2021). Additionally, some perspectives suggest that enhancing satisfaction can pave the way for new management approaches and evolving conceptions of CSR, particularly in a world increasingly threatened by climate change (Ahmed et al., 2020).

Despite these academic advancements, there has been relatively little attention paid to the social role of CSR in relation to satisfaction, happiness, and welfare, especially in emerging countries like Iran. This gap highlights the need for further exploration of how CSR can contribute to societal well-being in these contexts.

Therefore, this work aims to contribute to the existing body of knowledge on CSR and its impact on social outcomes. Additionally, it seeks to establish welfare and happiness as key metrics and precursors for achieving social responsibility within CSR frameworks (García-Sánchez et al., 2021).

EXPECTED RESULTS AND CONTRIBUTIONS

Through quantitative research conducted on a sample of SMEs operating in Ardakan city, Iran, the researcher developed a model where environmental, community, and economic activities contribute to social value creation while safeguarding people's happiness and welfare.
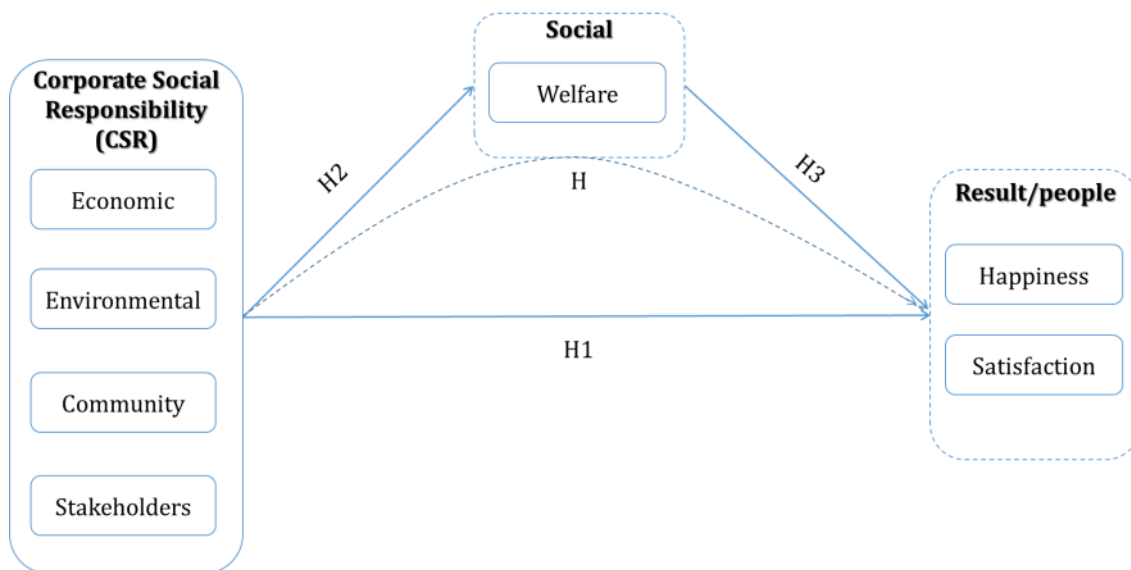
Fig. 1 Conceptual framework – Author's Own

The study answers the following research questions:

1. What is the role of corporate social responsibility in welfare and happiness?

2. What responsibilities does the corporation have in sustainability and corporate social responsibility?

3. How do firms in elaborating to improve social needs?

HYPOTHESES

H: Corporate Social Responsibility (CSR) have a significant impact on happiness and satisfaction with the mediator role of welfare.

H1: Corporate Social Responsibility (CSR) have a positive impact on happiness and satisfaction.

H2: Corporate Social Responsibility (CSR) has a positive impact on welfare.

H3: Welfare has a positive impact on happiness and satisfaction.

RELEVANCE

The work will improve the body of knowledge on corporate social responsibility, expanding welfare and happiness, and its impact on economic, social and satisfaction in an emergent country. Therefore, the scientific and managerial objectives are:

- To explore human resources and marketing policies to stimulate employees' work performance from a collaborative culture based on commitment, positive psychology, etc.

- To offer a corporate image of companies committed to the working passion of their human capital and the satisfaction of their customers under the guiding principles of corporate social responsibility, emotional consumption and happiness management.

From these perspectives, this study seeks contributions that highlight that the intangible resource of happiness and satisfaction will play a key role not only in the transformation of the green economy (Cuesta-Valiño et al., 2021).

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HOW DOES THE UTILIZATION OF ARTIFICIAL INTELLIGENCE IN DIGITAL MARKETING AFFECT CUSTOMER RETENTION RATES WITHIN THE HOTEL INDUSTRY IN GREECE?

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ABSTRACT

Lately, the hotel sector in Greece has experienced a momentous reformation due to the significance digital marketing holds in any marketing plan hotels decide to embrace (Kontis and Skoultsos, 2022). Regardless, the synthesis of artificial intelligence and digital marketing still remains a hidden treasure in the domain. During the past few years in Greece, the hospitality landscape has faced significant challenges in relation to retaining consumers, the most notable reasons being the heightened competition along with the continuously advancing digital marketing and AI procedures (Kontis and Skoultsos, 2022; Buhalis, Leung, and Lin 2023). To confront these barriers, hotels have steadily progressed towards utilizing artificial intelligence to enhance their digital marketing practices in order to boost the retention percentages of their consumers (Cuomo *et al*. 2021; Rusthollkarhu *et al*. 2022).

Generally, the incorporation of artificial intelligence in digital marketing has been broadly examined in scholarly works and, more particularly, its effect on the retention of consumers in the hospitality sector (Cambra-Fierro *et al*. 2021; Boddu, 2022). The benefits of integrating digital marketing and artificial intelligence contain enhanced consumer experiences and improved tailored capabilities. While continuous refinement and review are essential to guarantee the ethical undertaking and efficacy of these procedures (Dumitriu and Popescu, 2020). Procedures that are fueled by AI permit hotels to interpret and accumulate immense amounts of consumer information, permitting them to devise advertising campaigns specifically made to match the needs and desires of users (Kirtil and Aşkun, 2021; Lacárcel, 2022). Nevertheless, many argue that through the collection of consumer information there can arise ethical dilemmas. Owning to the reliance of artificial intelligence on immense volumes of user data, a central concern is the necessity for securing and isolating data; thus, firms must be able to guarantee that they assemble, process, and oversee client information attentively (Moradi and Dass, 2022**;** Hang and Chen, 2022; Khaliq *et al*. 2022)**.**

The hospitality industry in Greece maintains an influential position in the nation's tourism sector, luring a myriad of visitors every year (Metaxas, Chatzoglou and Koulouriotis, 2019). Loyalty

schemes, consumer fulfilment, service rate and the general experience of consumers are vital aspects that influence the retention rates of their clientele. Hence, consumer loyalty is cultivated by hotel establishments that emphasize on providing tailored and superior services through their reputable brand awareness (Pantano *et al*. 2019; Bigne, Chatzipanagiotou and Ruiz, 2020). Throughout the increasing international contest between hospitality establishments, Greek hotels pursue inventive patterns and methods to maintain and entice clientele. Nevertheless, although some strived to adopt it, the majority of the Greek hotels have not yet endeavoured or even considered utilizing AI in their business. This is mainly due to the scarcity of knowledge from the owner or manager of each establishment (Samara, Magnisalis and Peristeras 2020).

What is more, this investigation's context accentuates the swift evolution of Artificial Intelligence and its prospective functions in the hotel sector, thus, underlining the demand for a data-driven study to properly comprehend the effect it may have on the retention of consumers. The purpose of this study is to further examine how the core AI tools (e.g., chatbots, tailored suggestions etc.) affect the consumer's commitment and engagement. With the accumulated information obtained using questionnaires, the author will be able to understand how the combination of AI and digital marketing can affect the consumer. Largely, this analysis can contribute applied solutions in the hotel sector in Greece, discoursing the fusion of digital marketing with artificial intelligence. Processes that are powered by artificial intelligence are able to nurture the commitment and augment the experiences of clients. This examination studies the viewpoints of consumers in Greek hotels on digital marketing and artificial intelligence, as well as their selections and awareness. This is indispensable for hospitality establishments that desire to satisfy the growing anticipations of their clients.

Apart from the aforementioned, the examination assesses the influence of Artificial Intelligence on retention ratios of consumers, unveiling possible advantages for hotels in Greece. Moreover, these understandings designate hospitality establishments to meet the preferences and fulfilment levels of clients more effectively, improve their services and augment loyalty rates. This analysis holds the capability to delve and contribute into the dynamics of Greek hotels, aiding both the sector and the academic world. To conclude, the purpose of this examination is to advise hotels in Greece to elevate the retention ratios of their consumers, use proper digital marketing methods fused with AI and empower them in order to confront the increased competition in the hotel industry.

By critically reviewing the existing literature, this examination closely dissected all the essential functions linked to digital marketing and AI and how the integration of them can affect the retention ratios of consumers in the Greek hotel sector. One of the main objectives was to assess the impact of artificial intelligence procedures in digital marketing on the retention rates of consumers in the Greek hotel sector. Altogether, the analysis adopted the quantitative research approach, with the

information being accumulated by distributing questionnaires to individuals, through social media platforms and email. This examination delivered practical insights for hotels in Greece, proposing the commission of strategies that are powered by AI and digital marketing in order to nurture the commitment and experiences of clients.

The outcomes of this analysis can aid the hotel sector in Greece and function as a stepping stone for prospective analyses, while donating to the academic circle. More specifically, prospective studies should conduct quantitative research but expand it over a span of years in order to facilitate the progression of these practices; and also implement interregional quantitative and qualitative analyses with the purpose of significantly extending the scope of this research. Some notable limitations of this research, encompass the emphasis on a single country, the fast progression of artificial intelligence and language impediments which eventually narrowed the research group length. Lastly, this analysis highlights the necessity of being vigilant about the preferences of consumers and the progress of technology in the continuously developing hospitality industry.

Keywords: Artificial Intelligence, Digital Marketing, Retention Rates, Hospitality Sector, Greece

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ENHANCING LEARNING THROUGH KNOWLEDGE SHARING BETWEEN FACE-TO-FACE AND ICTS INTERACTIONS

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ABSTRACT

INTRODUCTION AND THEORETICAL BACKGROUND

Learning within groups refers to the process that allows individuals to acquire, share and combine knowledge through experience. Scholars identified it as an important driver of innovation and performance (Argote & Ingram, 2000; Cohen & Levinthal, 1990; Dyer & Nobeoka, 2000; Teece et al., 1997). Organizational literature widely analysed how learning takes place during different organisation activities and how individuals share their knowledge (Hansen et al., 2005; Nonaka, 1994; Pisano, 1996). Harvey, Bresman, and Edmondson (2018) developed a framework composed by four categories of learning: reflexive, experimental, contextual, and vicarious learning. Accordingly, it becomes indispensable for individuals to continuously learn particularly when involved in dynamic and complex work contexts requiring teamwork, coordination, and significant experience (Hara et al., 2001; Myers, 2022). In such situations, where exclusive formal learning may be little effective, it becomes important to understand how, on which occasions, and by what means individuals share their knowledge. Therefore, the aim of this paper is to explore learning that occurs while individuals are performing activities both directly in the field and outside it, within complex real-world contexts (Leith, 2019; Seely & Duguid, 1991). This is due to the efficacy of these contexts in highlighting the mechanisms by which individuals share knowledge and learn (Maanen & Kolb, 1982; Myers, 2022; Schulte et al., 2020).

RESEARCH CONTEXT AND METHODOLOGY

We explore how knowledge sharing occurs in the Abruzzo, Lazio, and Molise National Park (PNALM). Dedicated to preserving wildlife and natural landscape, this context necessitates various strategies to ensure the coexistence between humans and wildlife. The management of the park is entrusted to qualified and unqualified personnel, including volunteers, auxiliaries, and experienced park rangers. They synergically work in pairs in extensive natural territories, forming dyads. Many of the activities they perform are complex, involving numerous operations such as data and wildlife monitoring. These operations necessitate profound knowledge of the environment and animal behaviours, shaping a context where continuous learning is crucial. Learning quickly is indispensable, particularly for the

non-experienced members, to handle complex situations such as encounters between humans and animals, and effectively contribute to the mission. Moreover, it is essential that the information they collect is shared among volunteers, auxiliars, and park rangers across different organisational areas. These areas include technical, surveillance, or scientific domains where information collected from members in the field is constantly gathered and analysed. Specific technologies such as radio collars, apps, or database as well as traditional and digital communication tools regularly facilitate these operations. Therefore, this unique context is characterized by a variety of complex activities and the unpredictability of coexistence between humans and animals. These features, along with the high number of new personnel requiring knowledge to be shared, make the management of the park particularly challenging. Highlighting the crucial role of knowledge sharing, the characteristics of this context enable us to explore diverse forms of learning through different perspectives. Through our investigation, we observe how of face-to-face and digitally based interactions, while engaging in activities, support four different types of learning – contextual, experimental, reflexive, and vicarious learning. We further explore the impact of learning on tacit and explicit knowledge sharing in a context where digital and non-digital coexist. We conducted a documental analysis to lay the groundwork for 16 open-ended interviews with PNALM members. The questionnaire was composed of introducing questions, activities, technology, personal relationships, data sharing, external collaboration, and further questions. Thereafter, we applied the content analysis method to analyse the interviews: after developing a dictionary with the most frequent words, we selected parts of the text and assigned them to nodes and sub-nodes following the literature. By basing our methodological approach on Gioia methodology (Gioia et al., 2013), we adopted co-occurrence analysis to find patterns among nodes. This analysis unveiled the connection between learning, communication tools, activities, and knowledge. We framed our results and discussed the findings in the related section.

FINDINGS AND CONTRIBUTIONS

Our paper contributes to learning and knowledge literature by unfolding learning through diverse activities and communication tools, ultimately showing its impact in shaping knowledge. We firstly demonstrate that contextual and vicarious learning mostly occurs with face-to-face interactions while reflexive learning occurs more through digital tools. Secondly, we demonstrate the fundamental role played by fieldwork-based activities in contextual and vicarious learning. We also show that, with minor impact than practice, office and formal education activities may support learning in our contexts. Further, we demonstrate how the four typologies of learning impact on explicit and tacit knowledge. Accordingly, experimental and reflexive learning are mostly effective in facilitating the sharing of explicit knowledge as is contextual learning as well. Moreover, contextual learning effectively shapes

explicit knowledge while concurrently facilitating the sharing of tacit knowledge occupying an intermediary position. Finally, the most significant findings reveal crucial evidence that vicarious learning is an effective process that largely shapes tacit knowledge.

Organizations could benefit from our findings since they may improve knowledge sharing and learning processes by actively managing interactions and activities of members. We highlighted how specific activities and communication tools facilitate learning processes. We demonstrated that face-to-face and digitally mediated interactions have different impact on knowledge sharing. The same applies to the activities: individuals can perform different activities and learn differently. Organizations can recognize the strategic importance of activities for individual group learning. Finally, by linking learning to the type of knowledge, organizations could indirectly foster the sharing of tacit and explicit knowledge by selectively enhancing specific types of learning.

Keywords: Learning, knowledge sharing, knowledge, communication tools, groups.

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IMPLEMENTING DIGITAL TRANSFORMATION THROUGH OPEN INNOVATION: A CASE STUDY IN ITALIAN PUBLIC ADMINISTRATION

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ABSTRACT

Research on open innovation (OI) (Chesbrough & Bogers, 2014) has primarily focused on private sector organizations, with limited investigation into the public sector (Venturini & Verbano,2017), often uniquely centred on the energy and multi-utilities sector (Pellegrini et al., 2012; Chesbrough, 2016; Gionfriddo & Piccaluga, 2023) or on e-Government initiatives (Mergel & Desouza 2013) without push forward the understanding of OI in public sector entities since their evolving role in OI ecosystem (Palumbo et al., 2023).

Innovation within the public sector (IIA, 2011), is frequently viewed as the transference of business practices into governmental environment. However, public sector entities stand apart from their private counterparts due to distinct attributes like funding, control, and legal mandate (Gershman et al.,2018). In addition, state-owned enterprises (SOEs), pursuing a multitude of goals play an important role in achieving science, technology and innovation (STI) policy targets substituting insufficient private investment (Gershman & Thurner, 2016).

Unfortunately, public sector organizations often adopt bureaucratic (closed) methods of innovation that fail to produce the quantity and quality of innovations necessary to address both emerging and ongoing policy challenges (Bommert, 2010). Bureaucratic organizations by nature typically prioritize the application of regulations over the use of practices that foster creativity. The rigidity inherent in the bureaucratic structure of public sector entities, creates the unique mix of management practices inherited from the past with more adaptable approaches cultivated in the private sector (Khanal, 2022).

In order to overcome shortcomings in public finance (Mu & Wang,2022), public sector entities often embrace a senior partnership role merely creating a favourable environment to foster connections among stakeholders (Palumbo et al.,2023).

Public organisations could also benefit from the experiences of OI in the private sector using the process of collaboration and co-creation between stakeholders (Bekkers & Tummers, 2018) to achieve innovation and augmenting the value creation capacity. These processes see the search for innovation only outside the boundaries of the public organisation underestimating the innovative capacity within themselves.

For all this reasons, scholars have focused on the creation of partnerships between public and external entities using OI practices and have not yet explored the use of these practices within the organisation's boundaries stimulating an inside-in innovation flow (Gutmann et al., 2023).

The aim of this research is to understand how OI practices can be implemented in a highly bureaucratic organisation, such as the Public Sector, and whether these practices were useful in pursuing the intended innovation goal (in this case digital transformation).

This work precisely proposes a case study (Yin, 1994) of OI practices in Sogei - Società Generale d'Informatica S.p.A., an Italian SOE fully owned by the Italian Ministry of Economy and Finance which is responsible for the digital transformation of administrative process of Italian public administration.

Through a qualitative method involving a single case study this paper aims to provide scholars and practitioners with useful insights into the use of OI practices in public administration starting from a case study of Sogei's experience.

Sogei embraced the paradigm of OI in 2019 and published a whitebook about it (Sogei, 2021) to extend the experimentation of an OI model in Public Sector with a specific focus on Public Administration (PA). Sogei's case was a driver of innovative change within the public administration by generating value through the production of material, such as the whitebook, and by opening a debate on the use of IO in a highly bureaucratic environment through the management of inside-in innovation flows. Delving into this case study makes it easy to analyse what the results of OI actions have been and how they have been measured, providing an insight into possible future uses in highly bureaucratic organisations such as the public administration.

Keywords: Open Innovation; Public Management; State Owned Enterprise; Public Administration; Digital Transformation; Public Value; Innovation Management; Collaboration; Italy;

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INNOVATION THROUGH EXPERIMENTATION: THE DUAL IMPACT OF LEAN STARTUP AND GROWTH HACKING METHODOLOGIES

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ABSTRACT

In the process of validating a value proposition or a business model, it is commonly acknowledged that the initial business idea rarely makes it to market in its original form. In the early stages of a startup, an idea is formulated, a Minimum Viable Product (MVP) is developed, and tested through the Lean Startup methodology (Reis, 2011). Following this phase, if the startup progresses, the MVP is either enhanced or completely changed (pivoted). Upon successfully validating the business model, the startup proceeds to market entry. At this step, many startups employ the Growth Hacking approach, or similar approaches, to foster growth and try to scale their business (Holiday, 2014; Cavallo et al., 2023). Growth hacking has been viewed as a marketing technique leveraging creativity, analytical thinking, and social metrics to sell products and gain exposure (Ellis & Brown, 2017). It can be seen as part of the online marketing ecosystem, as in many cases growth hackers use techniques such as search engine optimization, website analytics, content marketing and A/B testing. Growth hacking has been, since then, leveraged by several born-digital companies (e.g., Dropbox, Google, Airbnb, Meta, LinkedIn, Pinterest, PayPal and many others) to improve business scalability and to boost growth. Strategies like referral programs, free trials, loyalty mechanisms have been proved effective in driving growth. Recent studies have pointed out that Growth Hacking can be used by any type of enterprise to scale a business, scale, optimize processes, develop new products and services, and improve some business activities (Bargoni et al., 2024a).

Despite the widespread application of these methodologies, theoretical understanding of the use of Growth Hacking, including its organizational, managerial, and strategic dynamics, remains limited. Only recently has scholarly literature begun to investigate this approach (e.g. Bohnsack & Liesner, 2019; Troisi et al., 2020). Furthermore, there is even less understanding of how the two methodologies, Lean Startup and Growth Hacking, can be synergistically used to maximize growth. Often, these methodologies are confused. However, it can be argued that they are both experiment-driven approaches, fuelled by data-analytics, aimed at developing a product, service, or business model (Lean Startup) or facilitating growth (Growth Hacking). Recently, scholars have suggested viewing Growth as a methodology for conducting experiments not only on products and services but also on

channels, campaigns, and other business activities (Bargoni et al., 2024a). Moreover, this approach is beneficial not solely in the context of platforms but also within traditional enterprise environments (Bargoni et al., 2024c).

In this context, the present paper aims to elucidate, unveil and discuss the interconnection between the Lean Startup and Growth Hacking methodologies, both in terms of theoretical understanding and practical application.

To gain a deeper understanding on how Lean Startup and Growth Hacking principles can be used together to simulate the innovation-growth-innovation loop, we adopted a qualitative approach, combining Gioia's methodology (Gioia et al., 2013) and phenomenography. As defined by academics (Denicolai & Previtali, 2023) phenomenography is an interpretive process to reveal the heterogeneity of managerial mindsets and practices. Furthermore, to gather all the relevant and recurrent concepts from the interviews in an inductive way, the Gioia method is applied. Information is primarily gathered through semi-structured interviews, integrated with data from both publicly available sources and materials provided by respondents.

Given the aim of this study, we focus on companies that implement growth hacking strategies to fuel innovation. Growth hacking, being a process or even as defined by some interviewees a mindset, is not industry specific but rather can be applied to any sector or company.

We purposively selected four companies that formally and informally collaborate with the university where the authors work. This led to constant discussions between the researcher and various managers and employees of the companies under analysis. The involved companies are startup or scaleup adopting a platform business model (Cusumano et al., 2019; Madanaguli, 2023).

The results of the case studies suggest that the Lean Startup approach has been extremely useful for building an MVP and improving it for market launch. On the other hand, Growth Hacking contributes to collecting all types of data useful for analysing the target, their needs, challenges, and the perception of the value proposition. Therefore, from the perspective of value configuration, the company must transform into a data-driven decision-maker to support all business areas and the growth team. Data will then be the engine of key business decisions. Hence, data analysis allows for better market segmentation and the identification of new needs, to be addressed with a new product or services, which can support the initial value proposition or even become more important than it in terms of revenue and total addressable market. Firm1, for example, offered a business model with limited production capacity at its early stage. Thanks to the analysis of structured and unstructured, quantitative, and qualitative data (such as interviews, reviews, etc.), they understood there was a new market potential with new needs. Therefore, a new service was launched, tested with a lean startup

model, and then scaled. Today, this service brings in more revenue than the previous one. The same applies to Firm3, whereas two more services have been developed thanks to data analysed during the Lean and Growth phases. Firm2, on the other hand, developed a new service to support the core service, thanks to the Growth methodology. Firm4 drafted the new service, which is based on a subscription revenue model which brings various advantages in terms of recurrent revenues and forecast capabilities, during the scaling phase. In summary, the four startups experimented to: a) develop new business ideas by segmenting users and/or gathering and analysing data during the scaling phase; b) draft a new VP implementing the Lean Startup principles; c) grow and scale the new service using Growth Hacking strategies.

In conclusion, the paper offers the following insights. First, the paper emphasizes the importance of continuous identification of new growth opportunities — through data analysis, interviews, surveys, business model analysis, micro-segmentation, etc. Rarely will the first business idea turn into a successful product. Ventures must be able to analyse the market and continuously search for the famous product-market fit, and launch new products and services. Second, the business model innovation should be driven by the scientific and experimental approach, collecting data and continue modifying with a loop process. Third, Growth Hacking is not only for scaling. While growing, it is always necessary to adapt change certain aspects of the business model. Ultimately, the key objective of the scaling phase is to acquire a better understanding of users and various market segments.

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EXPLORING THE EFFECTIVENESS OF HUMAN AND VIRTUAL INFLUENCER MARKETING IN THE TOURISM INDUSTRY: HOW DIFFERENT INFLUENCER TYPES SHAPE TRAVEL CHOICES

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ABSTRACT

BACKGROUND

The digital age has revolutionized information exchange, rendering the quest for knowledge more accessible than ever before. This transformation, driven by the advent of diverse platforms, has refined user engagement through the prolific sharing of visual content, prompting shifts in influence, behaviour, and attitudes – crucial factors within the dynamics of social networks (Baptista and Costa, 2021). Businesses, from emerging start-ups to established multinationals, have tapped into this digital proliferation, creating a pervasive online presence. The ascendance of digital influencers, those who wield power over public perception through online platforms, illustrates a pivotal marketing tactic. This realm has expanded to encompass virtual influencers: digitally rendered entities that, while lacking corporeality, engage audiences through the mirage of human likeness. Their rising significance in influencer marketing signals a shift in promotional paradigms. Within the tourism sector, characterized by its sensitivity to consumer whims and market volatilities, the role of influencers is magnified. Travelers increasingly rely on the persuasive power of influencers, individuals who disseminate their experiences and opinions through content that can pivotally guide others' choices (Pereira et al., 2023). Nevertheless, a gap exists in the scholarship on influencer impact within global tourism, as current literature often exhibits geographical constraints. Recognizing this, there is a call for comprehensive research to understand the scope of influencer marketing's efficacy on a worldwide scale, particularly as it pertains to travel-related decision-making. This study aims to bridge this gap, offering a nuanced examination of influencer dynamics within the global tourism landscape.

PURPOSE

This study seeks to fill a gap in academic inquiry by scrutinizing the role of Digital Influencers (DIs), encompassing both human influencers and their computer-generated counterparts, within the realms of social media and their subsequent influence on the decision-making processes of consumers. The research particularly focuses on the hospitality and tourism sectors, where the influence of digital communication on strategic business approaches is becoming ever more critical. The research endeavours to establish whether the marketing initiatives of such companies are congruent with consumer expectations and organizational goals. Literature to date suggests an insufficiency of focused research in this area, prompting a deeper evaluation of the communication strategies employed by these companies and their impact on user choices. Given the increasing reliance of the hospitality and tourism sectors on digital channels for global communication, this research aspires to elucidate the extent to which social and virtual influencers shape consumer decision-making. It will determine if influencer marketing strategies align with user expectations and desires, identifying potential communicative improvements or gaps. Central to this inquiry is whether varying influencer types notably affect traveller choices, drawing on findings from Pop et al. (2022). Collectively, these studies reveal intricate dynamics between influencer credibility, consumer trust, and the power of perceived homophily, underscoring the intricate interplay between influencer attributes and consumer purchasing decisions.

METHODOLOGY

This research adopts an empirical approach, supported by inductive statistical methods, to discern the impact of digital influencers on consumer decision-making. A structured questionnaire was administered to a range of social media users to collect quantitative data. The questionnaire was meticulously designed to probe the influence of both human and virtual influencers on travel-related choices, assessing the extent to which these influencers shape consumer behaviour in the hospitality and tourism sectors. Specific focus was placed on the influencers' perceived credibility and the likelihood of their recommendations being followed. The sample comprises individuals who frequently use social media, ensuring familiarity with influencer marketing paradigms. The resultant data will reveal potential disparities in the impact of content creators, thereby informing strategies for effective influencer engagement within the industry.

FINDINGS AND DISCUSSION

This study will elucidate the differential impact of human and virtual influencers within the tourism industry. Human influencers were shown to enhance both the image of travel destinations and brand perceptions more significantly, underscoring the potency of authentic personal narratives in influencing traveller choices. While both types of influencers positively swayed purchasing decisions, content from human influencers had a deeper resonance, likely due to their greater relatability and perceived credibility. Audience demographics also played a role in moderating the effectiveness of influencer marketing, indicating a need for tailored strategies. Despite virtual influencers' effectiveness, human influencers command a broader impact across the decision-making spectrum, attributable to their personal engagement with the audience. These findings highlight the strategic importance of influencer partnerships in digital marketing, advocating for nuanced marketing approaches that leverage the distinct advantages of both influencer types to meet consumer expectations and enhance engagement within the tourism sector.

CONCLUSION AND IMPLICATIONS

The research underscores human influencers' paramount role in enhancing destination and brand perception within the tourism sector, validating the enduring influence of authentic human experiences. Despite their synthetic nature, virtual influencers also positively impact purchase intentions, indicating an evolving paradigm of digital influence. For industry marketers, this indicates an opportunity to harness the genuine appeal of human influencers while exploiting the adapted content curation offered by virtual entities. A strategic balance between these influencer types could yield optimal engagement, blending authenticity with targeted messaging. Demographic variables emerge as a key factor in tailoring influencer campaigns to consumer profiles. The study advocates for continuous exploration into the nuanced effects of virtual influencers, anticipating their growing sophistication. It calls for adaptive marketing strategies that evolve with technological advancements, ensuring meaningful consumer connections and sustained engagement in the rapidly changing digital marketing landscape.

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BEYOND SURVIVAL: A SCALE TO MEASURE THE DRIVERS OF ORGANISATIONAL THRIVING

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ABSTRACT

In today's dynamic business landscape, organisations not only face challenges that test their endurance and growth but are also expected to thrive in adverse circumstances (Sindila et al., 2023). Recognising a gap in the academic literature - the absence of a comprehensive scale to measure organisational thriving - this study develops and validates a new Organisational Thriving Scale designed to assess an organisation's capacity to succeed under these demanding circumstances.

ORGANISATIONAL THRIVING

Although academically (Tobias, 2004) and popularly (Kotter et al., 2021) discussed, the concept of organisational thriving lacks a universal definition in literature. Frequently it has been associated with the concept of organisational resilience as a fundamental construct essential for navigating the ever-changing corporate landscape (Vera et al., 2021). Organisational resilience has evolved to indicate an organisation's capacity to adapt, recover, and flourish amidst challenges (Duchek, 2020) highlighting the flexibility and the innovative approach to challenges (Holling, 1973; Richtnér & Löfsten, 2014; Zighan, 2023), maintaining operational stability while embracing strategies for continuous improvement disruptions (Bravo & Hernández, 2021), emphasising recovery from disruptions and proactive resources and capability development for organisational advancement (Chen et al., 2021a).

However, not only does the cognitive aspect of resilience serve as a pillar for the concept of thriving, but also the factor of organisational cohesion, highlighting the importance of high-quality connections, mutual support (Casey-Campbell & Martens, 2009) contributing to organisational vitality, energising the workforce and fostering a sense of belonging and engagement among employees (Müceldili & Erdil, 2015; Torres et al., 2019)

In this research, the synthesis of organisational resilience and cohesion offers a framework for understanding organisational thriving. Resilience provides the foundation for adapting to external challenges and leveraging them for growth (Chen et al., 2021b; Duchek, 2020; Vogus & Sutcliffe, 2007). In contrast, cohesion enhances the internal support systems and has a positive effect, which is crucial for a vibrant and productive organisational culture (Müceldili & Erdil, 2015; Peterson et al., 2009). This combination captures the essence of a thriving organisation: an environment conducive to growth and overcoming adversity through resilience while positively collaborating and supporting each other.

METHODOLOGY

This study employed a two-phase methodology to develop and validate a scale measuring Organizational Thriving, focusing on the constructs of organizational resilience and cohesion. Initially, a pilot study involved a sample of 36 respondents from one organization, testing a 17-item Likert scale (ranging from 1 to 5). This pilot was followed by a larger survey involving 408 respondents from 20 different Lithuanian organizations.

The scale included items such as "Our organization's members can work together in the common interest of the organization, even in difficult external or internal situations," "Our organization can remain positive even in times of crisis," and "Challenges make our organization even stronger." The validity and reliability of the scale were verified through Exploratory Factor Analysis (EFA), with results indicating a high degree of internal consistency (Cronbach's α = 0.947) and reliability (Spearman-Brown coefficient of 0.958). EFA was used to identify the factor structure underlying Organisational Thriving aspects, enhancing the scale's applicability, robustness and generalisability.

RESULTS

The Kaiser-Meyer-Olkin (KMO) measure of 0.955 and Bartlett's test established the data's suitability for exploratory factor analysis (EFA), confirming its appropriateness for this statistical method. *EFA results.* Initially, a pilot smaller sample of 36 respondents from one organization revealed four significant factors, accounting for 75.195% of the total variance: (1) supportive work Environment, (2) Dynamic and responsive organizational capacity, (3) Values and vision, and (4) Creativity and resourcefulness. Meanwhile, the larger sample's EFA2 results across multiple organizations refined these into two generalized dimensions explaining 55.932% of the variance: (1) Organizational resilience and innovation and (2) Positive organizational cohesion and mutual support. **Comparative Analysis:** The evolution from four factors in EFA1 to two in EFA2 demonstrates the scale's broader applicability and robustness, capturing essential aspects of organizational thriving like adaptability, innovation, and supportive work environments across diverse organizational settings.

CONCLUSIONS

This research's novel input in the Positive Organisational Scholarship field was developing and validating an Organizational Thriving Scale that captures the aspects of organisational resilience and cohesion that are important not only to survive in challenging environments but also to thrive. Through Exploratory Factor Analysis of two diverse samples, it offers a conceptual framework for assessing and subsequently enhancing aspects of resilience, enabling organizations to adapt and grow

amidst challenges and cohesion, enhancing internal support and cultivating a positive organisational culture. For managers and leaders, this theoretically and empirically developed scale could serve as a valuable tool for assessing and ultimately informing developmental programmes and practices that could enhance their organisational thriving. Future research, including Confirmatory Factor Analysis, could further validate and refine the scale's applicability across diverse organisational and cultural settings.

Keywords: Organisational thriving, organisational resilience, social cohesion

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USER, VISITOR, CUSTOMER OR STAKEHOLDER EXPERIENCE? A SYSTEMATIC LITERATURE REVIEW ON THE EXPERIENCE IN THE MUSEUM CONTEXT

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ABSTRACT

THEORETICAL BACKGROUND

In line with the experience economy (Pine and Gilmore, 1998; Ponsignon and Derbaix, 2020), the fourth stage in the progression of the economic value is about delivering memorable experiences. It is especially relevant while considering the environment's competitiveness and the customers' growing expectations. The idea of the experience economy is still relevant and has many forms (user experience, customer experience, employee experience, etc.). It is caused, e.g., by the high pace of technological development and societal changes. Hence, mapping customer journeys is becoming more challenging due to the complexity of communication channels and the blurred boundaries between physical and digital experiences (Rosenbaum *et al.*, 2017).

Experience and experience economy can also be identified in the context of museums (e.g. Radder and Han, 2015; Gorgadze et al., 2021). In light of the scarcity of financial resources and the necessity to compete for the time and attention of the audience (e.g. Black, 2020), museums have to apply a more business- and management-oriented perspective, maintain relations with the environment, and communicate their value. Moreover, creating positive experiences should gradually become more critical if they aim to be competitive entities. Discussions about changes in museums are focused primarily on the visitors. Although they are relevant, a multi-stakeholder approach should be considered due to the diversity of museum activities and the complexity of addressed expectations. Moreover, experience does not happen only in museum exhibition space. It is addressed by the fact that discussion is not only about „virtual" or „on-site" experiences: those areas are blurring, creating a phygital experience (e.g. Debono, 2021). Therefore, identifying and analyzing touchpoints can be a challenging task.

RESEARCH METHODS

Therefore, this initial study aimed to explore and systematize scientific debates regarding experience creation in the museum context. Three research questions were formulated as well:

RQ1. How is experience understood in the context of museums?

RQ2. What stakeholder and their roles are analyzed in the context of museum experience creation?

RQ3. What insights and frameworks does existing literature provide regarding the integration of digital and physical interactions in museums to enhance visitor experiences across various touchpoints?

A systematic literature review was applied to realize the research purpose and address the research questions. The study was conducted using data from Scopus and Web of Science databases collected in January and February 2024. Specific search criteria were employed to obtain a research sample, as i.e. creating keyword combinations that guided the analysis and including only English publications in the in-depth analysis. Moreover, no specific timelines were applied during the search process. The PRISMA approach will be used to report the results.

FINDINGS AND CONCLUSIONS

The findings revealed that experience in the museum context is often defined with a reference to Pine and Gilmore (1998). One of the main aspects regards varied emotions (Jiang et al., 2023), yet they are mainly focused on the tourist's or visitors' emotions. Visitors' satisfaction is important, especially while considering the environment's competitiveness, yet museums' management is more diverse. Hence, experience is mainly analyzed within the tourism context and with direct reference to the museum exhibition area. Although some works refer to the customer or customer journey issue (Passebois Ducros and Euzéby, 2021), there are almost no mentions of the other stakeholders. When looking at the integration of physical and digital interactions, virtual and augmented reality is one of the main aspects in this area. Social media and the general importance of digital technologies are explored in the widespread discussion about transformation in museums. Future exploration should be focused more intensively on the aspects of mapping the „museum journey" and the role of different stakeholders. Phygital experiences can also be meaningful from the managerial perspective,

as visitors or other stakeholders can access the museum through many touchpoints. Moreover, future studies should have both empirical and theoretical character.

Keywords: customer, digital, experience, experience economy, management, museum, stakeholders, visitors.

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SPORTS TOURISM IN LUXEMBOURG: PASSION, PERSEVERANCE, AND ARTIFICIAL INTELLIGENCE (AI) – WHAT IS THE TRANSFORMATIONAL INFLUENCE OF AI ON SPORTS TOURISM IN LUXEMBOURG?

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ABSTRACT

This qualitative research examines the impact of artificial intelligence (AI) on sports tourism in Luxembourg, navigating the dynamic interplay between Passion and Perseverance. The study delves into the intricate relationship between cutting-edge AI technologies and the vibrant world of sports tourism with its passion and perseverance. Set against the backdrop of Luxembourg's rich cultural heritage and picturesque landscapes, this investigation analyses how AI innovations are reshaping the sports tourism landscape, harmonizing the passion of sports enthusiasts with the tenacity required to enhance and sustain this vital industry.

Research Method and Research Question(s): The methodology employed in this study involves, first, an in-depth review of the extent literature, including the examination of current web pages, primarily from sources such as https://www.visitluxembourg.com/fr/ and Luxembourg for Tourism. Second, semi-structured interviews were conducted from November 2023 until May 2024, where a total of 25 respondents were asked mainly: "What is the transformational influence of Artificial Intelligence on Sports Tourism in Luxembourg?" Subsidiary research questions include: What are the prevalent sports activities in Luxembourg? Who are the key figures in the sports community? What is the overall impact, and what are the potential risks associated with the integration of Artificial Intelligence in sports tourism? This research also explores the themes of passion and perseverance in the context of sports.

Data Analysis: Respondents were from 4 different categories such as Luxembourg Nationals (15), Luxembourg Foreigners (5), Cross-Borderers (3), and the rest of the World (2). Interviews were conducted in Luxembourgish, English, French, German, and Italian, employing various mediums such as in-person, phone calls, Skype, WhatsApp, or email exchanges. The duration of the interviews ranged from 15 minutes to 1 hour. Due to confidentiality reasons, interviews were not recorded or filmed, but comprehensive notes were taken. Following the interviews, respondents were provided with a summary, and their consent for inclusion was sought. Interviews conducted in Luxembourgish, French, German, Italian, or Spanish were translated into English.

The structure of this research entails a comprehensive literature review on the Grand-Duchy of Luxembourg, followed by an examination of the sports industry and sports tourism within the

Luxembourg context. Beyond contributing to academic discussion, this research provides practical insights for stakeholders in Luxembourg's sports tourism sector. By navigating the evolving relationship between technology, passion, and perseverance, the study offers a nuanced understanding of how AI is shaping the future of sports tourism in Luxembourg and, consequently, the global sports industry.

Luxembourg boasts a rich sports culture complemented by outstanding sports infrastructures. The diverse natural landscape facilitates activities such as hiking and biking across forests, fields, and well-maintained streets. The country offers an extensive range of in- and outdoor sports opportunities for both locals and tourists, supported by resources provided by the Luxembourg Tourist Office and various municipalities.

The author posits the following hypothesis: *Artificial Intelligence is expected to reshape Sports Tourism in Luxembourg, and the extent of this transformation will be contingent upon the cultural setting, as delineated by Geert Hofstede.*

Findings: As potential ***positive impacts*** were named Personalised Recommendations, Enhanced Travel Planning, Real-time Updates, Language Translation, Predictive Analytics, Customer Service Chatbots, Safety and Security, Data Insights, Sustainability, Augmented Reality (AR) and Virtual Reality (VR).

As ***potential Risks and Downsides*** of Artificial Intelligence in Sports Tourism in Luxembourg were named: Privacy Concerns, Data Security, Bias and Fairness, Loss of Human Interaction, Technical Failures, Cost and Accessibility, Job Displacement, Over-tourism, Cultural and Environmental Impact, Loss of Authenticity.

Out of the 25 respondents, 15 confirmed the hypothesis, while 10 remained sceptical, asserting that nothing would change. In conclusion, the author's hypothesis was both confirmed and questioned. Overall, integrating AI into sports tourism in Luxembourg has the potential to enhance the destination's attractiveness, efficiency, and appeal to sports enthusiasts, resulting in increased visitor numbers and economic benefits for the region. However, it's crucial to consider privacy, data security, and ethical concerns when implementing AI technologies in the tourism sector.

The research identified potential risks and downsides of AI in sports tourism in Luxembourg. To mitigate these risks, responsible and ethical implementation is essential. This involves ensuring robust data protection measures, addressing algorithmic bias, providing transparency to tourists about data usage, and maintaining a balance between AI-driven services and human interaction. Regular monitoring, evaluation, and adaptation of AI systems are necessary to address emerging issues. Public-private partnerships and collaboration with experts in AI ethics can provide valuable insights in navigating these challenges.

Additionally, the weather was identified as a crucial factor in Luxembourg's sports tourism.

Limitations: Certainly, the scarcity of available data highlights an opportunity for improvement in data collection and statistics regarding sports activities in Luxembourg. As a sole researcher, the author acknowledges the challenge of competing with large research groups. further statistical analyses, such as Mediation and ANOVA, could enhance the research. Enhancing the comprehensiveness and accuracy of such data can provide valuable insights for various stakeholders, including athletes, sports organizations, policymakers, and researchers. This improvement could contribute to a more informed understanding of the sports landscape in Luxembourg and support the development of strategies to further promote and enhance sports participation in the country.

Despite these limitations, the research holds potential value for tourists visiting Luxembourg, particularly sports enthusiasts, as well as individuals working or contemplating employment in Luxembourg. This includes expatriates and their families, expat managers, HR professionals, and managers in Luxembourg. Despite the attractive aspects of high salaries, fringe benefits, and a good healthcare system, the cultural and linguistic peculiarities, such as high Long-Term Orientation (LTO), high Uncertainty Avoidance (UA), and high Collectivism (low Individualism), combined with three official languages—Luxembourgish, German, and French, in this order—taught as instructional languages in schools, along with many other languages, present challenges that may impact the perceived attractiveness of life in Luxembourg. Additionally, the weather poses an additional concern for individuals from warmer regions.

Future research could delve into the following areas: Quality in sports tourism, Artificial Intelligence and Responsible Leadership in Sports Tourism in Luxembourg, and Linguistic/Cultural Issues, Expatriates and Global Mobility.

Keywords: Sports Industry, Luxembourg, Passion, Perseverance, Artificial Intelligence (AI)

PROMOTING SALARY EQUITY: MENTORS AND LEGAL REFORM

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ABSTRACT

May, 2023 marked the 60th anniversary of the Equal Pay Act (EPA) (Equal Pay Act, 1963) in the United States. Prior to its passage, it was considered appropriate for men to earn more than women for the same job because it was assumed that men had families to support and women did not. But because the law was enacted with a huge loophole, the wage gap stubbornly remains. Today, a woman working full time still earns on average 84 cents for every dollar earned by a man, and the gap is even larger for minorities (U.S. Department of Labor, 2023). Blacks, Hispanics, and Native Americans earn 73 to 77 cents for every dollar earned by white workers. The gap not only affects the amount earned but it also usually affects benefits such as retirement income.

The objective of this paper is to examine attempts at addressing this problem and offer suggestions for narrowing the gap. Our methodology includes examining and critiquing U.S. federal and state laws seeking to narrow the gap as well as analyzing the feasibility of mentoring as a possible means to help address the issue.

Several U.S. states, acknowledging the lack of a federal solution, have passed laws designed to help close the gap. We examine some of those laws, particularly the latest which mandate posting salary ranges for jobs posted by companies. The gap will not be solved by a single approach, but we propose that mentors can be an important part of the solution.

The statutes, while requiring the posting of salary ranges, differ in other important aspects. For example, Washington's law only applies to employers with fifteen or more employees (Washington Pay Transparency Law, 2022), as does California's (California Pay Transparency Law, 2023). New York City's law, however, applies to employers with four or more employees (New York City Pay Transparency Law, 2022). There are also differences in what must be disclosed in addition to salary ranges.

Mentors can play an important role in reducing the gap. They can inform the mentee of unlisted openings and inform mentees of a realistic salary expectation. They can also have an open discussion about salaries. Research shows that women are not as skillful as men in negotiations, are more reluctant to negotiate about pay, have less information about pay, and usually ask for less when they negotiate.

Mentoring has long been acknowledged to be important in facilitating a woman's path to the upper levels of management (Bisoux, 2022; Hunt and Michael, 1983). Scholars cite the many ways a mentor can help including sharing their experience and knowledge of the organization, protecting her from discrimination, giving her reflected power, and suggesting her for open positions (Dworkin & Schipani, 2020; Sosik and Godshalt, 2000). There is one aspect of working, however, that has seldom been mentioned: salaries.

Mentors can play an active role in reducing the wage gap. They can raise the topic of salaries and make clear that this is an appropriate topic of discussion. A mentor can also suggest their mentee for a position even if that job has not been advertised. This would help overcome the problem of some employers not listing jobs. Even in states without mandated ranges, mentors can discuss salaries, where salary information can be found and how to best negotiate. Mentors can ease discussions about salaries to help reduce the gap.

In addition, businesses can assist by supporting and promoting mentorship programs and making salary information accessible. There is no reason to wait for further legal reform. Business can address the issues.

Keywords: gender diversity, salary equity, mentors, legal reform, management, leadership

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WHEN THE LEADER LISTENS: THE EFFECT OF HEAD NURSE'S LISTENING ON NURSES' RECOVERY AND TURNOVER

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ABSTRACT

INTRODUCTION

Nursing leadership plays a crucial role in shaping outcomes for healthcare organizations, personnel, and patients. Various studies indicate that relationship-focused nursing leadership behaviors contribute to positive outcomes including nurses' job satisfaction, well-being, and intention to stay in their work (Cummings et al., 2021). Listening is a powerful relational-focused leadership behavior (Kluger & Itzchakov, 2022).

Listening encompasses behaviors that demonstrate presence, attention, understanding, and good intentions toward the speaker (Itzchakov & Kluger, 2017; Itzchakov, Kluger & Castro, 2017; Lloyd et al., 2015). It includes asking questions, showing empathy, maintaining silence, and using verbal and non-verbal communication (Huang et al., 2017; Rogers & Roethlisberger, 1991; Shipley, 2010). Focusing on leaders' listening skills, it was found that employees who perceive their leaders as poor listeners develop negative attitudes, potentially leading them to seek a more supportive work environment and increase turnover intentions. However, research on leaders' listening skills is limited (Kluger & Itzchakov, 2022), and there is even less research on this topic within healthcare organizations.

The present study examines whether the listening of head nurses, as key leaders in hospitals, improves the ability of their follower nurses to recover from work and reduces nurses' turnover. Additionally, the study explores two mediational mechanisms: cohesiveness, which focuses on relationships within the nurses' group, and quality of care, which focuses on relationships with patients (See Figure 1).
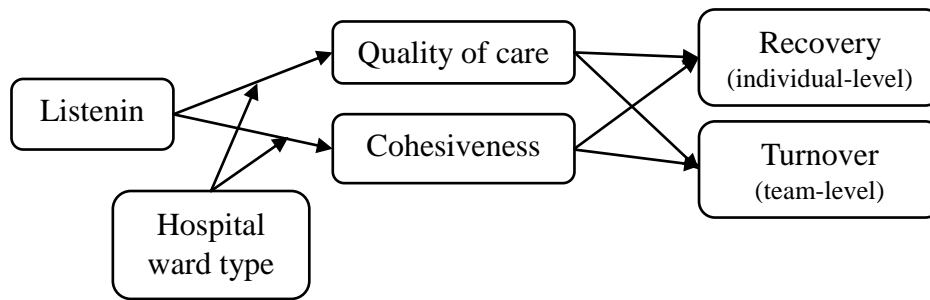
Figure 1: The Research Model

METHODS

The study took place in a large hospital in Israel. Data were collected from 47 Ward's head nurses and their 314 nurses (3 to 12 nurses per ward). Data included nurses' reports on the listening behavior of their head nurse, nurses' cohesion in the ward, quality of patient care in the ward, as well as their personal recovery levels. Head nurses provided personal characteristics. Finally, nurses' departure data over the three months following the study's conclusion were extracted from each ward. We employed a multilevel analysis using Mplus 8.4. We first conducted a series of CFAs to examine the measurement model and then estimated the path model using SEM.

RESULTS

Since we had two outcome measures, one at the individual level (nurses' recovery) and the other at the group level (turnover), we conducted two regression models. The results show that the head nurse's listening predicted increased nurse's recovery, through the two mediated variables – ward's quality of care and cohesiveness. Additionally, the head nurse's listening predicted reduced nurse turnover, through the mediation of the ward's quality of care. Finally, the type of ward, internal versus surgical wards, moderated the mediation model such that the mediation was stronger in the surgical wards. The results confirmed our research model.

DISCUSSION

Our findings suggest that when the head nurse listens to her nurses their well-being increases respectively, and in addition they do not quit the job. This finding is important because it shows for the first time in a multi-level field study, that listening to employees is a leadership quality that has a significant impact both on the subjective perception of the employees about their ability to recover from work, but also on their actual turnover. In addition, our findings reveal two underlying mechanisms: the quality of patient care and the level of in-group cohesiveness. These two mechanisms

indicate that listening indirectly affects nurses' outcomes by operating in two distinct directions: internally within the nursing team and externally towards the department's "customers," namely the patients. Specifically, listening enhances both the internal cohesion of the nursing team and their performance in treating patients. This finding is significant as it illustrates two distinct consequences of listening. It is conceivable that the listening behavior of the head nurse influences these two consequences through role modeling. Nurses who observe the attentiveness and listening skills of the head nurse toward them may emulate this behavior, both in their interactions with each other and with patients. Finally, the moderation effect of ward type suggests that the importance of listening might be more significant in surgical (vs. internal) wards where stress is high and listening to nurses is challenging.

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THE FUTURE OF PROJECT MANAGEMENT: ADOPTING DIGITAL HUMAN ASSISTANTS FOR AGILE METHODOLOGIES

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ABSTRACT

Purpose – In an era marked by relentless digital transformation, organizations face formidable challenges that call for agile and dynamic adaptation (Omol, 2023). Agile Project Management methodology emerges as a strategic response to these demands, advocating the concept of "Business Agility" – a paradigm where adaptability, flexibility, and readiness for change are the foundational keywords for corporate success (Mathiassen and Pries-Heje, 2006). The Agile approach offers considerable advantages, including the optimization of production processes, increased customer involvement, and faster product delivery (Bergmann and Karwowski, 2019; Marnada et al., 2022), and relies on two main frameworks: Scrum and Kanban (Raharjo and Purwandari, 2020). Ken Schwaber, one of the fathers of Scrum, describes it as a process framework that is neither a process nor a technique for building products; rather, it is a framework within which various processes and techniques can be employed (1997). Kanban, on the other hand, developed within the Toyota production system, focuses on rapid response and the harmonization of inventory levels with actual consumption (Damij and Damij, 2021). Artificial intelligence (AI) plays a multifaceted and expanding role in project management, handling large datasets, providing in-depth analysis, and supporting complex decision-making processes, thereby enhancing the efficacy of project management in sectors with high complexity and rapid technological shifts (Nenni et al., 2024). The cutting-edge AI technology developed by QuestIT – the "Digital Human" Algho (QuestIT, 2023) – opens up new avenues for interaction between the Scrum Master and the team, facilitating optimized communication and refined process management within Agile Project Management. The study aims to understand how the implementation of AI-based Digital Human in project management can augment the Agile methodologies, enhancing the capability of project teams to navigate complex and dynamic environments.

Methodology – The study employs a design science approach (Markus et al., 2002; Hevner et al., 2004; Van Aken, 2005) to produce practical knowledge by analyzing the case study (Eisenhardt, 1989; Yin, 2009) of Algho, a digital human created by QuestIT and trademarked by The Digital Box. Through the platform provided by QuestIT, a digital human was developed and trained who could be integrated

into project management as an efficiency booster, especially in the context of Scrum. Establishing a solid knowledge base allows the digital human to deliver precise responses, while the conversational form simplifies user information acquisition, making interaction with technology more natural and less alienating.

Findings – The design of interaction scenarios focuses on the added value that the digital human can bring to the Scrum context, supporting the Scrum Master without replacing them. This collaboration between humans and AI underscores the importance of the human touch in decision-making and team relationship management. Embracing Agile methodology and AI technological innovation means investing in a future where adaptability and resilience become fundamental pillars for corporate success.

Implications – The digital human, conceived not as a substitute but as a complement to the Scrum Master, symbolizes the vanguard of this new horizon, where the interaction between human and artificial becomes synonymous with progress and competitive advantage (Schleiger et al., 2024). Corporate agility stands as an indispensable paradigm for those aiming to thrive in a fluid and unpredictable economic context. Embracing Agile methodology and AI innovation is not merely a strategic choice but becomes an essential requirement for building resilient organizations capable of interpreting new trends and shaping the future of project management.

Keywords: artificial intelligence, project management, agile methodology, digital human, digital transformation

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CRISIS PREVENTION AND MANAGEMENT IN PUBLICLY-OWNED COMPANIES

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ABSTRACT

Publicly held companies are corporations under common law in which the state or another public entity holds a stake that may be total (in-house companies), majority or minority (mixed company).

Public companies have specific characteristics and unique economic processes and are subject to defined purposes beyond their operations. According to the reference doctrine, public companies are the economic order of institutions in which the economic entity is public (Zangrandi, 2008).

Publicly owned companies are regulated by the Consolidated Law on Public Companies - TUSP (Legislative Decree No. 175/2016), by which the legislature systematically and cohesively reorganizes the hitherto fragmented and inconsistent topic of publicly owned companies.

The TUSP established that publicly owned companies, as defined by Article 2, paragraph 1(n), are subject, like any other private law company, to the provisions of civil law (Article 1, paragraph 3 of the TUSP) and the standard provisions on the corporate crisis (Article 14, paragraph 1, TUSP).

In line with the TUSP, the Crisis Code (Legislative Decree No. 14/2019), which regulates situations of corporate crisis or insolvency, also finds application to all publicly owned companies in order to converge publicly controlled companies toward the assessment of "corporate crisis risk" (De Matteis, 2000).

The Crisis Code defines "crisis" as "the state of the debtor that makes insolvency likely and is manifested by the inadequacy of the cash flows expected to meet obligations in the next twelve months."

Corporate crisis can be defined as the condition in which the company loses the ability to generate profit (Guglielmucci, 2008) or as a state that necessarily entails changes (Sciarelli, 1995) that can be negative if they create difficulties (Proietti & Quattrociocchi, 2009). But in any case, the failure to achieve medium/long-term objectives leads to define the company in crisis (Podestà, 1984). It is essential to investigate the causes of the crisis and their manifestation to manage crisis risk.

Risk and crisis are distinct but interconnected events with cause-and-effect relationships (Cavallini, 2023).

The objective of the paper is to investigate what are the crisis risk assessment tools, whether these tools can anticipate the state of default, and what are the responsibilities and effects for the public

partner in case of the emergence of the elements that anticipate the state of crisis or in case of an overt corporate crisis.

The function of crisis prevention lies with the governing body. It is significant because crises typically develop slowly, eroding the company's value over time. A crisis is reached when the company's inability to generate income becomes irreversible, which becomes evident to the external environment. For publicly controlled companies, whose activities focus on providing general services and the general economic interest, involving a significant investment of public resources, the obligation to prevent crises becomes even more stringent. It takes on a fundamental ethical importance for the administrative body appointed by the public administration to manage the company.

In this regard, according to Article 6, paragraph 2 of the Consolidated Law on Public Companies (TUSP) "Publicly controlled companies are, therefore, obliged to draw up a specific program of corporate crisis risk assessment, informing the shareholders meeting in the corporate governance report prepared annually at the end of the financial year, attached to the financial statements and published at the same time as the annual report" (Cagnasco, 2018).

The framework of the program for assessing the risk of a corporate crisis should be built based on the specifics of each company, aiming to constantly monitor the health of the company in light of the going concern principle and anticipate the emergence of crisis risk by identifying tools capable of intercepting early warning signs of economic and financial imbalances and enable the governing body to activate an early warning system before the crisis becomes irreversible.

It is appropriate to investigate what corporate crisis risk assessment and measurement tools should be developed by directors of public companies for corporate crisis prevention in order to:

- prepare appropriate organizational arrangements (Bastia & Ricciardiello, 2020);

- detect any economic-financial imbalances (Bocchino, 2023);

- detect any capital imbalances;

- verify debt sustainability for at least the next 12 months;

- verify the prospects of business continuity for at least the next 12 months;

- detect the signs referred to in Art. 3, para. 4, Crisis Code to provide for the timely emergence of business crises (Delli Atti, 2023).

As for public companies, the early detection of crisis symptoms is functional not only for their eventual reorganization but also for the choices to which the controlling public shareholder is called (Irrera & Catalano, 2019). While in private companies, shareholders have the freedom to intervene financially to overcome crises, in public companies such intervention is rigidly circumscribed. This restriction is implemented to prevent shareholder financial support from wasting public resources without valid justification.

Keywords: Crisis, Publicly held companies, Bankruptcy, Insolvency proceedings.

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ANALYSING THE RELUCTANCE TO BUY FOREIGN PRODUCTS THROUGH CONSUMER AFFINITY, LOCAVORISM, ORGANIC AND INDUCED IMAGE

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ABSTRACT

Anti-consumption is a growing topic in the marketing literature, despite the complexity of its study and measurement (Lee, 2022). Reluctance to buy (RTB) is a type of anti-consumption that can occur, among others, towards products from a country considered "hostile" or towards specific product categories (Verma et al., 2022). Numerous studies have contributed significantly to the understanding of consumer preferences and the reasons behind them based on variables such as animosity or ethnocentrism, considered "consumer dispositions" towards a foreign country (e.g., Khan et al., 2019).

In the international context of consumption, the concept of consumer dispositions deals with consumers' perceptions and attitudes towards —and likings for— domestic, foreign and global goods, according to their attitudes towards products from their country or abroad (e.g., Bartikowski et al., 2021). Thus, although several negative dispositions have been analysed to explain consumers' RTB, very little is known about positive dispositions (Tsaur et al., 2023). This study aims to shed light on two positive consumer dispositions that could explain the RTB from two very different perspectives. First, a new consumer ideology (and preference) towards local products (i.e., locavorism) —and, therefore, the RTB foreign products—. In this sense, pro-local preferences are an increasingly important phenomenon for consumers and businesses, which has attracted interest among scholars in the field of international marketing (e.g., Fong and Chang, 2022). Second, consumer affinity towards a specific foreign country—and, therefore, its products— as a possible mitigating factor for the RTB foreign products. Consumer affinity is defined as a consumer's positive 'emotional feeling' towards a specific foreign nation (Oberecker and Diamantopoulos, 2011).

Furthermore, consumers' RTB can be influenced by the immense amount of information they receive about different countries and their products through various media (Antonetti et al., 2019). Therefore, another objective of this study is to examine the influence of the different sources of information in the formation of RTB foreign products. In particular, we will study two types of consumer perceived images formed by two different information sources: organic image, which is determined by non-commercial sources, and induced image, resulting from the marketing or promotional efforts of the organizations and institutions related to the product (Almeida-García et al., 2020). The perceived

organic image by consumers may contribute to the increase of RTB products from a particular country, while the perceived induced image by consumers (formed through the efforts made by organizations and institutions) may diminish these RTB foreign products.

For this purpose, the Spanish agri-food sector has been selected as an illustrative example of how the phenomenon of anti-consumption (and more specifically the RTB) can be generated in target markets. Despite the relevance of this sector −it is the most important supplier in Europe and has been highlighted as a clear example of an affinity country in the agri-food product category−, it has been the object of much criticism in some of its main destination markets (mainly Germany). Using a stratified random sampling procedure, adjusting for the gender, age and regional distribution of the German population. A total of 335 valid questionnaires were obtained via an online panel from a professional market research company between January and February 2020. The model will be analyzed using structural equation modelling with PLS-SEM.

In terms of construct measurement, consumer affinity was measured through the Oberecker and Diamantopoulos (2011) scale, which includes three and four items used to operationalize two dimensions of affinity, that is, sympathy (soft emotions) and attachment (strong emotions), respectively. Locavorism was measured by six items following the scale of Riefler et al. (2012). In terms of information sources and in line with previous studies (Lin and Kuo, 2018), organic image was measured using five items and induced image using four items. Consumers' RTB was measured using six items, encompassing general and relative components as two dimensions of this concept according to previous scales by Darling and Wood (1990) and Klein et al. (1998). The general dimension contains items measuring consumers' direct (i.e., non-comparative, non-contextual) avoidance of buying specific foreign products. The relative dimension included consumers' comparative and contextual avoidance of buying foreign products based on domestic product alternatives and situational constraints. Following Harman's (1976) one-factor test and the guidelines of Podsakoff *et al*. (2003), the study ensured that there was no common method bias. Once the scales were qualitatively analysed, the psychometric properties of the operationalizations of the subscales and scales were found using confirmatory factor analysis (CFA). Once the CFA was performed, all factor loadings were significant ($p<0.01$) for the first and second-order constructs, and the standardised loadings presented indicators with loadings higher than 0.70. The model described a significant percentage of the variance of the endogenous variable RTB, i.e., 27.2%. The results revealed that the path coefficients provided strong support for the proposed model, which is statistically significant and in the proposed direction.

Concerning previous studies (e.g., Verma, 2022), our research adds to the understanding of possible factors that increase the RTB foreign products (i.e., locavorism and organic image), and the different factors that mitigate this phenomenon (i.e., consumer affinity and induced image). These relationships are examined through the effect of consumer dispositions and sources of information. First, this study contributes to the RTB foreign products literature by addressing potential mitigating factors from the perspective of a positive consumer disposition, namely consumer affinity. Results provide support for the expectation that affinity feelings are a key factor in mitigating the RTB products from the country of affinity. Second, this research also contributes to the RTB foreign products literature by analysing possible factors that increase this phenomenon from the perspective of an emerging consumer ideology as 'locavorism'. In contrast with the effect of consumer affinity, our findings show a positive link between locavorism and RTB foreign products. When consumers have an affinity towards a given foreign country, locavorism does not seem to play such an important role in the consumer's decision. In this sense, affinity acts as a strong mitigating antecedent to purchase reluctance. Hence, individuals who feel a certain attachment to a particular foreign country (according to the culture, people, landscapes, etc.), in turn, are not so much influenced by information sources derived mainly from the internet when it comes to continuing to consume do not develop such a RTB foreign products in a context of an image crisis. Third, both sources of information are antecedents of the RTB in the context of international image crises. Both organic and induced image condition the effects of RTB in different ways. Induced image exerts a negative effect by reducing RTB and organic image exerts a positive effect by increasing RTB. Therefore, organic and induced image as sources of information exert countervailing influences. Findings show the relevance of organizational and institutional information sources, which shape the induced image (i.e., cooperatives, public institutions, governments, etc.).

Keywords: Reluctance to buy, consumer affinity, locavorism, induced image, organic image, agri-food sector, foreign products.

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FOSTERING REGENERATIVE VALUE NETWORKS THROUGH TERRITORIAL RESOURCE MANAGEMENT

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ABSTRACT

The growing socio-ecological crisis is driving a shift in business paradigms from harm reduction to proactive restoration and regeneration of ecological and social systems (de Souza et al., 2019; Hahn & Tampe, 2021; Pagell & Shevchenko, 2014). This shift highlights the importance of developing businesses that not only thrive economically but also enhance the vitality of their operating environments. In this context, this paper explores the role of geographical, environmental and social contexts—termed "territories"—in forming regenerative value networks, specifically through a case study of Karun Eyewear, a forward-thinking Chilean company.

Regenerative businesses are essential as they restore and revitalize the health of socio-ecological systems, from which they draw sustainability and resilience (Hahn & Tampe, 2021). The complexity involved in establishing such businesses amid the vast scale of socio-ecological challenges points to an urgent need for for actionable knowledge to support the sustainability transition (Gualandris et al., 2023; Konietzko et al., 2023; Muñoz & Branzei, 2021). This paper proposes exploring the *territory* as an underutilized analytical level that offers firms an opportunity to co-develop regenerative value networks, focusing on how businesses can harness territorial resources to foster regenerative development and sustainable innovation within their value networks.

Our study adopts an abductive reasoning approach, weaving together literature on sustainable supply chain management, principles of regenerative development, and the impact of territorial contexts on business sustainability. This synthesis is informed by an in-depth case study of the pioneering Chilean firm Karun Eyewear, which integrates regenerative principles within its business and supply chain strategies. Karun Eyewear stands out for its commitment to linking natural restoration with rural entrepreneurship, enhancing both product innovation and ecological health. Initial findings from semi-structured interviews and document reviews illustrate Karun's strategies to leverage territorial resources effectively. Future research will include additional interviews to broaden these insights and validate initial assumptions.

Contrasting with traditional, linear business models, the value network concept encapsulates multidirectional relationships and interactions that facilitate the creation and exchange of value within a broader ecosystem (Allee, 2000; Peppard & Rylander, 2006).. A regenerative value network represents an interconnected system of businesses, organizations, and stakeholders collectively

creating value in ways that sustain, restore, and regenerate the socio-environmental and economic systems in which they operate.

Territories, characterized by their unique mix of natural, cultural, and human capital, offer a rich tapestry of resources that businesses can harness to cultivate regenerative practices (Troisi, 2022), and are seen as relational spaces co-created through the interaction between natural and human resources (Dicken & Malmberg, 2017). Moreover, territories act as intelligent containers that accumulate knowledge, dynamically evolving with the interactions within them (Malmberg et al., 1996). These relational, networked territories, rich in unique resources and co-creative dynamics, provide fertile ground for developing regenerative value networks. Such networks pave the way for sustainable development pathways that are economically viable, environmentally restorative, and socially inclusive. Leveraging the role of territories is crucial for businesses, policymakers, and communities aiming to achieve sustainability and regeneration on a broader scale.

Drawing on insights from the development of Karun's value network and integrating two conceptual process models (de Souza et al., 2019; Mang & Reed, 2012), we propose a three-step framework for businesses to co-develop regenerative value networks utilizing territorial resources. This study offers a novel setting that challenges the trade-off between economic and socio-environmental utility, contributing to shifting the narrative from efficiency, scale and specialization to a more balanced approach that prioritizes sustainable and regenerative growth.

Keywords: Regenerative, Sustainable Supply Chain Management, Territory, Value Networks, Case Study.

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SMALL STEPS, BIG IMPACT: ESG REPORTING IN EUROPEAN SMES

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ABSTRACT

Sustainability is increasingly emerging as a pivotal distinguishing factor and a disruptive tool within the business sector (Sinhania & Saini, 2023; Diwan & Amarayil Sreeraman, 2023). The spotlight on sustainability has intensified in recent years, as organizations recognize the significance of environmental, social, and governance (ESG) reporting. This has been accelerated by the Corporate Sustainability Reporting Directive (CSRD) launched in 2022. This directive comprises a set of guidelines detailing how large and medium-sized companies should prepare their sustainability reports. These new regulations are projected to impact over 50,000 businesses within the European Union (European Commission, 2022). Consequently, efforts to develop ESG indicators for businesses are ongoing and expanding, driven by the escalating necessity to meet these requirements (Kandpal, et al., 2024).

An analysis of the literature reveals that there are over eleven distinct frameworks outlining the ESG reporting process, which are classified as voluntary disclosure frameworks, guidance frameworks, and third-party aggregators (Choptra, et al., 2024). This diverse landscape poses a significant challenge for stakeholders, investors, and enterprises in formulating a unified approach to ESG reporting (Senadheera, et al., 2021; Yebenes, 2024). However, while this poses a challenge for large organizations it is particularly onerous for small to medium-sized enterprises (SMEs). Despite its importance, many SMEs struggle to implement effective reporting processes due to unclear strategies, undefined plans, and insufficient tools to support their needs. However, it is becoming increasingly apparent that they must rectify this deficit (Garrido-Ruso, M., et al., 2024) if they are to survive in dynamic supply chains.

To meet this challenge, we developed a user centered ESG reporting framework customized to the needs of SMEs taking into consideration the European Financial Reporting Advisory Group (EFRAG) sustainability reporting standards (ESRS: European Sustainability Reporting Standards). This framework aims to increase the capacity of SMEs in Europe to effectively establish the process of analysis and reporting of sustainability performance according to ESG criteria. It comprises an e-learning course on ESG capacity building for professionals, a training methodology for the

development of self-reporting competencies for SMEs' employees and it is supported by an online web-tool designed to support SME employees to assess and report on their companies' ESG performances.

We are currently testing the validity of the framework. To do this we recruited 75 consultants and trainers to assess the quality of the content and to ensure that the framework meets the needs of the end user usings defined criteria for assessment. Participants were purposively selected based on their experience with SMEs.

This paper presents empirical data captured and analyzed from 75 participants. Initial feedback from consultants indicates a positive reception among consultants, with a notable improvement in their understanding of the framework's intricacies. To ensure the validity and reliability of the research findings, a robust protocol will be followed. Data will be collected from seventy-five (75) participants for thorough analysis, employing both qualitative methods such as feedback assessments and quantitative measures to assess improvements and identify strengths and areas for enhancement within the framework. The combination of qualitative and quantitative approaches ensures a comprehensive understanding of participants' perceptions and allows for triangulation of findings, thus bolstering the credibility and trustworthiness of the research outcomes. Additionally, measures will be taken to minimize bias and enhance the generalizability of the results, contributing to the overall validity and reliability of the study.

Moreover, preliminary assessments reveal areas of strength (to be exploited) and potential improvement (to be addressed). It is anticipated that SMEs utilizing the reporting template will perceive the reporting process as more structured and feasible, potentially leading to enhanced transparency and accountability in their ESG disclosures. Statistical analyses of the data are expected to unveil valuable insights into areas for refinement, thus paving the way for more effective dissemination of ESG reporting practices among SMEs.

This research contributes to significant new theoretical perspectives, yet it also carries certain limitations that warrant attention. The study's findings and insights are targeted at the specific context of European SMEs and their adaptation of EFRAG/ESRS-based ESG reporting frameworks. Extrapolating these findings to SMEs in other regions or those operating under different regulatory environments may not be appropriate due to variations in business practices, regulatory frameworks, and cultural contexts. Thus, the generalizability of the study's conclusions beyond the European SME landscape may be limited.

Keywords: ESG reporting template, SMEs, EFRAG/ESRS standards, pilot training, consultant assessments, sustainability reporting, sustainability disclosures.

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IDENTITY PATTERNS, WORKPLACE ENGAGEMENT AND WORKPLACE BELONGINGNESS AMONG ARABS IN ISRAEL.

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ABSTRACT

This study addresses the associations between identity patterns of minorities and emotional bonding to organizations regarding Arabs in Israel. There is a substantial body of literature regarding labour market integration of minorities into contemporary economies and organizations (Cheung, 2014; Khattab et al., 2020), most of which addresses labour market participation or basic measures such as income or classification to occupational profiles (Khatab and Husein, 2018; Shdema et al., 2019). The emotional bonding of minorities in labour market contexts have been investigated mainly regarding participation in the paid labour market, suggesting that a tendency of minorities to identify with the majority is associated with higher employment rates, while the tendency to adopt oppositional (ethnic) identities, is associated with lower probability to be employed (Batto & Zenou, 2010; Carillo et al., 2023). Emotional bonding of minorities to organizations employing them however, did not receive considerable attention. The current study aims at filling up this gap by examining the associations among identities, workplace belongingness and workplace engagement.

Looking at Arabs in Israel is particularly interesting due to the structured contradiction between their state identity and the ethno-national one due the active Palestinian-Israeli conflict. Additionally, as a native minority they do not face immigration issues and hence are homogenous is this sense (Amara & Schnell, 2004; Shdema et al., 2021).

The study relies on a designated survey held among 244 working Arab respondents analyzed quantitatively. Based on the literature, we related to their four main identities – Arab, religious (Muslim or Christian), Palestinian and Israeli. We focused particularly on the Palestinian and Israeli identities as they seem to have the prominent effect in labour market contexts, and as expected, were negatively associated (r=-0.11; p<0.04). We used Schaufeli et al., (2006) questionnaire for workplace engagement and Godard (2001) for workplace belongingness, where these two domains were positively associated (r=0.44; p<0.001). In the analysis we employed a series of correlation and regression tests to uncover the associations among Arabs identities and their emotional bonding to organization they were employed in.

Core findings disclose a significant connection between Israeli identity and workplace engagement. This association is consistent also when controlling for the demographics and is accountable for 18.7%

of the variability. Moreover, according to β values, Israeli identity was found to be the prominent measure in predicting workplace engagement. The statistical examination however did not yield a significant association between Israeli identity and workplace belongingness. Palestinian identity was not found to be statistically significant with the emotional measures studied. The study's main conclusion is that shared identity of minority and majority populations is associated with emotional attachment to organizations, but antagonistic identity does not bear an effect. An additional conclusion is that engagement in a work organization is easier to attain compared developing a sense of belonging. This probably stems from the fact that it is easier to find interest in job or carrier matters than it is to feel belonged.

The study findings can bear contribution also to practice. It can provide a platform to assess which characteristics of workers are associated with high and low workplace engagement and belonging in terms of occupational measurers (i.e income, rank and type of position), identities and demographics. Based on these clusters to develop workshops and other activities to enhance their workplace engagement and belonging.

Keywords: workplace engagement; workplace belongingness; organizations; minorities, identity, Arabs, Israel.

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WHAT MAKES LEADERS TO SUCCEED OR FAIL WHEN THEY ACQUIRE KNOWLEDGE? A SYSTEMATIC LITERATURE REVIEW AND THE WAY FORWARD

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ABSTRACT

1. INTRODUCTION AND GENERAL SCOPE

Knowledge acquisition in the context of MNCs is a complicated process that often reveals both success and failure factors. Despite its merits, the existing literature review has not yet, provided us with a thorough understanding of the agreed motives of knowledge acquisition including, among others, the types of knowledge to be acquired as well as what indicators may define the critical success factors of the process or either (Ferraris et al., 2018). In the context of partnership, although such actions of strategizing might be proposed among the effective ways of acquiring new knowledge a lack of a common understanding of the partnerships formulated within- and with various MNCs was also observed. For instance, the plausible types of partnerships, the involved parties and the duration of the partnerships which lead to successful knowledge acquisition remain relatively unexplored. The existing literature also fails to focus on issues on interdependence between partners which may affect the outcome of the attempts made by the organizations to acquire new knowledge (Ferreira and Franco, 2019). Such research gaps led us to also theorize that the role of leadership in the process of knowledge acquisition within MNCs is found to be fundamental in managing both the critical and success factors emerge when knowledge acquisition takes place within the context of MNCs.

Subsequently, therefore, the study acknowledges the necessity of a Systematic Literature Review (SLR) to be conducted and formulates the following research questions: (1) What are the motives of knowledge acquisition in the context of MNCs? (2) What are the types of strategic partnerships, which are formulated within- and with MNCs towards this perspective? (3) To what extent does the level of interdependence between the partners affect the acquisition of knowledge? (4) What is the role of leadership in managing knowledge acquisition within the MNCs partnerships?

2. METHODS AND PROCEDURES

To address the research questions comprehensively we conducted a SLR. Such methodology enabled us not only to evaluate what the current research supports around such topic; but also, to expand on the findings and domains, identify research gaps as well as generate new knowledge applicable to practise (e.g., Danese et al., 2018). Along the principles of the SLR, the study follows a search strategy that is based on the research questions which were initially formulated upon the identification of the research gaps. In doing so, various meetings and comprehensive discussions took place with the co-authors (e.g., Leonidou et al., 2018). Then, both inclusion and exclusion criteria were defined as follows.

Inclusion criteria: The three main inclusion criteria were: (i) the search boundaries; (ii) the search strings and (iii) the time-frame (Dada, 2018). We focused on academic journals in the fields of *General Management*, *Innovation, Strategy, Organization Studies, International Business, Operations and Technology Management, Entrepreneurship and Small Business Management*. As the focus is mainly on MNCs, we included only studies relevant to MNCSs published in top-tier academic journals; both empirical and conceptual ones (e.g., Wilson et al., 2017). The search was limited to the databases of Business Source Ultimate (EBSCO) as well as to the Science Direct, which both are considered amongst the most complete scientific databases on international management studies (Hewett et al., 2018). No time-frame was set for data collection; instead, an open at any time search without customizing the time frame (Vrontis et al., 2021).

Exclusion criteria: The initial study sample was further evaluated based on certain exclusion criteria. First, we considered as a final study sample only full-text and peer reviewed publications published in English (all book chapters, book reviews, editorials, extended abstracts, research published in conference proceedings as well as studies not published in English were excluded). Second, only top-tier academic outlets, from the aforementioned academic fields, which are only included in the Association of Business Schools Academic Journal Quality Guide (ABS 2021) with the rank of 4*, 4 and 3 indicators were reviewed (papers which are ranked in 2 and 1 categories were exclude). Third, duplicates were removed (Kauppi et al., 2018).

Search keyword formula: The search strategy helped us evaluate titles, abstracts and keywords of the study sample, so that a comprehensive list of items was then created. The listed items were, then, synthesized in the keyword search formula that is necessary to retrieve the initial pool of academic sources.

The search keyword formula we used was the following:

("knowledge acquisition" OR "knowl* information" OR "knowledge management" OR "new knowledge") AND ("multinational" OR "international" OR "transnational" OR "global" OR "geographic space" OR "FDI" OR "Foreign Direct Investment" OR "distance" OR "subsidiary" OR "regional" OR "MNE" OR "MNEs" OR "MNC" OR "MNCs").

3. STUDY CONTRIBUTIONS

The study systematizes existing research on the role of leadership in knowledge acquisition within the context of MNCs; thus, explaining the style of leadership that may best strategize to acquire knowledge from various sources. The study provides new insights around the motives and the peculiarities of knowledge acquisition in the context of MNCs, specifying the type of knowledge to be acquired in such partnership, the characteristics of the strategic partnership which should be formulated toward this direction. It also sheds light to the way leaders may manage partnership intercedence. The conceptualized knowledge that emerges from this study provides a comprehensive framework of the critical success and failure factors in knowledge acquisition within the content of MNCs and the way leaders manage them.

Keywords: knowledge acquisition; leadership; strategic alliances; Multinational Corporations (MNCs) systematic literature review

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MANAGEMENT IN THE PUBLIC SECTOR: ATTRACTING/RETAINING POLICIES AND EMPLOYER BRANDING TO REDUCE THE GAP WITH THE PRIVATE SECTOR

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ABSTRACT

INTRODUCTION

Working in the public sector has traditionally been viewed as one of the best options to balance favorable economic conditions and the security of having a job for life. Therefore, public sector work has never had to worry too much about attracting new workers and keeping people within its workforce. However, the socio-economic upheavals of the post-covid era seem to undermine the public sector's image of excellent workplace. Today, in fact, first of all the new generations are less attracted by the static nature of a job that lasts a lifetime, showing greater enthusiasm towards the opportunity to have different experiences. Second, compared to the past there is greater ease of moving abroad (especially within the European Union/EU) and an immeasurable "flexible and technological availability" which brings the possibility of finding better working conditions closer. Third, the non-sudden responsiveness of public sector wage policies to adapt to the growth of inflation and the increase in the cost of living, takes it away from the traditional "fair enough" conditions moving even further away from the best performers' consideration. As a result of the conditions described, public sector is experiencing problems of attracting new young workers (with many open positions that cannot be filled) and retention of best performers (as always more comparing to the past they decide to leave also in the very first months after being hired). For these reasons, the primary objective of the current study is to assess the management of brand and image as a tactic for drawing skilled personnel in the public sphere. In pursuing this goal, the study focuses on enhancing employer branding as a viewpoint encompassing both outward-facing and inward-facing marketing approaches. These efforts aim to allure and maintain individuals with exceptional abilities capable of generating societal benefits akin to those in the corporate domain.

LITERATURE BACKGROUND, GAP AND RESEARCH QUESTIONS

Employer Branding (EB) is not a new concept in the literature, with various perspectives defining it. These perspectives consider its functional and theoretical underpinnings (Backhaus and Tikoo, 2004) and analyze its attributes and relative positioning (Berthon et al., 2005). Specifically, employer brand refers to the knowledge and perceptions about a company as an employer (Lloyd, 2002), portraying it as a desirable place to work (Rampl, 2014; Saini et al., 2014). This concept often relates to how organizations market their offerings to current and prospective staff, communicate with them, and maintain their loyalty (Biswas and Suar, 2014). Employer branding strategies encompass both external and internal approaches, promoting the company's image as an appealing employer both within and outside the organization. These strategies also emphasize recruitment messaging to attract job seekers who align with the company's needs, vision, mission, priorities, and image (Biswas and Suar, 2014).

In addition, Backhaus and Tikoo (2004) suggest that employer branding is closely tied to organizational culture and influences organizational identity. In fact a strong employer brand fosters positive attitudes among employees, leading to greater satisfaction and commitment (Del Vecchio et al., 2007; Rampl, 2014). In this way, employer branding represents a strategic framework that integrates human resource management and marketing practices (Biswas and Suar, 2014; Maxwell and Knox, 2009) and for this reason Job seekers often differentiate companies based on their employer brands, making a well-developed brand a competitive advantage that significantly influences their career intentions (Backhaus and Tikoo, 2004; Rampl, 2014; Turban and Greening, 1997). So, basically, what we're saying here is that if job seekers aspire to work for companies that embody particular values (Edwards, 2005) and in today's business environment, attracting and retaining loyal and competitive employees is challenging, then a robust employer brand enables organizations to firmly position themselves in the competitive labor market (Collins and Stevens, 2002). While widely prevalent in private companies, research in public organizations is scarce (Whelan et al., 2010). Nonetheless, as seen employer branding is pivotal in talent management, with the primary goal of drawing in top-notch candidates and keeping current employees engaged within the organization. Therefore in the public sector should embodies an innovative perspective by applying traditional marketing principles to the processes of recruiting, selecting, and retaining human resources. For all the reasons shared above, our research questions for the present study will be:

- *Do private sector employer branding strategies work in the public sector? and if yes, under what circumstances?*

- *Is it possible for employer branding to aid the public sector in attracting and preserving top-notch staff?*

- *What are the principal tactical elements in employer branding for the recruitment and retention of skilled individuals in the public sector?*

METHODOLOGY

The paper adopts a qualitative approach collecting data through observations and interviews as previously done in similar works (Drake and Chen, 2023). In particular, the interviews will consist in a semi-structured format in which participants will have the opportunity to add extra-content, increasing the exploratory nature of the study (Palmucci, 2023). At a subsequent phase, the gathered data will undergo examination utilizing the content analysis technique (Crouse et al., 2011) wherein the participants' replies will be scrutinized. Subsequently, 'thematic components' identified by the authors will be employed as a foundation for addressing the guiding inquiries and facilitating comparison with the outcomes of other researches.

EXPECTED RESULTS, IMPLICATIONS AND CONTRIBUTIONS

From the result of our analysis we expect to empirically verify that the practice of public employer branding not only can be applied but it can help public Italian sector in the challenge to strive to become better places to work as well as recruiting and retaining talent within the public sector, and prevent them from leaving, as has recently been happening, often moving towards private employment that seeks them out and offers more adequate compensation or faster career growth opportunities. Employees can serve as vital advocates in crafting an employer branding approach; nevertheless, they can equally emerge as formidable adversaries if their encounters within the organization have been unfavorable, therefore we expect to highlights that the practice of employer branding helps constructing and upholding an actor network, such as the ability/process of involving actors and keep them aligned. Our study will contribute to two different streams of research. First, it will contribute to enrich the current knowledge about public employer branding; second, it will bring new empirical evidence to the employer branding literature in the public sector. As for H.R. management implications, our result may be a useful strategic tool for Italian public sector top management and professionals within human resources, marketing and communication who are tasked with implementing an employer branding strategy (Christiaans, 2012). This work is not without limitations: first in fact they refer to the poor generalizability of the results outside the Italian borders resulting slightly valid in other national contexts. Regarding this, the sample could be expanded to other countries that have similar socio-economic characteristics such as other southern European states. Second, the study only takes into consideration clerical jobs in some public sector institutions. To arrive at a better understanding of the phenomenon, future studies could take into consideration more institutions and the differences with other professions in addition to employees.

Keywords: Management; HR; Public sector; Employer Branding; Attraction; Retention

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THE HOUSEHOLD FOOD WASTE SORTING BEHAVIOR: LITHUANIAN CASE STUDY

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ABSTRACT

INTRODUCTION

With population growth and the acceleration of urbanization, municipal household waste in cities is increasing dramatically. Food waste is a significant global challenge with substantial environmental, economic, and social implications (Paul & Ghosh, 2022). The main challenge for waste management is that inadequate food waste is not properly segregated, collected, and managed. According to Eurostat, Lithuania per person had an average of 86 kg of food waste (Eurostat, 2023). Despite the high amount of food waste generated in Lithuania, according to the European Compost Network's 2022 study, Lithuania is one of the countries with less than 52 kg of biodegradable waste per capita per year (ENC, 2022).

Creating an effective recycling system requires an understanding of what motivates people to recycle and what policy instruments with their incentive mechanisms will have the desired effect (Finnveden et al., 2013). Comprehending consumers' behaviors and attitudes toward food waste sorting is essential for developing targeted interventions and policies to address this issue.

The research problem. Separate collection of food waste requires new infrastructure and waste collection equipment. But the most important challenge may be the social factor, i.e., the willingness of the Lithuanian population to separate food waste.

The aim is to review households' food waste management in Lithuania, identify the main segregation issues, and propose solutions.

METHODOLOGY

The study used a questionnaire survey with eleven demographic characteristics and thirty-one questions. The questionnaire was published online, and a link was sent to respondents. The survey is available at was carried out in the summer of 2023 in two different regions of Lithuania: Alytus and Telšiai. In the Alytus region, food waste has been collected separately since 2018 in the Alytus region,

while in the Telšiai region, food waste has not yet been collected separately. The data collected was analysed using descriptive statistical methods. JASP software was used to analyse the data.

Theoretical Background. Food management behaviours related to the occurrence of food waste include food planning, shopping, storing, preparation, cooking and consumption of leftovers, while the disposal-related behaviour include different types of disposal practices (i.e., how the FW is disposed of) (Michelini *et al.*, 2018; Paul and Ghosh, 2022). The main factors that impact behaviour, such as awareness, attitudes, cognitions, emotions, and external, context-related factors, such as available technologies or the behaviour of others (Roodhuyzen *et al.*, 2017; Vittuari *et al.*, 2023). Sorting municipal waste is mostly planned behaviour that requires individuals to decide separate or not food waste. Meanwhile, consumers' behavioural intentions related to sorted waste management may include complex and multi-dimensional factors such as attitudes, subjective norms (Chan and Bishop, 2013), perceived behavioural control, coherence, knowledge and perceived moral obligation (Pakpour et al., 2014).

MAIN RESULTS

The study analysed the attitudes of the Lithuanian population towards sorting food waste. Four response options were used to answer the questions: yes, probably yes, probably no and no. The data collected shows that almost all respondents know how to sort food waste. Many respondents also agree that food waste should be separated at home. The question on food waste sorting was asked in a slightly different way for the regions. The Alytus region was asked whether they sort food waste, while the Telšiai region was asked whether they will sort food waste when they have the opportunity. The data varied slightly by region, but the most surprising finding was that in the region where food waste is already sorted, as many as 18% of the respondents indicated that they do not sort food waste. The biggest problem is that people do not see the benefits of separating food waste. Scepticism is particularly high in the Alytus region and among people living in apartment blocks.

An analysis of Lithuanian residents' views on the negative aspects of food sorting found that food sorting requires extra space. This is especially true for people living in cities and apartments. There are still many Soviet-era apartment blocks in Lithuania with tiny kitchens. Surprisingly, quite a large number of respondents indicated that sorting food waste would not require additional costs. People living in the Telšiai region and in apartment blocks were more likely to say that sorting food waste would take more time. Sorting food waste also creates unwanted odours, which are more feared by people living in the Telšiai region.

The study aimed to identify the most effective incentives for residents to sort food waste. The main incentive was found to be a lower cost of waste management. Information about sorting is least effective for people living in rural areas. Residents have very mixed views on control and penalty systems. Many respondents do not think that this would encourage the sorting of food waste. The availability of cheaper compost only encourages those who have the possibility to use compost on their farm.

CONCLUSIONS

1. People's food waste management behaviour does not depend on the region analysed, but on where they live and the infrastructure they use.

2. More attention should be paid to explaining the benefits of food waste separation and the circular economy to the population.

3. As monetary incentives are the most influential factor in consumer behaviour, consideration should be given to changing the way in which waste is paid for. The possibility of introducing a pay-as-you-throw pricing model for the disposal of municipal solid waste should be analysed.

Keywords: household waste management, food waste sorting, waste sorting behavior.

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PAST TRENDS AND FUTURE DIRECTIONS IN GREEN HUMAN RESOURCE MANAGEMENT RESEARCH: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

Introduction and Relevance: Green human resource management (GHRM) is becoming a strategic function of the organisation that can contribute to the successful implementation of environmental practices, to achieve environmental sustainability (Renwick *et al.,* 2013; Jabbour and de Sousa Jabbour, 2016; Ansari *et al*., 2021; Marrucci *et al*., 2023). The significance of GHRM is increasingly recognized and has received growing attention from scholars, however, a need to systematically review and synthesize the literature in this field remains. This research offers a comprehensive overview of GHRM literature highlighting the major themes in the current developments along with the new trends and patterns for future research observed in this field.

This study aims to examine GHRM knowledge has been constructed, disseminated, and shaped over time and make suggestions for future research. The following **research questions** were raised:
RQ 1: What are the current status and trends of publications and citations in the GHRM literature?
RQ 2: Which countries, journals universities and authors have contributed the most to the GHRM literature?
RQ 3: What are the most frequently used theories, keywords and thematic areas in the literature?
RQ4: What are emerging trends and research gaps that will shape the future GHRM research?

Methodology: Bibliographic data on green human resource management were searched using the Scopus Database which was chosen as the most comprehensive peer-reviewed research base on the topic under review. This study employed several search procedures following the PRISMA 2020 Protocol, to make sure all publications about GHRM were covered.
In the first step, the following search query was given as: TITLE-ABS-KEY ("green human resource management" OR "GHRM" OR "green HRM" OR "Green Human Resource* Management" OR "Green HRM" OR "Green HR management" OR "green human resource" OR "green hr" OR "green human resource practices" OR "GHRMP" OR "green HR practices" OR "green HRM practices" OR "green human resource* management practice*" OR "Environmental human resource management"). The initial search led to the identification of 959 documents from 2008 to 2024. Then, the search was

restricted to article document type and English language which resulted in the identification of 753 articles from 2010 to 2024.

In the second step, titles, abstracts, and keywords from all 753 publications were thoroughly examined to make sure that all the articles that were extracted during our search were related to GHRM. After eliminating papers that were not or less relevant and duplicates, we obtained a final collection of 684 articles from 2010 to 2024.

VOS viewer software was used for extracted data analysis and visualization (Van Eck and Waltman, 2010). Performance analysis and science mapping (citation, co-citation, bibliographical coupling, and keyword co-occurrence analysis) were performed (Zupic and Cater, 2015).

Results: The analysis revealed a significant increase in the number of publications in the field of GHRM. There is a slow increase between 2010 and 2018, but from 2019 onwards, the number of publications has risen sharply, with the highest number of publications in 2023 (216 published articles). The growing interest in GHRM research is also reflected in the increasing number of citations (5 555 citations in 2020).

Thirty scientific journals published at least five studies in the field of GHRM. *Sustainability (Switzerland)* (58 articles), *Journal of Cleaner Production* (36 articles), *International Journal of Manpower* (27 articles), *Business Strategy and the Environment* (21 articles), *Corporate Social Responsibility and Environmental Management* (20 articles), are among the top five journals that have published the maximum number of articles.

An analysis at the author level was performed, revealing that 892 out of 1843 authors met the threshold after keeping the criteria as the minimum number of documents per author (n = 1) and number of citations per author (n = 10). Authors who have made major contributions to GHRM research: M. Y. Yusliza (20 articles, 1355 cit.); C. J. C. Jabbour (12 articles, 1321 cit.), T. Ramayah (12 articles, 1157 cit.), D.W.S. Renwick (6 articles, 1387 cit.).

GHRM studies use 33 different theoretical approaches, the most common of which are ability–motivation–opportunity theory, resource-based view, theory of planned behaviour, natural resource-based view, social exchange theory, social identity theory, and stakeholder theory.

As a result of the analysis, a 5-cluster structure of field research is determined: environmental performance (cluster 1); sustainable development (cluster 2); resource management (cluster 3); organisational citizenship behaviour (cluster 4); and green innovation (cluster 5).

Keyword co-occurrence network with temporal analysis showed that the latest research is in green innovation, green commitment, commerce, climate change, green intellectual capital, responsible leadership, green creativity, green organisational culture, organisational citizenship behaviour, and green knowledge (Figure 1).

Figure 1. *Keyword co-occurrence network with temporal analysis*
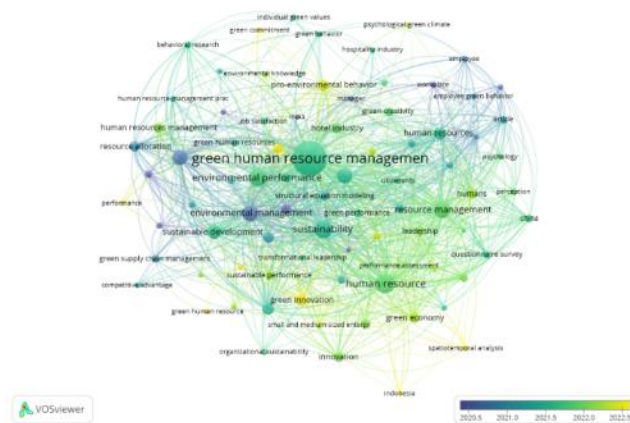
Conclusions and Practical Implications: By examining past trends and outlining future research directions, this study contributes to the ongoing discourse on GHRM, emphasizing its importance for organisational sustainability and providing guidance for future research. This study identified research gaps and emerging trends in GHRM (linking with green innovation, green commitment, commerce, climate change, green intellectual capital, responsible leadership, green creativity, green organisational culture, organisational citizenship behaviour, and green knowledge), offering valuable insights for scholars and practitioners seeking to advance understanding and implementation of green HR practices.

Keywords: Green Human Resources Management; Systematic Literature Review; Bibliometric Analysis; Science Mapping; Performance Analysis; Scopus

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DECENTRALIZED FINANCE: BIBLIOMETRIC AND CONTENT ANALYSIS

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ABSTRACT

The last global financial crisis in 2008 exposed serious deficiencies in the traditional financial system. The financial system structure revealed itself as fragile and unstable exhibiting characteristics consistent with the Minsky financial instability hypothesis(Nikolaidi, 2021). An unexpected aftermath of the crisis was the emergence of Bitcoin cryptocurrency. The blockchain technology, which is the foundation for Bitcoin, allowed for the first-time monetary transactions on the internet without the involvement of any centralized institutions (Nakamoto, 2008). From 2016 onward, new financial services solutions that operate and interact on blockchain infrastructures gained traction (Eikmanns et al., 2023). Specifically, Ethereum implementation allowed smart contracts to be defined and executed over the blockchain (Buterin and Vitalik, 2014). Marking another landmark in the evolution of this technology. Smart Contract enables coding the set of terms of the agreement into software applications. These applications can manage lending and borrowing by governing the terms of the loans, interest rates and collateral management. These characteristics reduce transaction costs and information asymmetry (Grassi *et al.*, 2022), thus possible bringing financial services to 1.7 billion people in the world who currently don't have that access (Bennett, Mekelburg and Williams, 2023). DeFi inherits blockchain characteristics therefore it is permissionless, openly auditable, (pseudo) anonymous and decentralized. DeFi is also non-custodial (Shah et al., 2023; Werner et al., 2023). Because of this, DeFi aims to revolutionize and disrupt traditional finance services and markets (Amler *et al.*, 2021). At the time of this writing, DeFi protocols have a Total Value Locked (TVL) of U$D 95 billion.

Decentralized Finance (DeFi) is a rapidly evolving field characterized by its nascent stage and its interdisciplinary foundations. The number of academic DeFi publications is rapidly increasing in these different disciplines (Meyer et al., 2022). As such, it is challenging to comprehend the current academic literature in a way that will allow us to generate new valuable research. The field of DeFi is characterized by a dynamic landscape of evolving knowledge and competing ideas. Most of these discussions may be implicit within the literature, so it is worthy of bringing attention and elaboration on them. Examples could be role of regulation, relevance of financial intermediation or systemic risk theories in DeFi. To properly capture the research streams within the academic literature, and to bring a structured approach for the successful continuation in the development of DeFi we conduct bibliometric and content analysis on a corpus of 275 articles extracted from the Web of Science and

Scopus databases. We use the Bibliometrix package in R software to apply co-citation, bibliographic coupling and keyword co-occurrence. We support our findings with qualitative text analysis from Quanteda software. A bibliographic coupling connection is established by the authors of the articles in question, whereas a co-citation connection is established by the authors who are citing the documents analyzed" (Aria and Cuccurullo, 2017). Co-citation is more relevant in expressing the structure of current research, However, bibliographic coupling analysis has proven to be an appropriate method for identifying potential research topics, like anticipating technological breakthroughs or detecting new research fronts (Phan Tan, 2022;Zhao & Strotmann, 2008). Figure 1 shows three clusters in the co-citation analysis of our DeFi database. The nodes symbolize the documents, and the edges represent co-citation. Bitcoin's whitepaper is the node the biggest degree in the graph.
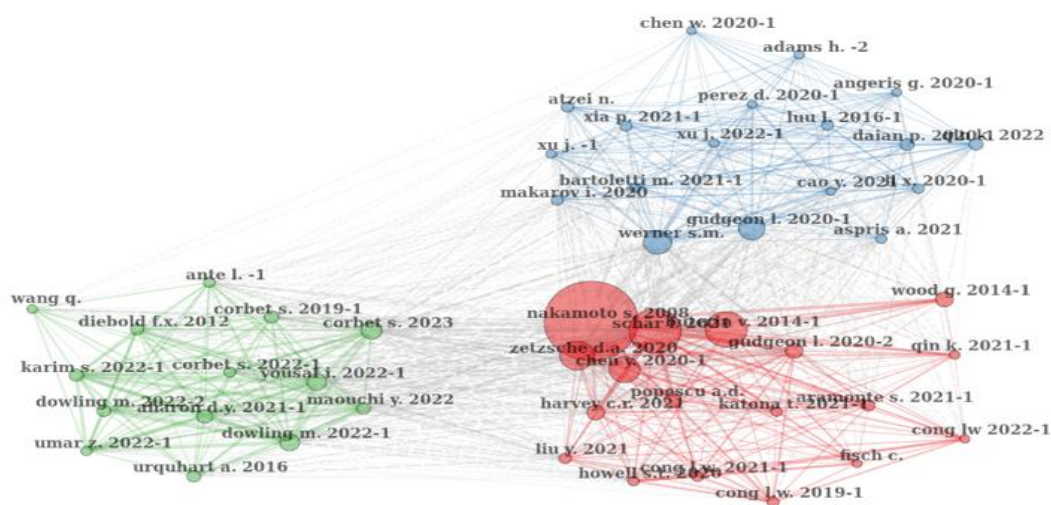
Figure 1. Clusters in co-citation network

Our contribution is practical and theoretical. We find three research clusters (a) socioeconomic (b) technology and (c) financial with their conceptual structure, interactions and transformations. We combine concepts such as "distributed trust" and "the code is the law" alongside intermediation theory to understand the disruptive nature within DeFi.

Keywords: Decentralized Finance, Blockchain, Smart Contract, Bibliometrics, Content Analysis.

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WHY DO YOU REFUSE TO BUY? EXAMINING THE INTENTION TO BOYCOTT ETHICAL FASHION

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ABSTRACT

Ethical fashion aims to reduce negative impacts on people, animals, and the environment. Consumers have shown a positive attitude toward ethical fashion (Bagot, 2013; Micheletti, 2003), expressing outrage through calls for boycotts of fashion brands exposed for poor treatment of workers and cruelty to animals (Birch, 2012; Bagot, 2013). Despite the indisputable benefits of ethical fashion practices, the demand for fast fashion continues to grow, with a compound annual growth rate (CAGR) of 8.8% in 2022, projected to reach 7.7% in 2026 (Businesswire, 2022). Thus, while the benefits of ethical fashion are undeniable, consumer reception remains somewhat mixed, with consumers still consuming fast fashion plagued with various ethical issues (Igini, 2022; Morgan and Birtwistle, 2009).

Although messages emphasizing the importance of ethical fashion and the urgency of ethical consumption have permeated businesses and society, market statistics paint a different picture. The increase in fashion waste, production, and landfill, coupled with the decline in the number of times a garment is worn (Igini, 2022), and the comparison between the growth of the ethical fashion market and the global fashion market (Businesswire, 2021), indicate that only a specific segment of consumers embrace ethical fashion, while the majority, though aware of the issues, do not. Factors such as economic rationalization, where consumers prioritize value for money, and institutional dependency, where consumers believe governments will regulate products ethically, influence consumers not to engage in ethical consumption (Deloitte, 2022; Eckhardt et al., 2010).

Existing literature mainly focuses on product or consumer attributes that positively affect ethical consumption (Carrigan and Attalla, 2001; Eckhardt et al., 2010). However, research on factors driving consumers to avoid purchasing ethical fashion remains scarce. To address this gap, this study examines the relationships between moral identity, cynicism, moral disengagement, and the intention to boycott ethical fashion products (see Fig. 1).

An online survey was conducted among elder Generation Z and millennials, with 547 respondents in Japan. The structural model was tested with AMOS 28, demonstrating a good fit: $\chi2/df$ = 2.006, GFI = 0.928, AGFI = 0.906, TLI = 0.964, CFI = 0.970, SRMR = 0.0393, and RMSEA = 0.043. The

results indicate that moral identity is significantly and negatively related to the intention to boycott (b = - 0.339, S.E = 0.056, p < 0.001), while cynicism is significantly and positively related to the intention to boycott (b = 0.309, S.E. = 0.059, p < 0.001). In terms of indirect relationships, moral disengagement fully mediates the relationship between moral identity and the intention to boycott. Additionally, moral disengagement partially mediates the relationship between cynicism and intention to boycott (Indirect = 0.121, S.E. = 0.030, 95% CI [0.065, 0.183]).

One novel finding from this study refutes past literature on the relationship between moral identity and moral disengagement. The results contradict existing literature, which posited a negative relationship between moral identity and moral disengagement (Detert et al., 2018). The findings suggest that moral identity does not inhibit moral disengagement; instead, it increases with higher levels of moral disengagement. This study also highlights the importance of cynicism in ethical consumption. The contradiction in the findings expands the study of cynicism, where highly cynical individuals rationalize their suspicions, mistrust, and negative feelings, resulting in lower moral disengagement and the perception that their actions are wrong.
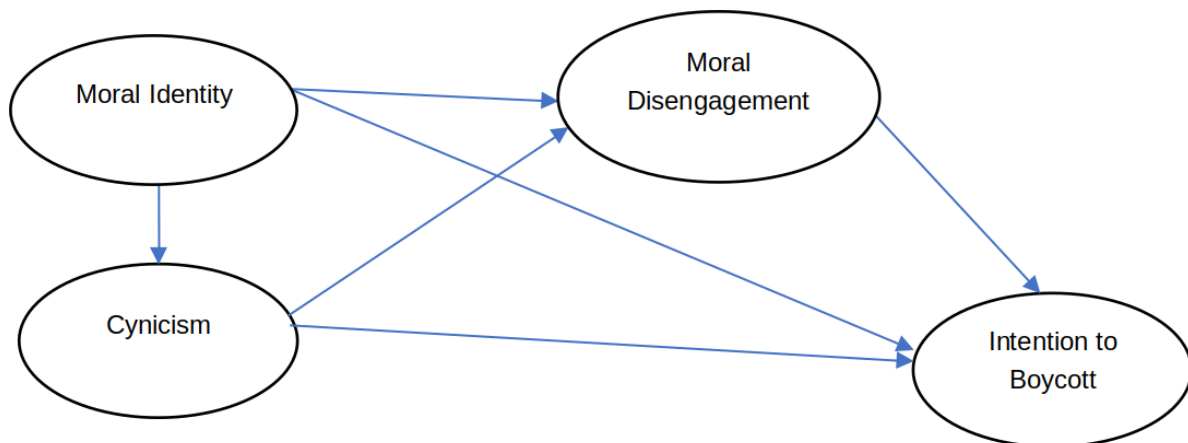
Fig. 1: Conceptual Model

Keywords: Moral identity, Cynicism, Moral disengagement, Intention to Boycott, Ethical fashion, Ethical consumption, Fashion consumption

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PRECISION AGRICULTURE TECHNOLOGIES IMPACT ON THE PROFITABILITY OF WINE-GROWING COMPANIES: A CASE STUDY IN ITALY

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ABSTRACT

INTRODUCTION

Rising input costs occurred over the last few years due to the ongoing wars and the recent COVID-19 pandemic has significantly reduced the incomes of many EU farmers and putting a strain on survival of several farms (Moreno and Andújar, 2023). In this scenario, precision agriculture technologies (PATs) can play a key role to reduce production cost as well and consequently to improve revenues (da Silveira et al., 2023). PA can be defined as "the art and science of using advanced technology to enhance crop production" (Srbinovska et al., 2015, p.1), through a rational and sustainable use of resources to obtain more sustainable and profitable productions thanks to the gathering and processing of data (Moreno and Andújar, 2023). Starting from 2000s, several PATs have been developed and implemented in viticulture to reduce costs of farming operations and improving grape quality (Moreno and Andújar, 2023). However, most of previous studies dealing with economic aspects of PATs in viticulture are based on hypothetical settings (Signorini and Ivey, 2023; Tona et al., 2018). Conversely, very few studies are based on empirical data and all of them focus on a single farming operation (e.g., Andújar et al., 2019). In light of the above, this study aim to evaluate the profitability of an Italian winegrowing farm adopting three different management strategies in terms of PATs for two farming operations, such as fertilization and harvesting. In this way, this study offer valuable theoretical, managerial as well as policy implications.

MATERIALS AND METHODS

The economic analysis was carried out in an organic winegrowing farm of 150.70 ha located in Tuscany (Central Italy), in the Chianti Classico area, where an Italian protected designation of origin (PDO) wine is produced. The most representative cultivar is Sangiovese (red grape), grown in a cordon spur pruning system. The farm consists of three main vineyards that are managed differently for fertilization and harvesting in terms of mechanization and PATs level: a) conventional spreader and manual harvest (traditional management with no PA technology); b) variable-rate technology

(VRT) spreader and self-propelled harvester (one PA technology); c) VRT spreader and selective self-propelled harvester (two PA technologies).

Economic assessment has been performed by means of partial budgeting, considering only changes of the two above-mentioned farming operations among the three different vineyards (Lowenberg-DeBoer et al., 2020). The extended gross margin of each vineyard has been calculated, considering revenues, direct and annual machine costs (Rajmis et al., 2022). All technical-economic data refer to the average of the last three crop years (2020/21-2022/23).

RESULTS AND DISCUSSION

The findings highlight that the wineries' profitability increases with the level of technology adopted supporting previous empirical results (Lowenberg-DeBoer et al., 2020). More in detail, the highest value of extended gross margin is obtained in the vineyard adopting PATs both for fertilization and harvesting (10,557.93 €/ha), marking an increase of 51.3% compared to conventional management system (Fig. 1).

Fig. 1 – Extended gross margin according to PA level
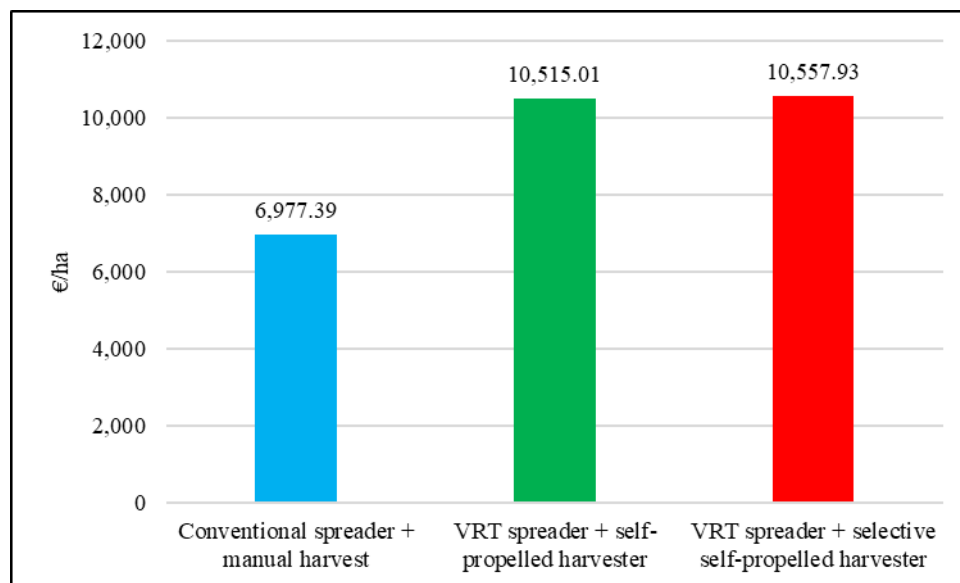
This result is due to the increase of the revenues (+31.5%), as a result to the adoption of VRT spreader which improves yield by optimizing uptake of fertilizers by each plant (Andújar et al., 2019). Furthermore, the adoption of selective self-propelled harvester allows farmer to increase the grape quality and its price (Bramley et al., 2011). In addition, variable rate fertilization and selective mechanized harvest significantly reduce direct costs compared to traditional management (-66.1%), in which fertilizers and manual harvest account for 1,735.75 €/ha. Conversely, annual machine costs have shown an increase of 335.93 €/ha. This confirms that savings in direct costs have a greater impact on farm profitability than the increase in annual machine costs due to PATs adoption (Rajmis et al., 2022).

Finally, it is worth noting that vineyard in which only VRT spreader is adopted reached an extended gross margin similar to that with the highest PA level. This highlights that the high investment costs of selective harvester represent the main obstacle to its adoption as well as for other PA technologies (da Silveira et al., 2023).

CONCLUSIONS

Findings confirm that the adoption of PATs for fertilization and harvesting in vineyard contribute to increase the farm profitability. This study enriches the current literature inasmuch, to the best of our knowledge, is the first aimed at evaluating profitability of two farming operations simultaneously according to PA level and based on empirical and real data. In this way, useful and not hypothetical managerial implications are provided, showing that the adoption of PA technologies allows farmers to obtain more profitable as well as sustainable products, thanks to the higher resource use efficiency. However, policymakers should facilitate the adoption of PA technologies by means of a targeted support aimed at reducing the high investment costs.

Keywords: Economic assessment; Fertilization; Gross margin; Harvesting; Italy; Precision farming.

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INVESTIGATING THE TRAVEL BEHAVIOUR OF PEOPLE WITH DISABILITIES USING THE HEALTH BELIEF MODEL (HBM)

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ABSTRACT

In this research, we aim to explore how individuals with disabilities approach travel using the Health Belief Model (HBM). By looking at their views on susceptibility, severity, benefits, barriers, cues to action and self-efficacy, we aim to understand how these factors shape their travel plans and actions.

Travel and tourism play a significant role in improving well-being and fostering social inclusion (Patterson and Balderas-Cejudo, 2023). However, individuals with disabilities often face challenges that hinder their ability to travel (Devile et al., 2024). While previous studies have highlighted physical and social obstacles, there is a need to research into the psychological aspects influencing the travel behaviours of individuals with disabilities. This study will utilise the HBM to explore how perceptions and beliefs of health-related factors influence the travel intentions and actions of individuals with disabilities.

HBM is commonly used to analyse health-related behaviours by focusing on individual perceptions and beliefs. HBM comprises various important elements; the belief in how likely one is to face a health issue (perceived susceptibility), the belief in the seriousness of the consequences of a health problem (perceived severity), the belief in the effectiveness of recommended actions to reduce risks or seriousness (perceived benefits), the belief in the obstacles or costs involved in taking recommended actions (perceived barriers), triggers that motivate action (cues to action) and confidence in one's ability to take action (self-efficacy).

Applying the HBM to the context of travel for individuals with disabilities can be of great significance as it allows us to dissect and understand how their beliefs and perceptions influence their decisions to engage in tourism activities. Findings suggest that perceptions of accessibility and anticipated discrimination can deter individuals with disabilities from participating in tourism. In the same study,

researchers argue that these perceptions can be as impactful as the actual barriers encountered (Poria, Reichel, and Brandt, 2019). Furthermore, contemporary research by Singleton (2019) has demonstrated that the HBM effectively identifies the psychological barriers, such as perceived susceptibilities (e.g., fear of discrimination) and perceived benefits (e.g., enjoyment and relaxation), which significantly influence travel decisions among people with disabilities. These insights are critical as they guide the creation of targeted interventions aimed at altering perceptions and increasing the likelihood of travel participation.

Moreover, recent studies, such as those by Park and Chowdhury (2018), have shown that perceived barriers (both physical and social) strongly discourage individuals with disabilities from travelling. By using the HBM, we aim to better understand how specific beliefs about these barriers can be mitigated through improved accessibility, better information, and supportive services, thereby enhancing travel self-efficacy. Additionally, applying the HBM helps in designing effective communication strategies that can alter the perceived severity and susceptibility of potential travel barriers. For instance, tailored marketing that highlights the accessibility features of destinations and reassures potential travellers about available support can significantly influence positive travel behaviours.

Lastly, incorporating the HBM into studies of disabled tourism provides actionable data that can influence policy and practice. This includes developing more inclusive tourism policies, designing accessible travel infrastructure, and training staff to better accommodate travellers with disabilities. It can also provide a more practical approach that can lead to tangible improvements in how the tourism industry understands and caters to this demographic. Thus, applying the HBM to assess perceived barriers and benefits can guide the development of strategies that promote inclusivity in tourism.

The conceptual framework below integrates the constructs of the HBM mentioned above, with accessible tourism elements to provide a comprehensive understanding of the travel behaviours of people with disabilities (PwDs). It posits that perceptions of susceptibility to accessibility issues, the severity of potential travel-related challenges, benefits of travelling, and barriers to travel significantly influence PwDs' travel intentions and behaviours. Accessible tourism elements, such as physical, financial, and informational accessibility, along with social support and technological aids, interact with these perceptions to either mitigate or amplify them. Cues to action, like positive past experiences and supportive social environments, and self-efficacy, or confidence in managing travel challenges, are also crucial. By addressing these psychological factors and enhancing accessible tourism elements, the framework aims to foster positive travel intentions and behaviours among PwDs, ultimately improving their overall well-being and social inclusion.

Accessible Tourism Elements:
- Physical Accessibility
- Financial Accessibility
- Informational Accessibility
- Social Support and Inclusion
- Technological Aids and Innovations

Travel Intentions and Behaviors of PwDs
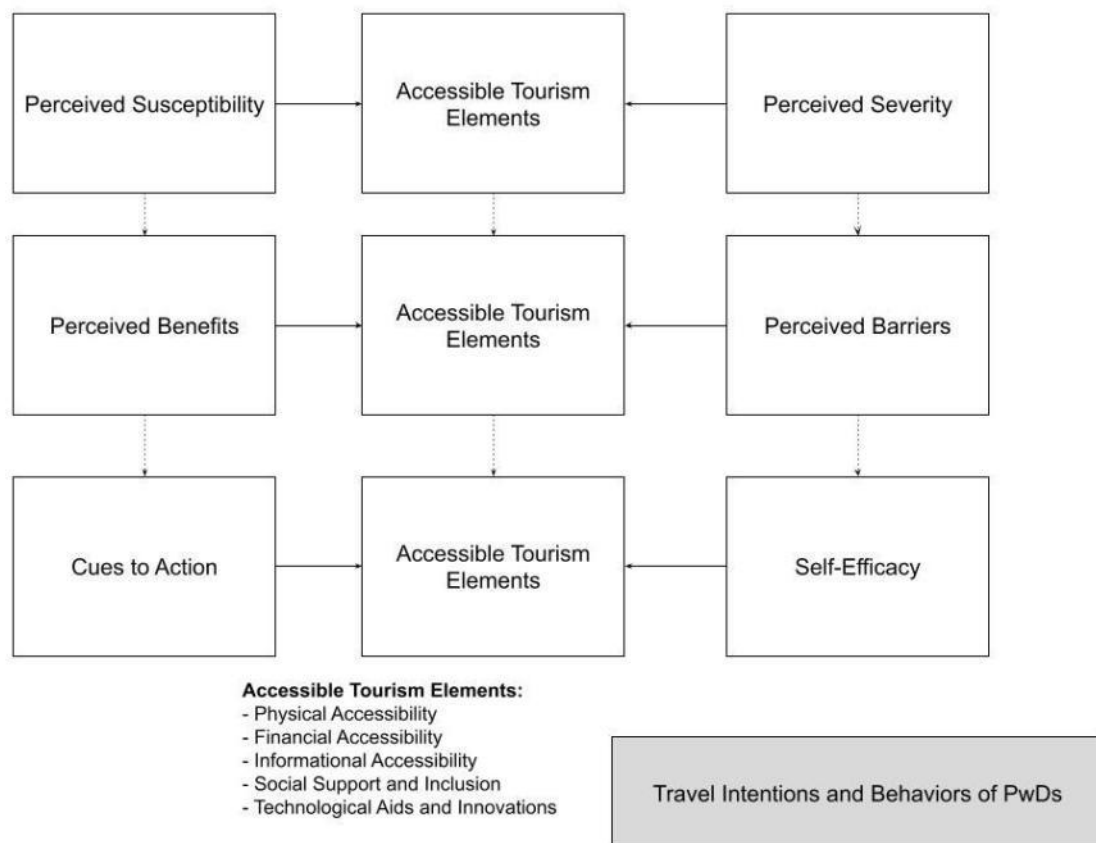
For the purpose of this study, we will use a combination of qualitative and quantitative methods for data collection. In-depth semi-structured interviews will be conducted with a diverse group of individuals with disabilities to explore into their travel experiences and perceptions regarding the components of HBM. These interviews will be complemented by a survey aimed at assessing perceptions related to susceptibility, severity, benefits, barriers, cues to action and self-efficacy.

Participants will be recruited through disability organizations, social media channels and referrals. The interviews will take place at accessible venues or online platforms according to participants' preferences. Each interview will be recorded, transcribed, and reviewed through thematic analysis. The survey will be shared online and will include validated measures for assessing HBM concepts. The qualitative data from the interviews will be examined to pinpoint key themes linked to HBM concepts. The quantitative data from the surveys will be assessed using structural equation modelling (SEM) to explore the connections between HBM concepts and travel intentions. By combining qualitative and quantitative results, a comprehensive understanding of the psychological factors impacting travel behaviour in PwDs will be obtained.

It is anticipated that PwDs who perceive greater benefits, fewer barriers to travel and possess strong self-efficacy will demonstrate higher travel intentions and actions. Perceptions of high susceptibility to

challenges related to travel and their severity may reduce travel intentions unless countered by perceived benefits and self-efficacy. Signs like positive travel experiences and supportive social settings are expected to have a significant role in encouraging travel behaviours.

Keywords : Accessible Tourism; Disability; Health Belief Model; travel Behaviour

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ASSESSING THE INTEGRATION OF ACCESSIBLE TOURISM CONTENT IN CYPRUS' HIGHER EDUCATION: THE CASE OF HOSPITALITY AND TOURISM PROGRAMS

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ABSTRACT

This study aims to evaluate the incorporation of accessible tourism education within higher education hospitality and tourism programs in Cyprus. With a growing emphasis on inclusive tourism, it is crucial to equip future tourism professionals with the necessary skills to cater to the diverse needs of all tourists, including those with disabilities. This research will focus on understanding the current state of accessible tourism content in the curricula of Cyprus hospitality and tourism programs and propose strategies for improvement.

To foster sustainable tourism, it is necessary to enhance the accessibility standards within the hospitality and tourism sector (Theofanous, Thrassou and Uzunboylu, 2024). Accessible tourism ensures equal and dignified access to tourism for all individuals (Cassia et al., 2020; Nyanjom, Boxall and Slaven 2018). Nevertheless, currently a significant proportion of potential customers, particularly those with disabilities (PwD), elderly individuals, and individuals with functional limitations, encounter numerous obstacles when it comes to engaging in tourism activities (Devile, Eusébio, and Moura, 2024; Carneiro et al., 2022). For example, several obstacles in the tourist industry stem from a lack of skilled employees who are not equipped with proper knowledge to work in this market and serve this segment of customers (Eusébio et al., 2022; Liasidou et al., 2019). The scarcity of academic and industry discourse in this domain underscores the need for further investigation. Therefore, to convert tourism into an industry that is accessible and inclusive, it is imperative to update the curricula of higher education programs in tourism (Makuyana and Plessis, 2023; Ponting and Dillette, 2023; Freund, Iñesta and Castelló, 2022; Gillovic and McIntosh, 2020). As tourism professionals of tomorrow, students must develop the necessary abilities, skills and knowledge to effectively engage with this particular market and serve satisfactorily the specific market segment. To become a transformative leader, one must possess understanding about the characteristics, needs and desires (Kim and Jeong, 2018). The literature, although not extensive, clearly demonstrates the importance of

education in influencing the attitudes of tourist and hospitality professionals. Nevertheless, the findings of these studies indicate that accessible tourism is currently not an essential topic in the curricula of higher education hospitality and tourism programs (Eusébio et al., 2022; Freund et al., 2022). As a result, tourism students lack the essential abilities to meet the requirements of individuals with special needs (PwSN). This study aims to explore this problem in greater depth by analyzing the level of competence in accessible tourism skills among Cypriot students who are currently enrolled in hospitality and tourism programs as well as Alumni who have completed their education in the hospitality and tourism area of studies.

METHODOLOGY

To achieve the aim of the study, a quantitative research approach will be adopted. A questionnaire survey will be conducted among students (3rd and 4th year of studies) and alumni enrolled in the hospitality and tourism programs. The survey will be distributed electronically to gather data on students' knowledge and perception of accessible tourism. The data collection period will extend from October 2024 to January 2025. Data analysis will involve several statistical methods. Descriptive statistics will be used to summarise the data. A hierarchical cluster analysis will be performed to identify distinct groups of students and alumni based on their knowledge and skills in accessible tourism. Additionally, Chi-square tests, ANOVA, and Kruskal-Wallis tests will be utilised to compare the identified clusters and examine differences in characteristics and activities related to accessible Tourism.

EXPECTED OUTCOMES

The study anticipates identifying varying levels of awareness and knowledge of accessible tourism among students and alumni. It is expected to uncover gaps in the current hospitality and tourism curricula regarding accessible tourism content. Based on the findings, recommendations will be made to enhance the visibility and integration of accessible tourism topics in the education of future tourism professionals in Cyprus. By addressing these gaps, this research will contribute to developing a more inclusive and well-prepared workforce, ultimately enhancing the tourism experience of all individuals.

Keywords: Accessible Tourism, people with disabilities (PwD), higher education, inclusion, curriculum development

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THE ROLE OF ARTIFICIAL INTELLIGENCE AND AUTOMATION IN CONDUCTING SYSTEMATIC LITERATURE REVIEWS

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ABSTRACT

INTRODUCTION

The arrival of artificial intelligence (AI) and automation in scientific writing, particularly in conducting literature reviews, represents a pivotal shift in research methodologies, offering significant advancements in efficiency, accuracy, and methodological quality research (Fleischer et al., 2018; Legate and Nimon, 2023).

AI and automation have emerged as powerful tools in expediting the traditionally labor-intensive process of literature review, reducing the timeline from potentially years to mere months or even weeks, thereby significantly enhancing efficiency without compromising the rigor and depth of reviews (van Altena et al., 2019). This is achieved through sophisticated machine learning techniques and natural language processing, automating tasks such as data extraction, analysis, and synthesis, which traditionally required extensive human intervention (Keramatfar and Amirkhani, 2019). Such automation not only accelerates the review process but also minimizes human errors, thereby increasing the precision and reliability of systematic reviews (van Altena et al., 2019). Moreover, AI-driven tools facilitate the reproducibility and transparency of research, essential tenets of scientific inquiry (Tsafnat et al., 2013).

This research explores the effects of artificial intelligence and automation on the conduct of systematic literature reviews, centering on the improvements in efficiency, enhancement of methodological rigor, and the collaborative dynamics between humans and machines.

RESEARCH DESIGN

The systematic review approach utilized is based on Vrontis and Christofis' (2019) procedure, examining research from the Scopus and Web of Science databases to investigate the role of AI and

automation in systematic literature reviews. Through a meticulous selection procedure, a total of 28 papers were ultimately chosen for analysis.

FINDINGS

The analysis revealed seven key literature themes: the collaboration between humans and machines; the efficiency and time-saving benefits provided by AI; the enhancement of methodological rigor; the various analytical methods and tools employed in SLRs; the different stages of SLRs where AI is applied; and the concept of living systematic reviews. These themes underscore the significant impact of AI in improving both the efficiency and the quality of systematic literature reviews, while also stressing the indispensable need for human supervision and judgment in the process.

CONTRIBUTION

This article pioneers a systematic literature review on artificial intelligence and automation in scientific writing post-launch of ChatGPT, addressing a significant gap in understanding their role in the research process. Its contribution is threefold: it synthesizes existing research on AI in scientific writing; it provides comprehensive guidance on utilizing AI effectively; and it proposes a conceptual model for future research centered on human-AI collaboration. Through this model, the article advocates for a balanced integration of AI to elevate research quality and efficiency, encapsulating the critical synergy between technological advancement and human oversight in scientific discourse.

CONCLUSIONS

The merit of the seven themes identified in the analysis of this research show that utilization of AI in scientific writing operates on two levels: enhancing real-time collaboration between humans and machines for up-to-date research publications and improving the methodological quality of reviews through advanced AI tools and methodologies. The core of scientific exploration with AI lies in the synergy between human cognitive abilities and machine efficiency, where human oversight remains crucial to direct and interpret AI-generated outputs (Thomas et al., 2017). This collaboration is pivotal in maintaining the quality of scientific texts, as AI alone cannot yet synthesize or fully comprehend scientific narratives. A conceptual model suggests that AI's primary value in scientific writing lies in bolstering methodological quality, moderated by effective human-machine collaboration. As AI tools rapidly become outdated, there's a pressing need for continuous evaluation of their relevance and effectiveness in different stages of the SLR process (Elliott et al., 2017). Living systematic reviews

emerge as essential in this context, offering a framework for keeping scientific literature current and reliable through the integration of AI technologies.

LIMITATIONS

This article's limitations stem from its focus on AI-based software, omitting simpler technologies and machine learning applications, and only identifying seven thematic areas in systematic literature reviews (SLRs), which overlooks broader issues like ethics and policy. Additionally, the nascent field of AI in scientific writing presents challenges in fully understanding human-machine collaboration, necessitating future research for clearer differentiation between AI and automation in SLRs. The current scarcity of literature specifically addressing AI's role in SLRs highlights the need for ongoing exploration as the field evolves.

RECOMMENDATIONS FOR FURTHER RESEARCH

Future research should explore the impact of advanced tools like AI on the scientific writing process, examining whether they enhance or limit cognitive abilities and shape new competencies. Developing a theory of human–machine collaboration in scientific writing is crucial to understand the dynamics and outcomes of such interactions. Further investigation is needed to enhance the effectiveness, efficiency, and quality of AI-based and automated literature reviews, addressing the roles of analytical methods, tools, and the concept of living systematic reviews for continuous updates.

Keywords: systematic literature review, science writing, artificial intelligence, science automation, ChatGPT

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HOW JAPANESE SHOPPING STREETS CAN BE REVITALIZED: AN EXPLORATION FROM A DYNAMIC CAPABILITIES PERSPECTIVE

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ABSTRACT

INTRODUCTION

This study investigates and identifies the necessary dynamic capabilities to transform Japanese shopping streets towards competitive retail formats. Osu shotengai in Nagoya, Aichi prefecture, was analyzed using a case study approach. Data were collected from various sources, including reports from the Small and Medium Enterprise Agency and fieldwork involving observations and interviews with shop owners. This study provides insights for practitioners and researchers, offering managerial implications and empirical extensions for the dynamic capabilities framework.

Japanese shopping streets, known as "shotengai," are vibrant thoroughfares lined with various shops, restaurants, and services. They offer diverse products and services through a mix of local and chain stores. Primarily comprised of small and medium enterprises (SMEs), including family-owned and micro businesses, the shotengai have been integral to Japanese communities and serve as vital hubs for daily shopping, local interaction, and communication. However, factors such as population decline, aging demographics, changing consumers' lifestyles, and the emergence of modern retail formats have led to their significant decline. According to a survey commissioned by the Small and Medium Enterprise Agency in 2021, the average vacancy rate per shopping street rose from 8.98% in the fiscal year 2006 to 13.59% in the fiscal year 2021, with over 43.3% of shopping streets experiencing a vacancy rate of 10% or more. This is evident in the increased number of shuttered shopping streets (shutter dori) in Japan. Despite these challenges, SMEs and microbusinesses in shotengai remain crucial to the local economy, society, and employment.

This study aims to investigate methods to revitalize and enhance the competitiveness of these Japanese shopping streets within the modern business landscape of Japan. Therefore, we set up the following research questions:

RQ1: What are the necessary capabilities to revitalize Japanese shopping streets? Do the dynamic capabilities contribute to the survival and revitalization of Japanese shopping streets amidst strong competition from modern retail formats?

RQ2: How do Japanese shopping streets cultivate these dynamic capabilities?

THEORETICAL FRAMEWORK

The dynamic capabilities framework was developed by Teece (Teece, Pisano, and Shuen, 1997; Teece, 2014a, Teece, 2018; Teece, 2020). Dynamic capabilities is defined as "the firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments" (Teece et al., 1997, p.516). The framework comprises three elements: sensing, seizing, and transforming. "Sensing" involves analyzing diverse data to identify opportunities and risks, while "seizing" determines "how quickly the organization can respond to significant opportunities and threats." "Transforming" capabilities, "particularly asset orchestration, are responsible for keeping elements of the organizational system internally coherent, aligned with the strategy, and competitive in the external environment" (Teece, 2020, p.10). This study centers on "transforming capabilities." We determine various activities associated with "transforming capabilities," categorizing them into subcategories and identifying corresponding activities for each subcategory.

RESEARCH METHODOLOGY

We utilized Yin's (2018) case study method to examine Osu shotengai, which was chosen for its remarkable transformation success. Despite experiencing a decline in the 1960s, 1970s, and 1990s, Osu shotengai underwent a significant transformation from the 2000s onwards, emerging as a vibrant shopping destination. With around 1,200 shops offering diverse food and fashion products and services, it attracts approximately 20,000 visitors on weekdays and twice as many on weekends and holidays, appealing to both locals and tourists. Fieldwork was conducted twice in January and March 2024; we observed Osu shotengai during the New Year holidays and normal days and had brief discussions with shop owners of various businesses.

RESULTS AND DISCUSSION

We gathered all observations, notes, and analyses obtained during the fieldwork and then categorized the data based on keywords. This process yielded three subcategories of "transforming capabilities": the capability to innovate new business concepts, modify the value-creation process, and design an open and flexible organization.

First, the capability to innovate new business concepts involves identifying emerging market trends, consumer lifestyles, and technological advancements and translating these insights into innovative business concepts. In Osu, this included the transition from a traditional business format to a model that attracted startups with the concept of "Osu Dream," which defined Osu as a place where

individuals could pursue their aspirations. This initiative allowed small businesses to gain support to grow into larger firms and evolve.

Second, the capability to transform the value-creation process involves restructuring how value is generated within an organization and redesigning internal processes to enhance customer satisfaction. The Osu shotengai achieved this by enhancing store services and offering Japanese cultural experiences through over 100 events annually, including many festivals. This approach embodies a value co-creation process rooted in Japan's high-context creative service model, integrating elements such as Japanese otaku culture, anime, maid cafes, and food trends with the Japanese "Omotenashi" mindset.

Finally, the capability to design an open organization involves integrating external resources to foster innovation. Shotengai is originally a business primarily frequented by men. However, Osu has shown a rapid increase in female and foreign business owners and union members. For instance, the number of young owners in their late 30s–40s in Osu, including many foreigners, has increased. Notably, the current chairperson of the Banshoji-dori shopping streets promotion association is a Chinese woman.

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HOW TO ATTRACT AND RETAIN NURSES: WORK-FAMILY AND JOB CONTROL ISSUES

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ABSTRACT

The increased difficulties in attracting and retaining young nurses have been the object of attention in many countries and the labour shortage related to the demographic evolution and also to retirement of many nurses increases the challenges. With population aging, there is an increase in demand for health services, and the labor shortage is thus more challenging.

Also, the gap between public income and health costs is increasing, calling for solutions. This is why Lean Management is introduced in some organizations (Bouville et Trempe, 2015).

In our presentation, we will address these challenges and try to find the elements on which the Canadian (Quebec) Health department and hospitals could act in order to increase the number of nurses, and more specifically to attract and retain more with better HRM responding to nurses' needs. For this, two main issues will be covered in our presentation: firstly work-life issues, and second, work organization, Lean) management and job control.

Work-family issues have been debated in many industrialized nations over recent years. (Poelmans, Greenhaus, & Maestro, 2013; Allen, 2012), and this is the case for the nursing sector. It is possibly more important for the health sector than in many others as it is a female sector where work-family interface is an essential issue. While the Canadian province of Québec is recognized for its family policy and good public support to work-life balance, (Tremblay, 2014), the challenges are still important at the organizational level. Indeed, this challenge of work-life interface has increased with demographic decline in many countries, but also in relation with the increased participation of women and increased number of dual-earner couples in the workforce, which also means that both partners are increasingly faced with this work-family issue. In this context, workers look for the support of their employers and managers (Fiksenbaum, 2014, Goh et al., 2015), but unfortunately do not always find it. In the health sector as in others, especially those where workers are dealing with humans and not objects, work-life challenges are seen as having a major impact on employee well-being (Eby, Maher, & Butts, 2010). Work-family measures thus have an impact on work engagement and professional stress, which can in turn have an impact on how nurses deal with their patients (Braunstein-Bercovitz, 2013). Organizational policies and measures to support workers with work-family reconciliation are thus crucial, but research has shown that it is not always sufficient, especially in sectors such as

nursing or other organizations functioning 24-7, as it is not always possible to benefit from flexible schedules or telework in such sectors. It is thus often a challenge to eliminate or even reduce the negative effects of work-family conflict on work attitudes and organizational performance and results (Fiksenbaum, 2014). Some authors have also observed that the application of work-family measures depends on top management (Hammer et al., 2009) and over recent years, in Québec (Canada), nurses have often had to do overtime, and thus, work-family balance has been even more difficult to achieve. Organizational culture can have an impact on work attitudes and results, and compulsory overtime and non-supportive organizational climate have surely had a negative impact on this culture, as well as work attitudes and results over recent years (Kossek, Pichler, Bodner, & Hammer, 2011; Allen, 2001).

We will present results from a research with a little over 800 nurses, in Québec. These results highlight the importance of compulsory overtime, long working hours, and difficult work-family balance in the departure of many nurses within 5 years. However, contrarily to many media articles, the issue of Lean Management and Autonomy does not seem to be a major issue for attraction and retention of nurses, as our data show.

Some recommendations can be drawn from our results. First, in order to attract and retain nurses, the issue of work-family interference should be addressed to permit nurses and other health workers to have a personal and family life. Second, health organizations should redesign t work reorganization, and review the application of Lean Management, especially as concerns working time issues. It may be interesting to go back to the origins of the concept, especially the Japanese innovation management model, and put the nurses at the center of the work innovation process. Giving nurses a voice in the process of work reorganization could help maintain performance as well as the quality of patient care.

There are limits to the analysis presented here. First, we are confronted with the limits of quantitative data, for example as concerns differences of perception on the impact of work on work-family interface. In future research, we are already starting to plan interviews to try to clarify this and to gain a better understanding of other related issues. The qualitative data will contribute to complement the quantitative data collected and which will be presented, but the present data on the impacts of work on work-life interface and on lack of time are clearly very interesting and offer avenues for recommendations to hospitals and health authorities as concerns elements of dissatisfaction which could be corrected for better levels of attraction and retention of nurses.

Keywords : Nursing, Work-life, Work-family, Job Control, Autonomy, Attraction, Retention, HRM

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SURFING THE SERVICE GAP: A STUDY ON MANAGERIAL AND GUEST PERSPECTIVES IN PORTUGUESE SURF HOSTELS

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ABSTRACT

In the last decade, Portuguese surf tourism has been on the rise, experiencing a steady increase of surf tourists and with them contributions to the local economic development. Surf enthusiasts are always searching for the ideal wave and Portugal's rising popularity after successful marketing campaigns such as the Big Wave Surfing in Nazaré is helping to establish the country as one of Europe's leading surfing destinations (Bradshaw, 2021). An increasing number of surf tourists also brings an increasing number of offers of accommodation providers, and especially hostels and surf camps along Portugal's coastline emerged as visitors' favourites. Therefore, it is important to deliver high service quality within these lodgings, not only to attract new customers and offer a reasonable price-for-value experience but also to ensure the continuous purchase of recurring guests, helping to build a favourable reputation for Portuguese surf tourism locally and nationally. However, the managerial approach to delivering high service quality and the customer's perceptions of high service quality do not always match (Brochado and Rita, 2018).

This research aims to investigate and explain the gap between managers' and guests' perceptions of high-quality service in surf hostels in Portugal while addressing the shortage of research on surf tourism (Veríssimo and Costa, 2019). Additionally, this study is meant to be used as managerial implications in the future to bridge the gap between hostel management and guests, ensuring a high standard of service quality, will lead to higher customer loyalty, increasing business profits, and a more attractive view of Portugal as a tourist destination.

Surf hostels are a preferred universal choice due to their budget-oriented yet 'cool' market positioning (Veríssimo and Costa, 2019; Wilson *et al.*, 2021). Recently, there has been a shift in the image of hostels, with a focus on diversifying hostel services to increase their strength in the hospitality industry and leave behind the low-quality stigma (Kuzmanović and Vukić, 2021; Veríssimo and Costa, 2019). At the same time, hostel managers are facing the challenge of continuously providing high-quality service to better position their business, reach customer satisfaction, deliver a positive service experience, and build customer loyalty (Veríssimo and Costa, 2019).

Factors such as direct customer contact, willingness to interact, clean facilities, and a comfortable feeling of safety and warmth can all impact the guest's impression, as noted by Brochado and Rita (2018). Surf tourists are rarely looking for just a place to sleep; instead, they seek arrangements that reflect the surfing lifestyle: close to nature, sustainable, in contact with like-minded people, and willing to share available resources.

While there is a lot of research on service quality in hotels, there is a lack of research on service quality in hostels, particularly in the context of surf hostels, despite their growing popularity (Veríssimo and Costa, 2019).

A mixed-method analysis was employed to pursue the main objective. The managers' perspective was explored through a qualitative methodology in the form of structured and self-reported interviews (n=10), providing insights into their strategies and operational priorities for delivering service quality. The content analysis and coded process were made with the assistance of the software MAXQDA. The codes were then organized into categories, allowing for a systematic analysis of the data, culminating in the identification of five key themes, reflective of the managers' viewpoints on crucial factors for achieving high service quality.

To analyse the significance of service quality from the guests' view, a quantitative research approach was adopted. This approach involved employing a survey structured based on the SERVPERF model (n=199), which allowed for an analysis of guest perceptions and experiences regarding service quality. The statistical software SPSS was used to generate descriptive and inferential statistics.

The presented results provide a comprehensive understanding of the relationship between manager and guest perceptions of service quality and the existing gap between them. The qualitative research results suggest that a guest-centered approach, along with staff efficiency and sustainability regulations, is the most important factor for surf hostel managers in delivering high service quality, while facilities and amenities are considered the least important.

The quantitative research results indicate that tangibles, such as appealing and well-equipped facilities with a welcoming environment, are of most importance for surf hostel guests in perceiving high service quality. This gap can be diminished by encouraging managers to maintain a guest-centered approach while ensuring the provision of presentable, updated, and clean facilities that create a welcoming atmosphere for hostel guests.

The findings of this study contribute to the existing literature on surf tourism in various ways. The research not only provides insights into surf tourism in general, which remains an under-researched topic (Veríssimo and Costa, 2019), but it also offers deeper insights into Portuguese surf tourism, feeling the gap.

Moreover, it also offers crucial insights with significant managerial implications, such as placing guests' needs and preferences at the forefront of service delivery strategies (Kuzmanović and Vukić, 2021). Simultaneously, a concerted effort should be directed toward maintaining and enhancing the provision of well-maintained, updated, and aesthetically pleasing facilities. The physical aspects of the hostel play an indispensable role in shaping guests' perceptions of service quality (Nok *et al.*, 2017; Veríssimo and Costa, 2019). By focusing on these aspects, surf hostel managers can foster a welcoming and enjoyable environment that resonates with guests and aligns with their expectations (Brochado and Rita, 2018).

Keywords: Customer Expectations, SERVPERF, Service Quality, Surf Tourism

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BRILLIANT LEADERSHIP: FEMALE LEADERS AS CATALYSTS FOR TRANSFORMATIVE CHANGE

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ABSTRACT

BACKGROUND

Female leadership has evolved in attaining leadership positions. Despite progress, female leaders still need to be represented across various sectors (Porter, 2024). This study explores the concept of brilliant female leadership, characterized by authenticity, team engagement, inspirational influence, innovation, and commitment to meaningful contributions. By investigating the strategies employed by brilliant female leaders in leveraging Continuous Improvement, Innovation, Communication, and Human Intelligence, this research aims to bridge the gap in understanding the transformative impact of female leadership on organizational success and societal progress. The potential of this study's significance resides in its capacity to enhance the current knowledge base and inspire recognition of female leaders' crucial role in shaping a sustainable future.

PURPOSE

This study explores the transformative impact of brilliant leadership, a framework defined by authenticity, team engagement, inspirational influence, innovation, and unwavering commitment to meaningful contributions across various areas, including one's community. Explicitly focusing on female leaders, this research delves into their exceptional ability to wield expertise in Continuous Improvement, Innovation, Communication, and Human Intelligence. Brilliant leadership is characterized by authenticity, as female leaders authentically express their values, beliefs, and visions, fostering a culture of openness and trust. Their engagement with people and teams transcends traditional hierarchical structures, creating an inclusive environment where diverse perspectives thrive. These leaders inspire others through their passion, resilience, and ability to envision a collective future, acting as catalysts for positive change.

METHODOLOGY

The central qualitative research question (RQ) was:

> How do brilliant female leaders leverage their expertise to drive transformative impact within their organizations and communities?

This qualitative method case study design investigates these leaders' strategies in fostering innovation, thereby contributing to organizational growth and adaptability within business, finance, media/entertainment, politics/policy, philanthropy, and technology.

FINDINGS

This study explores the transformative impact of brilliant leadership, a framework defined by authenticity, team engagement, inspirational influence, innovation facilitation, and unwavering commitment to meaningful contributions across various areas. Explicitly focusing on female leaders, this research delves into their exceptional ability to wield expertise. Brilliant leadership is characterized by authenticity, as female leaders authentically express their values, beliefs, and visions, fostering a culture of openness and trust. Their engagement with people and teams transcends traditional hierarchical structures, creating an inclusive environment where diverse perspectives thrive, and individuals truly feel like they belong. These leaders inspire others through their passion, resilience, and ability to envision a collective future, acting as catalysts for positive change.

CONTRIBUTIONS TO THEORY

This research sheds light on the unique attributes of brilliant female leaders and underscores their relevance in contemporary leadership paradigms. By examining their impact on organizational success and societal contributions, this study seeks to inspire a broader understanding and recognition of the transformative role played by female leaders in shaping a sustainable and equitable future.

With innovation, brilliant female leaders play a pivotal role as facilitators. Their skills in co-innovation enable teams to harness collective creativity, pushing the boundaries of what is possible. Commitment to making significant contributions is a cornerstone of brilliant leadership. Female leaders with a strong sense of social responsibility leverage their expertise to positively impact humanity, the environment, and ethical standards within their spheres of influence. The research explores how these leaders integrate their expertise with broader societal and environmental objectives, fostering a deep sense of commitment and purpose in their work (Novotney, 2023).

Continuous Improvement, Innovation, Communication, and Human Intelligence form the bedrock of brilliant female leadership. The study explores how these leaders leverage continuous improvement methodologies to drive organizational excellence, employ effective communication strategies to disseminate innovative ideas and harness human intelligence to build cohesive, high-performing teams.

PRACTICAL IMPLICATIONS

The study of female leadership provides valuable insights into the factors that positively impact humanity, the environment, and ethical standards within their spheres of influence. The study highlights the importance of co-innovation in driving creativity and exceeding the realm of what is possible. This study explores the brilliant leadership of female leaders as a catalyst for transformation and change. The study provides practical insights for female leaders on enhancing their knowledge, strengthening their skills, and driving organizational change. The study also emphasizes the need for female leaders to innovate while impacting their careers, organization, and community.

LIMITATIONS

The study's limitations stem from its dependence on secondary data sources, which could harbor biases, subjective interpretations, and possible data gaps or inaccuracies. Moreover, its reliance on existing data might constrain the depth of analysis and overlook nuanced aspects. Future research should employ primary data collection methods and conduct comprehensive analyses to mitigate these limitations and attain a more comprehensive understanding of the subject matter.

FUTURE RESEARCH

Scholars could identify the limitations of existing research on female leadership and its impact on various sectors. This would highlight the need for a qualitative case study approach to investigate the strategies employed by brilliant female leaders. Emphasizing the importance of exploring the transformative role of female leaders in driving organizational success and societal progress can offer deeper insights into the dynamics of female leadership across diverse sectors.

Keywords: Brilliant Leadership, Continuous Improvement, Innovation Communication

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Keywords: Brilliant Leadership, Continuous Improvement, Innovation Communication

DESIGNING HRM PROCESSES FOR COMMON GOOD: CASES FROM INDIA

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ABSTRACT

INTRODUCTION

Over the last decade, there has been a notable shift in businesses towards adopting a Sustainable Human Resource Management (HRM) model that prioritizes diverse stakeholder perspectives over the traditional focus on maximizing shareholder value. The advancement in Sustainable HRM, is also referred to as Common Good HRM. It goes beyond the traditional HRM framework, by placing significant emphasis on the well-being of employees, society, and the environment collectively (Aust, et al., 2020). However, there is limited literature exploring the potential outcomes of adopting Common Good HRM systems by organisations.

In India, a section of businesses try to blend HR practices with the philosophy of *Vasudhaiva Kutumbakam*, (Sanskrit phrase translated as "vasudha" meaning the earth, "eva" as an emphasizer, and "kutumbakam" translating to "family") which promotes the idea of "the world is one family." They emphasize on employee welfare and making societal contributions, while not compromising on organisational performance. While this ancient philosophy aligns with principles of Common Good HRM, it faces criticism for fostering a "paternalistic" outlook among employers/owners. Critics argue that such businesses lack formal HRM approach, leading to expectations about employee submissiveness and loyalty, which potentially limits individual and collective rights. However, there are firms that have implemented a blended HRM framework, combining requirements of care and well-being, and performance. The objective of this paper is to discuss the impact of blended HRM practices on both organizational success and societal well-being through case study analysis of two Indian companies representing diverse industries.

METHODOLOGY

We utilized a case study approach to conduct exploratory research on two companies. Company A, a major manufacturing firm serving a global market, boasts a workforce of over 6000 employees. In contrast, Company B offers advisory services exclusively to the domestic financial sector and has approximately 40 employees. Case studies are crucial in generating exemplars that strengthen knowledge specific to context within the discipline being examined (Flyvbjerg, 2006). Company A

prioritizes integrity, respect, and social consciousness while emphasizing continuous training, family benefits, and community involvement. Company B, distinguishes itself through a unique HRM approach through a nurturing environment, opportunities for employee leadership and compassionate policies.

MAIN FINDINGS AND IMPLICATIONS

The study's results are categorized into four main areas. Category 1 focuses on Intent, Organizational Philosophy and Culture emphasizing that integrating values into HRM starts with the founder or top management's intention to view business as a means to create positive societal impact. Beginning at a grassroots level, common good intent fosters mutual respect, continuous communication of common good principles, implementing open-door policies, and recognizing employees and their families as essential stakeholders. Category 2, involves implementing blended HRM practices. This includes meticulous hiring processes which focuses on the employee's background, eagerness to learn and culture fit. The company maintains a culture of tolerance for mistakes, even when the cost of errors is substantial. Respectful confrontation and effective conflict management strategies are in place. Prioritizing employee health and welfare, the company provides social security, nutritious food options, and extended care benefits for its employees. Employee engagement initiatives involve incorporating employees' families in activities such as vacations, pilgrimage trips, and celebrating festivals. Founders play a role akin to surrogate parents within the organization, providing moral guidance and overseeing the delicate balance between business objectives and ethical values. Despite having clearly defined business goals, there is a conscious effort to maintain moral control over the operations. The company maintains ongoing relationships with former employees, even though retention rates are high. Former employees are invited to company events and are also provided assistance even after they have left the organization. This practice highlights a commitment to nurturing long-term connections and fostering a sense of belonging beyond an individual's tenure with the company. *Category 3*, seeks organisations to give back to society. Our findings highlight a content and fulfilled workforce that contributes to a positive work environment and plays a crucial role in achieving broader societal impact. By investing in high-quality work environments such as green buildings (Company A), and optimum space usage (B) not only promote sustainability but also demonstrate a commitment to environmental responsibility. Additionally, supporting the local community and neighbours, further strengthens the organization's social impact. Category 4, Organisational performance and success highlights that both Company A and Company B have achieved high-quality output and customer satisfaction and have also positioned themselves as entities that prioritize societal values. This positioning has attracted renowned personalities to offer

support, advice, and association on a pro bono basis. Furthermore, the establishment of direct employee voice channels has led to a Union substitution approach in Company A, while the other company's smaller size limits such initiatives. Both organizations capitalize on opportunities to groom the next generation of leaders. In Company A, elderly family members instilled with strong values play a pivotal role in training the upcoming generation to uphold these values and continue the legacy with humility. On the other hand, in Company B, the founder personally invests in training employees to assume leadership roles and carry forward the organization's values with dedication and integrity.

CONCLUSION

The positive results observed in the impact of blended HRM practices on both organizational success and societal well-being, as evidenced by the case study analysis of two Indian companies across diverse industries, highlight the significance of integrating common good values into HR strategies. This study reinforces the notion that integration of common good values into HRM practices can lead to beneficial outcomes for both organizations and society welfare.

Keywords: Sustainable Human Resource Management, Common Good HRM, HR Process, Stakeholders, India,

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DIGITALISATION COST OF MANAGERIAL PROCESSES IN THE GREEK HOSPITALITY INDUSTRY: THE CASE OF HOTEL UNITS IN CRETE ISLAND

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ABSTRACT

PURPOSE

The main purpose of this research is to measure the managerial digitalisation cost of the Greek hospitality sector, with an emphasis on the geographical region of Crete. Although digitalisation of hotel units has been a topic of discussion in the new era after the Covid-19 pandemic, the associated cost is still an unexplored field. This study aims at dealing with the above aspect, focusing on hotels based on the popular tourist destination of Crete island, analyzing managerial digitalisation cost and its relationship with independent variables like corporate form and hotel size. Furthermore, it makes comparisons with the hospitality industry of less popular touristic destinations (i.e. in Northern Greece), in order to detect similarities and differences in corporate strategy. The evaluation of digitization costs will lay the initial academic basis for further research on the subject, while providing valuable information to hospitality businesses for decision making. For instance, hotel units will be able to know factors that can positively influence the proportional cost of digitization, such as the number of employees or seasonal operation. On the other hand, software companies will be able to access the necessary information for the segmentation of hotel market. Given the fact that the term 'managerial digitalization' is quite a vague concept, we refer to specific tools that support effective management such as cloud and electronic meeting applications (Antonio and Rita, 2021), Revenue Management software (Demirciftci *et al.*, 2020) as well as digital marketing (website, social media), dynamic pricing and C.R.M. software (Pateli *et al.*, 2022).

METHODOLOGY

The survey is conducted with the use of a structured questionnaire. The research population includes 1,504 hotels on the Greek island of Crete, listed members of The Hellenic Chamber of Hotels register, which had some type of online presence (e-mail, website, social media account). On-line questionnaire was chosen based on quick response, low cost and automatic creation of a digital database (Clarck *et al.*, 2021). There are 5 variables considered, in order to examine the relationships of certain hypotheses. More specifically, through statistical analysis, it is examined whether the 4 independent variables affect the dependent variable (David and Sutton, 2011). The managerial digitalisation cost of hotel

units is defined as the dependent variable (Y), while demographic factors of hotel units are used as independent variables (X) (Table 1):

Table 1. Independent variables

Corporate form	Lakhani, 2020	X1
Number of employees in 2022	Frančeškin and Bojnec, 2022	X2
Operating period	Vlami, 2021	X3
Accommodation type	Chiappa et al., 2021	X4

In relation to the investment in managerial digitalisation, a numerical index is preferred, instead of specific amounts in monetary units. The above choice is related to the fact that the amount of investment is quite possible to be affected by the size and the financial status of each hotel. Consequently, BUD.BY.REV. (Budget as a percentage of total revenue) index, used by Mahmood and Mann (1993), is adopted as dependent variable (Y) of the research. Starkov (2022) point out that the average of the above index for hospitality sector is around 2.5%. In a related survey of the Greek hotel industry in Macedonia and Thrace, Chatzipetrou and Varvaropoulos (2024) concluded that only the 16.9% of the sample invested more than 2.5%, while about half recorded rates between 1.25% and 2.5%.

FINDINGS

Our research concludes that the vast majority of hospitality corporations in Crete invest less than 2.5% of their total incomes in the digitalisation of their managerial operations, a percentage which was also mentioned by Starkov (2022) as an average level. The above confirm the findings of a previous research concerning another Greek region (Chatzipetrou and Varvaropoulos, 2024). On the other hand, no statistically significant correlations between managerial investment (Y) and the independent variables of corporate form (X_1), number of employees (X_2), operating period (X_3) and accommodation type (X_4) are observed, rejecting the findings of previous research and the hypotheses set in the present paper.

Keywords: Digitalisation costs, hotel management, e-processes, Greek hospitality industry.

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UNVEILING GREEK TOURISM TRENDS: A COMPARATIVE STUDY OF TOPIC MODELING TECHNIQUES

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ABSTRACT

INTRODUCTION

Natural Language Processing advances have enabled us to efficiently analyze large corpora of unstructured text, efficiently extracting insightful information about human behaviors. Topic modeling has emerged as a powerful tool in this process, proving effective in capturing relationships among documents. It receives significant application in various domains, including political (Greene and Cross, 2017), biological (Liu *et al*., 2016), and medical science (Zhang *et al*., 2017), among others, employing popular approaches like Latent Dirichlet Allocation (LDA) and Non-negative Matrix Factorization (NMF). This study undertakes a comparative analysis of these approaches in Greek text, a language insufficiently represented on digital resources, focusing on newspaper articles related to tourism—a sector critical to Greece's economy. By adapting these models to the linguistic complexities and cultural nuances of Greek, this work demonstrates their potential effectiveness in identifying coherent and relevant topics within the tourism corpus. Initial results indicate that NMF outperforms LDA in terms of topic coherence and interpretability. According to the best of our knowledge, this is the first study to apply and compare topic modeling approaches in a new and demanding language context; by unfolding new dimensions in a popular sector that drives Greece's economy.

LITERATURE REVIEW

Topic modeling has transformed Natural Language Processing (NLP) by allowing the efficient identification of themes within large text volumes using unsupervised Machine Learning. This method extends beyond literary analysis to multiple fields, such as medicine, where it provides insights by examining clinical reports (Speier *et al*., 2016), and social sciences, aiding scholars in understanding text themes (Mohr and Bogdanov, 2013). Blei's review emphasizes topic modeling's growth, methodologies, and its critical role in textual analysis (Blei, 2012).

In topic modeling, Latent Dirichlet Allocation (LDA) (Blei *et al*., 2003) and Non-Negative Matrix Factorization (NMF) (Kuang *et al*., 2015) are prominent. LDA uses a probabilistic approach, viewing documents as mixtures of topics, each defined by word distributions. Conversely, NMF utilizes a

linear algebraic method and TF-IDF to extract meaningful topics. Both methods yield valuable insights, with LDA focusing on thematic consistency and NMF on speed and scalability, making them valuable for different analytical needs and research goals. Therefore, the choice between the two models depends on the textual dataset available, regarding its quantity but also its content, as each model performs better in different situations (Mifrah, 2020). The application of topic modeling to lesser-spoken languages such as Greek, presents several difficulties due to their linguistic characteristics, however, there have been some instances where these techniques have been successfully adapted (Wishart, 2017, Gkoumas *et al*., 2018), showcasing their adaptability to different linguistic contexts.

METHODOLOGY

The dataset for this study consists of 2,281 Greek articles about tourism from 1945 to 1990, digitized using Optical Character Recognition (OCR) via FineReader PDF by ABBYY, which supports Greek and includes features like image improvement, noise reduction and resolution enhancement. Following the conversion of printed documents into a digital format, several preprocessing steps were undertaken on the corpus. These included converting characters to lowercase for consistency, removing symbols, numbers, and all punctuation except periods, and retaining only Greek alphabet letters. To reduce dataset noise and prevent the obscuring of meaningful data patterns, common Greek words lacking significant contextual meaning were excluded using the spaCy Python library. Additionally, domain-specific stop words irrelevant to topic identification were manually removed to refine the preprocessing further. Lemmatization was also applied to normalize words to their base form, improving topic interpretability and addressing the document-term matrix's sparsity issue common in text analysis.

For LDA analysis, the preprocessed corpus was converted into a Bag of Words (BoW) format, representing each document as a vector of word frequencies. Various models were then trained with different parameters and topic numbers to optimize the coherence score, a metric assessing the semantic similarity of top-scoring words within each topic. For NMF analysis, the TfidfVectorizer from Scikit-Learn was used to transform the texts into a TF-IDF (Term Frequency-Inverse Document Frequency) matrix, turning the textual data into a numerical format that highlights key words while diminishing the role of common but less informative words. A similar approach to LDA's was then followed to identify the optimal number of topics.

RESULTS

The comparison of the results of the two models will be employed in a qualitative manner as it provides a better estimate of the differences, the advantages, and shortcomings of each approach. The reason behind this is that these algorithms aim at optimizing different objective functions and their performance can be heavily influenced by adjusting their parameters, thus making a quantitative assessment challenging. Figure 1 provides an overview of the terms that significantly influenced two of the most prominent topics of both models. A total of five topics were decided for LDA based on the maximum coherence score of 0.35, whereas the optimal number of topics for NMF was six, accompanied by a score of 0.41.
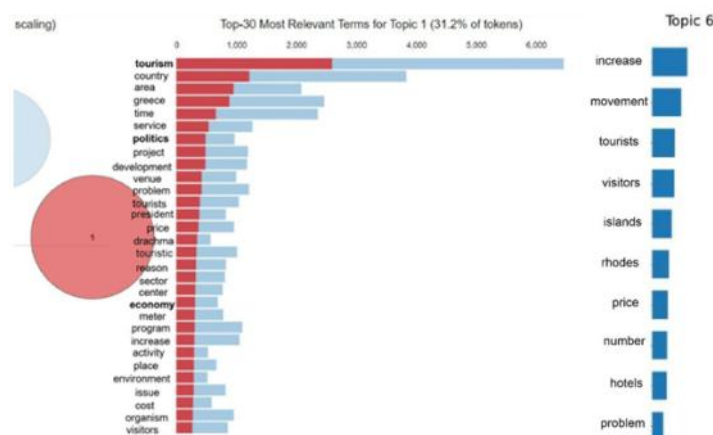

Figure 1: Most Prominent Topic: LDA (left), NMF (right)

CONCLUSIONS, LIMITATIONS, AND FUTURE RESEARCH

Despite the existence of extensive comparisons in the literature between Latent Dirichlet Allocation (LDA) and Non-negative Matrix Factorization (NMF) for topic modeling in English text, limited research has been done to other less widely spoken languages, such as Greek, which is the primary focus of this study. We conducted an in depth assessment of these two methods, while highlighting the possible challenges faced when dealing with a language with fewer and more limited text processing tools. Future research shall expand to the implementation and comparison of the modern embedding-based approaches on Greek text, such as Top2Vec and BERTopic. Preliminary findings from our comparative analysis suggest that NMF produces coherent and diverse topics, capturing significant elements that characterize Greek tourism, such as popular destinations, cultural landmarks, and historical sites, while LDA tends to produce more general topics that cannot be easily and accurately summarized, as it incorporates various aspects like politics, tourism, and industry into a single topic. It is worth noting that this study is a work in progress and conclusive results will be

available and presented at the upcoming conference. Finally, while our study presents original contributions to the aforementioned areas, it is important to acknowledge several inherent limitations in our approach, starting with the nature of historical newspapers, which contribute to the complexity of accurate OCR extraction due to their varied printing styles, fonts, and linguistic nuances. The inherent difficulties of OCR, particularly when dealing with aged and deteriorated newspaper prints, have affected the overall quality of the extracted text. Furthermore, the scarcity for dedicated libraries for Greek text preprocessing presented a challenge in effectively cleaning the data obtained from OCR. Unlike more widely studied languages, the tools available for Greek are comparatively limited, which introduces complexities in the preparation of the corpus for analysis.

Keywords: Topic Modeling, Machine Learning, LDA, NMF, Tourism

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ORGANIZING ARTIFICIAL INTELLIGENCE IN FAMILY BUSINESS: A KNOWLEDGE MANAGEMENT PERSPECTIVE

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ABSTRACT

Family businesses represent a firm form that have been central to the international academic debate. In fact, family businesses are businesses that play a significant role in the world economy system and have a significant impact on the economic and social conditions of the local system. From a managerial point of view, family business is an extremely heterogeneous type of business, with peculiar organizational characteristics. In fact, family businesses are characterized by a culture influenced by both a business orientation and family values and dynamics orientation. However, family businesses are often associated with a low propensity to explore new innovative technologies and introduce new knowledge.

There is a vast academic literature which, through theoretical contributions and empirical observations, has observed the behavior of family businesses in response to issues related to knowledge management (KM). Accepted belief that knowledge represents a resource to be introduced into the organizational processes of family businesses to improve their operations, increase efficiency and remain competitive in the global market.

Addressing challenges, including using innovative technologies, such as artificial intelligence, represents the latest challenge for family businesses. Technological evolution has imposed a new challenge on family businesses, traditionally slow to adopt technological innovation, including the adoption of artificial intelligence (AI). Despite the extensive literature on family businesses and knowledge management, there are few studies that delve into the behavior of family businesses towards artificial intelligence in knowledge management.

For this reason, it is necessary to understand how to incentivize the adoption of AI in these complex organizations.

This study is based on a qualitative methodology, exploratory in nature. The data, both qualitative and quantitative, were collected through semi-structured interviews and questionnaires and analysis

of internal company documents. Two main decision makers of the family business were interviewed. The interviews lasted on average 45 minutes.

The main results of this study offer indications on the factors that can facilitate the introduction of AI within a family business. The results of this study highlighted that family businesses are aware of the strategic importance of knowledge management and, for this reason, the need to introduce AI systems and the introduction of artificial intelligence. Furthermore, the results of this study demonstrate skepticism and difficulties in the initial stages of introducing AI systems. The findings could offer interesting managerial implications for family business entrepreneurs. Artificial intelligence and its adoption, in fact, are crucial for the generation of competitive advantage and the valorization of knowledge.

Keywords: Family Business; Artificial Intelligence; Knowledge management; Dynamic capabilities; Organizational knowledge

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DISTRESSED M&A: A SYSTEMATIC LITERATURE REVIEW

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ABSTRACT

While analyzing mergers and acquisitions (M&As) as opportunities for growth and strategic change (Bauer and Matzler, 2014), corporate finance and business management researchers understood that distressed M&A could have been a significant area of study in their field (Schendel et al., 1976; Balcaen et al., 2012; Renneboog and Vansteenkiste, 2019; Cefis et al., 2022). Distressed M&A involves companies facing financial distress that explore strategic options to reorganize their business instead of resorting to liquidation or bankruptcy, a phenomenon whose analysis can disseminate knowledge and awareness for all stakeholders who deal with enterprises in crisis (Altman et al., 2019). Even though the literature has offered various contributions about acquisitions of distressed assets (e.g. Jory and Madure, 2009; Amira et al., 2013), the research into the motivations behind acquisitions by distressed firms is scant (Zhang, 2022), but invigorating (Coyne et al., 2021; Nejadmalayeri and Rosenblum, 2022). In contrast to the intuition that corporate financial distress inhibits M&A activities, distressed firms contribute to an economically significant proportion of aggregate takeover activities (Zhang, 2022). Few literature reviews on such topics can be found, including one that focuses primarily on M&A with only a section concerning "distressed target acquisitions" (Renneboog and Vansteenkiste, 2019), another one that examines corporate distress and turnaround with only few hints to M&A (Schweizer and Nienhaus, 2017), and one final review that covers such themes altogether (Cefis et al., 2022), but still focuses primarily on firm exit. Based on our best experience, the topic of distressed M&A has not yet been studied systematically. Given the relevance of the topic, there is an impelling need for a Systematic Literature Review (SLR), that is the most valuable methodology for the advancement of knowledge and deepening research (Elsbach and Van Knippenberg, 2020). We carried out a framework-based review using the ADO-TCM integrated framework (Lim et al., 2021) that includes antecedents, decisions, outcomes, theories, contexts, and methods. To address the existing research gap, we formulated the following research questions: (RQ1): *What do we know about distressed M&A?* (RQ2): *How do we know about distressed M&A?* (RQ3): *Where should the research on distressed M&A be heading?* To achieve the research aim, we conducted a SLR according to the PRISMA protocol (Page et al., 2021). No time-related filter was applied, and the cut-off date is end of 2023. Scopus, the database used for the review, is considered the largest abstract and citation data warehouses in numerous subject fields, especially in business and management (Wu and Wu, 2017). We used a search string that includes a block of words related to the concept of distress (Kücher et al., 2019) and another one related to M&A

(Battisti et al., 2021). The exclusion-inclusion process was performed through the application of both qualitative and quantitative filters (e.g., ABS ranking, language, subject area, type of contributions), resulting in a sample of 122 papers. Our analysis reveals the dominant use of empirical articles, the majority of which employ quantitative methods, whilst literature reviews and theoretical papers account for a smaller portion of the research corpus. In terms of theories, our study anticipates a pronounced usage of the agency theory (Jensen and Meckling, 1976), highlighting its importance in contemporary research. In parallel, we envision moderate applications of the theory of optimal capital structure (Robichek and Myers, 1966), the signaling theory (Spence, 1973). In addition, we anticipate a diverse range of bibliometric references, including influential authors, prestigious journals, renowned affiliations, citations, as well as an analysis of publication trends. Through the comprehensive analysis of the existing papers, we present an integrative framework that outlines the characteristics of distressed M&A, offering insights into its drivers, strategies, and implications for various stakeholders. Our framework contributes to the literature as it aims to reinvigorate high-level academic discourse by providing a pathway for further investigation of this topic. In terms of practical contributions, we provide a comprehensive understanding that can inform policymakers, organizations, and stakeholders which, in turn, can help shape more effective strategies and practices aimed at restructuring firms and re-establishing the going concern.

Keywords: Distress, Restructuring, M&A, Distressed M&A; Systematic literature review.

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CEO ARCHETYPES, CEO MANAGERIAL PERCEPTIONS, AND COMPANY PERFORMANCE: DEVELOPMENT OF A CONCEPTUAL MODEL

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ABSTRACT

INTRODUCTION & AIM OF RESEARCH

Understanding a company's motivations and performance requires examining the inclinations of influential figures, particularly top managers (Hambrick, 2007). The CEO, acknowledged as the primary leader, plays a vital role in any organization (M. A. Abebe and Acharya, 2022). Insights into the impact of influential CEOs on company performance are essential for developing effective theories on this dynamic relationship (Qiao *et al.*, 2017).

Originating with Chandler in 1962, organizational life cycle (OLC) theory suggests that companies undergo transformations impacting leadership as they evolve (Fisher *et al.*, 2015). Conventional wisdom, supported by entrepreneurship literature, holds that expanding companies may outgrow their owner's capabilities (Willard *et al.*, 1992). While entrepreneurs can learn and evolve over time, a viable strategy is considering replacing the owner-CEO with a professional manager, especially if they struggle to adapt (Ling *et al.*, 2007). This becomes a reasonable option when the owner-CEO struggles to adapt their values, skills, and behaviors successfully (Ling *et al.*, 2007). The expectation is that a new (professional) CEO can undertake tasks and initiatives that the owner may be unable or unwilling to pursue (Wasserman, 2017).

A primary objective of companies is the creation of shareholder value, reflected in financial performance measures, thus understanding the relationship between a CEO and company performance is a crucial focal point for a broad spectrum of research agendas and managerial practice (Crossland & Hambrick, 2007). Accordingly, this study aims to conceptualize the relationship between CEO archetypes, CEO managerial perceptions, and company performance.

CEO ARCHETYPES

In the scholarly literature, CEOs are commonly classified into three prominent groups: founder-CEOs, family-CEOs, and professional-CEOs, while shareholder-CEOs constitute a less prevalent category. Founder-CEOs, functioning as entrepreneurs, start and own the company, also serving as its CEO. Shareholder-CEOs are (partial) owners of the companies they lead. Family-CEOs hold the CEO position and have substantial ownership or controlling interest within the family. Conversely,

professional-CEOs lack direct or indirect shareholding and are typically seasoned executives chosen for their requisite skills.

This study utilizes ownership or shareholding as an objective criterion, grouping family-CEOs with equity or shares into the owner-CEOs category, alongside founder-CEOs and shareholder-CEOs. Professional-CEOs, lacking ownership stakes, are treated as a distinct category, aligning with the conventional approach in the field.

CEO MANAGERIAL PERCEPTIONS

CEO *managerial ability*, encompassing strategic decision-making and resource-leveraging skills, plays a pivotal role in shaping a company's operational features and overall performance (Foong & Lim, 2023; Hensellek *et al.*, 2023; Simamora, 2021). Owner-CEOs, distinguished by centralized decision-making and a limited managerial skill set, differ significantly from professional top-level managers (Foong & Lim, 2023; Smith & Miner, 1983). Overconfidence in managerial decisions significantly influences *risk propensity*, with owner-CEOs often displaying higher overconfidence levels and a pronounced inclination for risk compared to risk-averse professional-CEOs (Sutrisno *et al.*, 2022; Kumar *et al.*, 2021). In the realm of *innovation*, CEO characteristics significantly contribute to a company's ability to innovate (Kiss *et al.*, 2022), with owner-CEOs demonstrating a higher inclination and effectiveness in innovative practices, particularly in flexible institutional environments (J. (Simon) Kim & Koo, 2018). *Entrepreneurial orientation*, crucial for company establishment and survival (Verdú-Jover *et al.*, 2023), is positively correlated with owner-CEOs (Deb & Wiklund, 2017), although challenges may arise in translating entrepreneurial initiatives into profits as company size and complexity increase (Bauweraerts *et al.*, 2023). In terms of *motivation* and incentives, the compensation structure varies between owner-CEOs, who often accept reduced compensation (Na *et al.*, 2023; Mazur & Wu, 2016), and professional-CEOs, whose performance is significantly linked to pay–performance sensitivity (Barak *et al.*, 2011).

CEO AND COMPANY PERFORMANCE

The financial success or failure of many companies is often attributed to the characteristics of their CEOs (Altarawneh *et al.*, 2020; Westhead & Howorth, 2006). Despite the extensive body of literature examining the linkages between company financial performance and the CEO's archetype, research has not yielded definitive findings (Liu and Polkinghorne, 2023; Altarawneh *et al.*, 2020). However, a more dominant position is that there is a generally significant relationship between CEO type and company performance (Altarawneh *et al.*, 2020).

DEVELOPMENT OF A CONCEPTUAL MODEL

Figure 1 presents a conceptual model illustrating the relationship between CEO archetypes, CEO managerial perceptions, and company performance. Furthermore, in accordance with OLC theory, the theoretical framework recognizes that company-level factors may influence the selection of either an owner-CEO or a professional-CEO to lead the company. Additionally, grounded in human capital theory, the framework establishes the significance of individual-level factors and their relationship to CEO managerial perceptions.
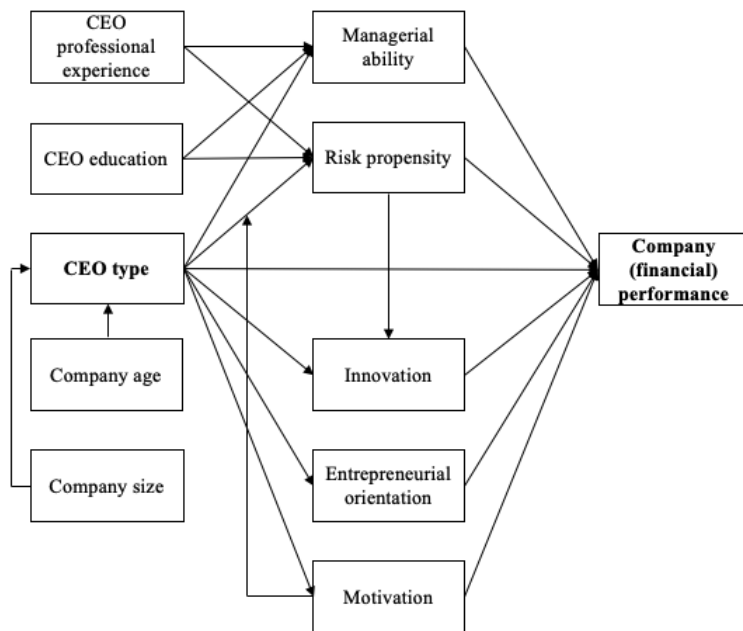
Figure 1. Conceptual model of the relationship between CEO archetypes, CEO managerial perceptions, and company performance

This conceptual framework offers a blueprint for forthcoming empirical investigations. The outcomes of such inquiries are anticipated to inform pragmatic decision-making processes, advocating for a sophisticated approach toward CEO recruitment that harmonizes with the company's stage within the OLC, thereby enhancing overall company performance. Moreover, such endeavors stand to enrich management theory by providing deeper insights into the intricate nexus between CEO types, their managerial perceptions, company-level and/or human capital parameters, and, ultimately, the financial performance of the company.

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THE IMPACT OF SOURCE CREDIBILITY, TIE STRENGTH AND HOMOPHILY IN DIVERSE AND INCLUSIVE MICRO SOCIAL MEDIA INFLUENCER CAMPAIGNS: A COMPARISON BETWEEN THE GENERATION Z LGBTQ+ COMMUNITIES IN THE UK AND CHINA

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ABSTRACT

Within the retail sector, there has been a recent interest in targeting much broader and diverse social groups within society beyond the mainstream. Concurrently, the widespread use of social media platforms has empowered both social media influencers and consumers to express their opinions about retail brands and their approaches to diversity. Evidence suggests that consumers are inclined to generate positive electronic word-of-mouth (eWOM) when they are satisfied with campaigns (Sharma, 2023; Chu et al., 2022). This study will focus on the LGBTQ+ community because this group has been shown to be significantly influenced by campaigns advocating for social diversity and inclusivity (Hu et al., 2022; Li, 2022). Specifically, this study further examines the impact of diverse and inclusive social media influencer campaigns on the positive eWOM for retail fashion brands among the Gen Z LGBTQ+ community. The novelty of this study lies in its focus on a cross-cultural comparison from Eastern and Western perspectives, with a specific emphasis on Generation Z LGBTQ+ communities in the UK and China. This study develops a conceptual framework that integrates constructs from the Theory of Planned Behaviour (TPB) with the Online Social Network (OSN) Model. Specifically, a quantitative approach is employed to test the influence of source credibility, tie strength and homophily among micro social media influencers, as well as the impact of their diverse and inclusive campaigns on the attitudes and positive eWOM intentions within the Gen Z LGBTQ+ community in the UK and China. A survey was conducted on social media platforms—Instagram and Xiaohongshu—with a sample size of 400 respondents. The theoretical significance of this study lies in gaining an in-depth understanding of the factors influencing positive eWOM among specific minority groups in the contemporary online retail environment in the UK and China. In terms of social and practical implications, this study helps to raises business awareness of the impact of diverse and inclusive campaigns, thereby assisting retailers to develop more effective social media campaigns.

Keywords: Source Credibility, Tie Strength, Homophily, eWom, Micro Social Media Influencer, Influencer campaigns, LGBTQ+ Community.

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THE IMPACT OF A PROFESSIONAL ETHICS COURSE: CHANGES IN VALUE PREFERENCES AND MORAL REASONING FOR UNDERGRADUATE BUSINESS AND PHARMACY STUDENTS

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ABSTRACT

With the emergence of the world's first digital-native generation, Gen Z, into the dramatically transforming world of business and medicine, we assessed the impact of their taking a professional ethics course. We incorporated two new measures: [1] two robust cognitive tools: personal value orientation preferences and level of principled moral reasoning, and, [2] comparing undergraduate business to undergraduate pharmacy students before and after completing a professional ethics course. Overall there was little significant change in the students' value orientations and principled moral reasoning after completing a professional ethics course, yet some important findings emerged when comparing business to pharmacy students.

Scholars have assessed the impact of a professional, specifically business, ethics course upon students for decades (e.g., Weber, 1990), but are generally hampered by not using valid or robust assessment measures. This research targets the emergence of the world's first digital-native generation, Gen Z, who are capable of dramatically transforming world of business and medicine, by assessing the impact of taking a professional ethics course. We improve on prior investigations by introducing two major additions: [1] using two robust cognitive tools: personal value orientation preferences and level of principled moral reasoning, and, [2] comparing undergraduate business students with pharmacy students before and after completing a professional ethics course. While some scholars found significantly positive influences from taking an ethics course (Brinkmann, et al., 2016; Sari, et al., 2021), others report no influence of this experience for students (Jewe, 2008; Tormo-Carbóa, et al., 2016). The lack of consistent findings furnishes the impetus for further exploration.

THEORETICAL FOUNDATION AND TESTABLE HYPOTHESES

Personal value orientations

Rokeach (1973) provides the theoretical foundation for personal values research. Values are what are important to us in our lives. Yet, a single value may be important to one person but unimportant or less important to another person. Scholars have found that values are deeply personal and individualistic, and that their importance may vary greatly across groups of people. Rokeach

constructed two distinctly separate lists of values – terminal or end-states of existence and instrumental or modes of conduct. Rokeach envisioned a value orientation model rather than a singular value being the impetus for an individual's decision or action. These values systems can be split into values with a personal or social orientation, or a competence or moral perspective, rendering four distinct value orientations: Personal-Competence, Social-Competence, Personal-Moral, and Social-Moral.

Cognitive moral reasoning

Traditionally scholars have depended upon the cognitive moral reasoning framework advanced by Kohlberg (1971). Kohlberg's model argues that as an individual matures, the individual develops enhanced cognitive skills which are used to reason through ethical dilemmas, resulting in a stage-based model. Kohlberg identified three levels of moral maturity: from preconventional to conventional to postconventional, with two stages within each stage. In our research, we seek to identify the percentage that our participants reply upon the principled level of moral reasoning, as opposed to pre-conventional or conventional levels of moral reasoning.

We offer the following testable hypotheses. *Hypothesis #1 and #2 – Business and Pharmacy students' value orientations will change toward a greater preference for social versus personal values and moral versus competence values, and their principled moral reasoning, or Pscores, will rise after completing their professional business ethics course.*

METHODS AND MATERIALS

Our research utilized an undergraduate Business and Pharmacy student populations from the same private university located in the eastern region of the United States. With 238 business students, the average age was 20.2 years, 138 males and 100 females, 107 had not taken the business ethics course and 130 had. From the pharmacy school, there were 341 participants, with an average age of 20.1 years, 138 were male and 203 were female, and 119 had not taken the professional pharmacy ethics course, whereas 222 had. We utilized two distinct instruments: the Rokeach Value Survey (Rokeach, 1973) and the Moral Reasoning Inventory (Weber & McGivern, 2010). In each school, undergraduate students were required to successfully complete an advance ethics course focusing on contemporary issues in business.

RESULTS, PRELIMINARY DISCUSSION AND LIMITATIONS

Centrally, we compared the two sample populations and found that both the business and pharmacy students demonstrated a strong preference for the personal versus social values and for the

competence versus moral values both before and after completing the professional ethics course, see Tables 1 and 2. Therefore, *no support for H1*.

Table 1 Business Students Value Preferences

Pre-course in Business Ethics versus Post-course in Business Ethics

	Competence	Moral	Total			Competence	Moral	Total
Personal	26(29%)	28(31%)	54(59%)		Personal	52(46%)	24(21%)	76(67%)
Social	21(23%)	16(18%)	37(41%)		Social	24(21%)	14(12%)	38(33%)
Total	47(52%)	44(49%)	91		Total	76(67%)	38(33%)	114

Business pre-course = X^2 = 3.29, p = .349; Business post-course = X^2 = 26.68, p < .00001***

Business pre- versus post-course = X^2 = 6.81, p = .078

Table 2 -Pharmacy Students Value Preferences

Pre-course in Business Ethics versus Post-course in Business Ethics

	Competence	Moral	Total			Competence	Moral	Total
Personal	36(36%)	23(23%)	59(59%)		Personal	82(37%)	51(23%)	133(61%)
Social	24(24%)	16(16%)	40(40%)		Social	60(27%)	26(12%)	86(39%)
Total	60(60%)	39(39%)	99		Total	142(65%)	77(35%)	219

Pharmacy pre-course=X^2 = 7.71, p=.05*; Pharmacy post-course = X^2=28.52, p < .00001***

Pharmacy pre- versus post-course = X^2 = 0.123, p = .746

Bus. v. Phar. pre-course = X^2=1.68, p=.642; Bus. v. Phar. post-course = X^2=2.62, p=.455

Our research also introduced a second measure: principled moral reasoning. We found an increase, but not significantly, for the business students' principled moral reasoning level for the ethical dilemmas, therefore *no statistical support* for *Hypothesis #2*, see Tables 3 and 4. Contrarily, the level of principled moral reasoning declined for the pharmacy students when considering their principled moral reasoning after the ethics course thus *not providing statistical support* for *Hypothesis #2.*

Table 3 - Business Students Cognitive Moral Reasoning

Principled Reasoning Pscores Pre- and Post-course in Business Ethics

N	Evelyn	Roger	Overall		N	Evelyn	Roger	Overall
108	.310	.290	.300		123	.320	.290	.305

Business pre- v. post-course – Evelyn = z = -0.163, p = .873; Roger = z = 0.0, p = 1.0; Overall = z = -0.082, p = .936

Table 4 - Pharmacy Students Cognitive Moral Reasoning

Principled Reasoning Pscores Pre- and Post-course in Business Ethics

N	Evelyn	Roger	Overall		N	Evelyn	Roger	Overall
118	.166	.201	.183		260	.157	.201	.179

Pharmacy pre- versus post-course – Frank = z = 0.221, p = .826; Sarah = z = 0.0, p = 1.0; Overall = z = -2.060, p = .039**

Bus. v. Phar. pre-course – Evelyn/Frank=z=-2.550, p=.011**; Roger/Sarah=z=-1.560, p=.118; Overall = z = -0.082, p = .936

Bus. v. Phar. post-Evelyn/Frank=z=-3.66, p=.0003***; Roger/Sarah =z=-1.93, p=.05*; Overall = z = -2.78, p = .005**

There appears to be a slightly positive impact for the business students and a negative impact after the pharmacy students after taking their professional ethics course. Overall, we must conclude from our results that *a single, advanced ethics course in the business or pharmacy school appears to be insufficient to significantly change the students' value orientation preferences or level of principled moral reasoning post course*. Possible explanations for our lack of significant findings include a number of plausible explanations.

We can only speculate but it is possible that other courses in business curricula, which tend to favor personal and competence values or seek to foster principled moral reasoning (Brown & Rubin, 2017; Nisula & Pekkola, 2018), appear to outweigh the counter influence possibly exerted by the business ethics course. This is an important finding when comparted to prior assessments of the impact of an ethics course which often [1] polls students immediately before and after completing the course and [2] often asks students about "their satisfaction with the course" (Reynolds and Dang, 2015) – as opposed to assessing if the course improved their decision-making skills.

It may also be important to note that the students in the post-course sample were approaching the end of their undergraduate careers and the opportunities for employment were quickly approaching. The students may be preoccupied with their immediate futures after graduation and securing employment in the business world. This attention to their emerging careers may explain the personal and competence value preferences or the lack of improvement in their principled moral reasoning.

Finally, the post-course profile of the business students typically included business internship experience, often multiple internships as they sought to secure employment after graduation. This situation also may have accentuated their value preference for personal and competence values, reflecting what was found in the business environment when analyzing the value orientations of managers (Harrison, 1981; Weber, 2017), or a lower level of moral reasoning as opposed to postconventional or principled reasoning (Weber, 1990, 1993).

Our research does have some limitations. First, only two decision-making skills were used in our assessment: value orientation preferences and principled moral reasoning. Certainly, there are other measures that can be applied to discover if a single professional ethics course impacts students' decision-making skill. Second, we also used only a single point in time – post-course – to assess any decision-making skill change. There may be other critical times where an assessment could be made, such as some period of time after the course was completed. Third, our research used a single institution for both the business and pharmacy student populations. While this brings the advantage

of comparability across the populations, there could be additional institutions used to measure the impact of the ethics course or provide a comparison to our discoveries.

Keywords: business ethics course, business students, pharmacy students, personal value orientations, cognitive moral reasoning

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EXPLORING HOW TOLERANCE OF AMBIGUITY RELATES TO CROSS-CULTURAL COMPETENCIES IN A JAPANESE MNEEXPLORING HOW TOLERANCE OF AMBIGUITY RELATES TO CROSS-CULTURAL COMPETENCIES IN A JAPANESE MNE

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ABSTRACT

MNEs' management and leadership in the world of volatility, uncertainty, complexity, and ambiguity (VUCA) need to be discussed more (Cavusgil *et al*., 2021; Van Tulder *et al*., 2020). Strategic institutional or functional levels of analysis on international organizations in a VUCA world have been made (see, Van Tulder *et al*., 2020; Hamid, 2019). Yet, research on the individual level of MNEs' employees has been relatively ignored except that of expatriates. MNEs' parent country nationals (PCNs) and host country nationals (HCNs) have increasing opportunities to experience ambiguous situations triggered by culturally different people inside and outside their organization; however, their cross-cultural experiences and behaviors still remain unknown sufficiently. Accordingly, the aim of the present study was to explore how parent and host country nationals' tolerance of ambiguity in cross-cultural situations relates to their cross-cultural competencies: particularly, building relationships, translation of complex information, and conflict management. These three competencies are considered to be important for cross-cultural learning and adaptation (Yamazaki and Toyama, 2022).

We collected data from a Japanese MNE. Its business line was to produce automobile parts in Japan and Indonesia. The total number of research participants was 508: 453 Japanese PCNs and 55 Indonesian HCNs. To examine tolerance of ambiguity in cross-cultural situations, the present study applied the modified version of the Revised Interpersonal Intolerance of Ambiguity Scale (Tomono and Hashimoto, 2005). Its Cronbach's alpha was 0.91 on the same sample of 508 employees. To assess three cross-cultural competencies, the study employed the Cross-Cultural Competency Scale (Yamazaki and Toyama, 2022). We conducted the scale investigation of the three-factor measurement model using the same sample by CFA. Results of the CFA indicated the fit indices fell within a mostly acceptable range (χ^2= 242, p < .001; GFI = 0.918; CFI = 0.969; NFI = 0.963; RMSEA = 0.098; SRMR = 0.026). Cronbach's alphas for building relationships, translation of complex information, and conflict management were 0.93, 0.93, and 0.94 respectively. Research ethics approval for this study was granted by the Faculty of Business Administration at the authors' university.

Before analyzing the relationships between tolerance of ambiguity and three cross-cultural competencies, we examined whether their perceived levels differed statistically between Japanese PCNs and Indonesian HCNs. Results of the independent t-test revealed that the mean scores of the four key variables of Japanese PCNs (i.e., tolerance of ambiguity, building relationships, translation of complex information, and conflict management) were significantly lower than those of Indonesian HCNs ($p < 0.01$). Accordingly, this study analyzed the relationships separately for the two national groups. By controlling three demographic variables of age, managerial positions, and overseas experiences, results of regression analysis on Japanese PCNs illustrated that the tolerance of ambiguity significantly affected all three cross-cultural competencies ($p < 0.01$). Consistently, results of the regression analysis on Indonesian HCNs revealed significant relationships between the tolerance of ambiguity and the three cross-cultural competencies ($p < 0.01$).

Our findings led us to conclude that the tolerance of ambiguity of both PCNs and HCNs in cross-cultural situations is a crucial factor to be focused for their talent development in three cross-cultural competencies: building relationships, translation of complex information, and conflict management. Future research should include other countries' employees of MNEs with different cross-cultural competencies that can be identified in the international business literature (see, Caligiuri *et al.*, 2019).

Keywords: Tolerance of ambiguity, cross-cultural competencies, international human resource management, Japanese employees, Indonesian employees, Japanese MNEs.

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ALGORITHMIC MANAGEMENT IN DATA-DRIVEN ORGANIZATIONS: ETHICS AND RESPONSIBILITY FOR EFFECTIVE CHANGE MANAGEMENT

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ABSTRACT

INTRODUCTION AND BACKGROUND

Data is crucial to the economies of the most advanced countries and their innovation processes (Loeillet, 2024). The incorporation of Big Data and Predictive Analytics technologies has often been associated with successful decision-making in organizational management, underscoring the significance of a data-driven approach (Akter et al, 2016). Data-driven management indeed enables objective decision-making based on data at all levels of a company, from upstream planning to downstream implementation of any activity. It refers to use of data to inform decision-making at both strategic and operational levels (Castaldo and Gatti, 2021). This approach differs from decision-making based on intuition, hunches, feelings, or other subjective perceptions of managers and/or entrepreneurs.

Many authors stress the importance of using data and analytics to inform business decisions, optimize performance, and identify growth opportunities. In the context of data-driven management, these authors describe the use of data within so-called 'data-driven organizations' to make informed, effective, and efficient decisions, resulting in superior business outcomes (Anderson, 2015; Basukie et al., 2020; Schneider et al., 2023).

Related concepts to data-driven management include 'data-driven organization', 'data-driven culture', and 'data-driven innovation'.

Data-driven organizations base their decision-making processes on robust data processing, which becomes a strategic asset for improving performance and gaining a competitive advantage (Anderson, 2015). In a hyperdynamic and ultracomplex scenario (Volpe and Castaldo, 2021; Zanda and Castaldo, 2023), companies developing data-driven business models require flexibility, adaptability, timeliness, and resilience to succeed (Castaldo and Gatti, 2019; Castaldo, 2021).

A data-driven culture is integral to a data-driven organization. This culture involves using data to support business objectives, enabling employees at all levels to inform their work with data analysis, resulting in better outcomes and greater efficiency (Datnow and Park, 2014).

Data-driven innovation then refers to identifying and creating new business opportunities through the exploitation of data and analytics (Zanda et al., 2022). The process involves using insights gained from data analysis to identify market trends, customer needs, and emerging potential. This can lead to the development of new products, services, business models, and improvements to existing offerings (Zanda, 2018).

The above-mentioned language emphasizes the importance of data as a strategic resource to improve decision-making, optimize performance and foster a culture that values data-driven insights in support of business objectives (Datnow and Park, 2014).

The term 'algorithmic management' refers more properly to the use of algorithms and digital technologies to make managerial decisions within an organization (Basukie et al., 2020; (Jabagi et al., 2020; Schneider et al., 2023). These tools can optimize decision-making processes in strategic planning, personnel selection and management, performance evaluation, and more (Heinrich et al., 2022; Jarrahi et al., 2021).

Algorithms can analyze large amounts of data to identify scenarios, trends, patterns, and opportunities (Castaldo, 2020b). This can guide managerial decisions and automate decision-making in different domains, enabling more efficient and faster decision-making. Moreover, organizations are increasingly turning to analytics utilizing complex data sets to effectively manage organizational change, highlighting the shift towards data-driven management practices (Hurbean et al., 2023; Jarrahi et al, 2021). The use of these tools can help reduce human bias and increase decision objectivity. However, algorithms can also be used to tailor managerial decisions to the specific preferences of individuals or groups within an organization (Loeillet, 2024; Nagle et al, 2017). Therefore, the use of algorithms in decision-making raises important quality, legal and ethical issues (Castaldo, 2020a; Martin, 2019; Nagle et al, 2017). These include the transparency of decisions, accountability for automated decisions, and the protection of data privacy (Schildt, 2017; Trentesaux and Karnouskos, 2022). In the case of automated decisions made by algorithms, it is therefore crucial to maintain human supervision and control to ensure that the decisions made are ethical, fair, balanced, non-discriminatory, and aligned with the objectives of the data-driven organization (Castaldo, 2020a; Coeckelbergh, 2020; Lee, 2018).

Although algorithmic management offers undeniable advantages in terms of efficient decision-making, its employment requires careful change management within the organization (Castaldo, 2022; Martin, 2019). Its implementation must cover personnel training and change management (Kotter, 2009), compliance with regulations and laws, data privacy (Schildt, 2017; Trentesaux and Karnouskos,

2022) decision transparency and accountability (Adensamer et al., 2021), security and cybersecurity (Castaldo, 2021), ethical considerations (Coeckelbergh, 2020) and potential social, economic, and environmental impacts. This includes, *inter alia*, minimizing resource usage and the carbon footprint associated with digital systems.

OBJECTIVES

The aim of this research is to provide a theoretical examination of algorithmic management in data-driven organizations and an empirical investigation of its actual efficiency, effectiveness, and fairness, also for responsible change management.

To this end, an in-depth analysis will be conducted with the top management of selected large companies and/or data-driven organizations operating globally.

METHODOLOGY

To address the research question of whether algorithmic management is indeed based on efficiency, effectiveness and fairness, a qualitative approach will be employed, based on 30 semi-structured interviews conducted with a selected sample of top managers of innovative large companies and/or leaders of data-driven organizations.

Once collected, analyzed, and compared to similar research and the extant literature on algorithmic management and innovative data-driven organizations, the respondents' data will be employed to generate a model proposal suitable for future, broader research. Any gaps or inconsistencies in the existing literature will be duly analyzed and filled in.

EXPECTED RESULTS

Given the exploratory nature of the study, the findings are only marginally speculative. Nevertheless, the expected results are in the direction of a divergence of opinion on the fairness of algorithmic management, while there should be a greater degree of consensus on the effectiveness and efficiency of such management.

IMPLICATIONS

The proposed study, which aims to make an important theoretical and practical contribution, is expected to have an impact at both theoretical and practical levels. The main implications will be managerial and organizational for large companies, while to a lesser extent and by extension, the results could provide interesting insights for smaller companies and, in a broader sense, for decision makers of all kinds of complex organizations (such as public or non-profit organizations, administrative bodies, political entities).

LIMITATIONS

Given the exploratory nature of the research, the main limitation is the low representativeness of the results on the universe of global large companies. However, future and broader research is hoped to overcome this limitation, particularly by evaluating the conceptual soundness and accuracy of the proposed model.

Keywords: data-driven organizations, algorithmic management, organizational change, change management, innovation, culture, ethics, responsibility

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INVESTIGATING THE FACTORS DRIVING THE AVOIDANCE OF SECONDARY PROPHYLAXIS PROGRAMS: A CASE STUDY FROM LITHUANIA

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ABSTRACT

This study investigates the complex reasons behind the avoidance of secondary prophylaxis programs in Lithuania. Despite the known benefits of these programs in preventing the progression of non-communicable diseases (NCDs), participation rates remain low. The statistical analysis reveals that approximately 40 % of the target group population is actively participating in preventative programs. Our research identifies multifaceted factors, including psychological barriers, systemic inefficiencies, and sociocultural influences that deter individuals from engaging with these health services.
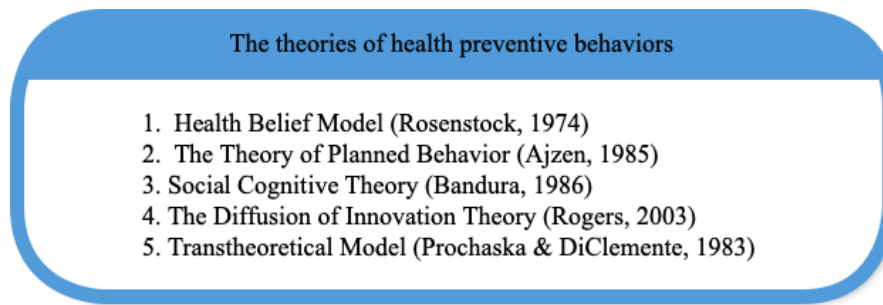
INTRODUCTION

Secondary prophylaxis programs play a significant role in public health by preventing disease progression among those diagnosed with NCDs, which contribute to over 74% of global deaths (WHO, 2023). These programs, through early detection and management of conditions like hypertension and cancer, aim to understate the impact of NCDs, lowering untimely mortality, and reducing overall healthcare costs (Li et al., 2014). However, the success of preventative programs relies on effective access, public awareness, and patient engagement. Barriers such as lack of awareness and systemic inefficiencies need to be eliminated to increase the program participation (Donohue et al., 2023). Despite efforts in Lithuania, participation remains low, emphasizing a need for enhanced engagement strategies.

THEORETICAL BACKGROUND

Literature highlights a range of factors affecting health program participation, including fear of diagnosis (Vrinten et al., 2017), lack of awareness (Mphande, 2016; Mosca, 2005), and distrust in healthcare systems (Green & Thorogood, 2018). Integrating these perspectives provides a comprehensive understanding essential for addressing the gaps in the usage of secondary prophylaxis

programs. The text synthesizes five foundational theories (Picture 1), explaining health preventive behaviors and their application in understanding participation in secondary prophylaxis programs.

The theories of health preventive behaviors

1. Health Belief Model (Rosenstock, 1974)
2. The Theory of Planned Behavior (Ajzen, 1985)
3. Social Cognitive Theory (Bandura, 1986)
4. The Diffusion of Innovation Theory (Rogers, 2003)
5. Transtheoretical Model (Prochaska & DiClemente, 1983)

Picture 1. The theories of health preventive behaviors. Created by authors

Collectively, these theories offer a comprehensive view on motivating factors for participation in health programs, emphasizing the need to consider personal, cognitive, and social dimensions in intervention design. These theories may help to identify and understand the multifaceted effects on health behavior related to secondary prophylaxis program participation.

METHODOLOGY

A qualitative case study approach was adopted, employing semi-structured interviews with 16 participants who are involved in policy formation and performance, the supply of the health care services and participating in secondary prophylaxis programs within Lithuania. Purposive respondents sampling ensured a diversity of experiences and perspectives. Data were analyzed using thematic analysis (Braun & Clarke, 2006), applying principles of open and axial coding to identify emergent themes, that could be grouped to categories and subcategories, followed by selective coding to refine the understanding of core issues.

RESULTS

Our findings detect several key causes behind program avoidance:

1. *Psychological Barriers.* Fear of a confirmed diagnosis emerged as a significant deterrent, consistent with (Durazo, 2019) findings.

2. *Systemic Inefficiencies.* Participants cited long waiting times and procedural complexities (McIntyre et al. 2020) as critical barriers to their engagement with health services.

3. *Sociocultural Influences.* Societal stigma and cultural perceptions around disease were also identified as factors discouraging participation (Stangl, 2019).

4. *Knowledge and Awareness Gap.* A general lack of targeted information on the importance of secondary prophylaxis was evident, highlighting a disconnect in communication strategies (Green & Thorogood, 2018).

CONCLUSION

The avoidance of secondary prophylaxis programs in Lithuania is influenced by a several factors related to psychological, systemic, and cultural domains. Addressing these issues requires a complex approach, including enhancing patient education, streamlining healthcare processes, and culturally sensitive communication strategies. Future interventions should consider these diverse barriers to improve participation rates and, eventually, public health outcomes.

Keywords: Secondary prophylaxis, non-communicable diseases, health behavior, program participation.

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THE STARUP DILEMMA OF MARKET EXPANSION

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ABSTRACT

BACKGROUND

In the dynamic landscape of startups, the strategic decision regarding the pace of international market expansion remains a crucial dilemma. Entrepreneurs often grapple with the choice between rapid entry into multiple markets and a more cautious approach that allows for thorough analysis and confidence-building in new territories. While this dilemma intersects with the overarching goal of achieving growth versus prioritizing profits, they are not synonymous. Growth can sometimes be attained by focusing efforts on a select few markets rather than spreading resources thinly across expansions. However, for innovative companies with entrepreneurial spirit, international market expansion represents a significant avenue for growth. Recent shifts in the global economic climate have underscore the importance of profitability for startup investors, intensifying the strategic discourse within the startup ecosystem. This trend is particularly pronounced in the realm of Software as a Service (SAAS), where rapid growth is often perceived as essential for survival.

PURPOSE

The paper seeks to delve into the multifaceted considerations than influence the decision-making process regarding the rate of market expansion. Building upon existing literature, it takes into account contemporary developments in investment trends and economic landscape.

FINDINGS

Three relevant areas and nine factors for the market expansion issue were identified:

1. **Marketing considerations:**

   Nature of the product: The type of product being offered by the startup plays an important role in determining the optimal pace of market expansion. The product complexity, newness and digital options are key factors. Different products may require varying ways of testing, adaptation to local preferences, delivery opportunities and infrastructure support.

   Response function dynamics: There are at least two very different response functions to new product introductions. Factors such as satisfaction of existing demand, costs of buying and product use and competitive availability affect customer's response. The expansion strategy

would be greatly influenced by the nature of the expected response and the likelihood of success at different rates.

Competitive lead time: The speed at which competitors are likely to respond to the startup can impact market expansion. A usual goal is to establish a solid pioneering position in many markets prior to competitive entry.

2. **Investment considerations:**

Financial position of the firm: Many startups have financial needs beyond their available resources. The need to raise additional capital is frequently a major consideration affecting all strategic decision including market expansion.

Investment availability: the ease of raising funds from venture capital firms, and other sources, is influenced by ups and downs of economic expectation. When investment availability is high a startup firm can normally assume more risks of fast market expansion.

Funding requirements: Is profit or growth more important to get funded? The investors' expectations tend to change over time. When profit becomes a more critical criterion, the rate of market expansion is likely to be affected.

3. **Management considerations:**

Management objectives: The strategic goals and priorities of the startup's management team influence all key decisions including market expansion. The need for control, prior experience, the desire for a pioneering impact and the importance of early profitability will influence expansion decisions.

Risk tolerance: Management appetite for risk affects the willingness to pursue aggressive market expansion strategies. Startups need to balance the potential rewards of rapid growth with the associated risks, including financial, operational and reputational risks.

Management cohesion: Aggressive market expansion requires agreement by members of the management team about objectives and strategy, especially with regard to the time horizon and risk taking. When cohesion within the management team is lacking it is difficult to employ a bold strategy.

CONTRIBUTION

These key findings highlight the multifaceted nature of the market expansion dilemma faced by startups. The paper emphasizes the importance of considering various factors, including marketing dynamics, investment requirements and management priorities. By understanding and addressing these factors, startups cam make informed decisions and navigate the complexities of market expansion more effectively.

Keywords: Startup, Market Expansion, Growth, SAAS, Profit, Investment. International.

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PROMOTING CORPORATE SOCIAL RESPONSIBILITY: THE IMPACT OF ENVIRONMENTAL DISCLOSURES ON GENERATION Z'S PURCHASE INTENTIONS—A SHEIN CASE STUDY

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ABSTRACT

The e-commerce fast fashion industry, encouraging over consumption of ever-changing cheap fashion items is one of the most growing e-commerce sectors in the world. Alongside the growth of the fashion industry, a major critical debate regarding its societal and environmental damages is affecting the industry (Quiles-Soler et al., 2023). The starting point of the current study is that pro-environmental behavior may be manifested not only by enhancing the purchase intention (PI) of sustainable fashion brands, but also by reducing the purchase intention of unsustainable fast fashion brands such as SHEIN. Extensive research focused on promoting sustainable behavior by introducing positive information about sustainable brands has revealed an attitude-behavior gap. However, only a few studies have assessed the effectiveness of information about the *negative* social and environmental impact of non-sustainable brands on attitudes and behaviors (Connell and Kozar, 2012).

The current research focuses on generation Z consumers, who were born between 1995 and 2010 and have grown up amid climate change concerns and are considered to be the most environmentally conscious generation from the one side (Walker, 2021) and one of the main target audiences of SHEIN from the other side. The Gen Z relationship with fashion was already described as complicated – a desire for sustainable fashion on the one hand and enjoying excessive clothes shopping on the other (Lissitsa and Kol, 2021). As the knowledge of consumers plays a direct role in their attitudes as well as behavior intentions, the study purpose is to understand whether providing SHEIN's consumers negative information about social and environmental impact of the brand affects their purchase intention and which consumers' values are related to the decrease in it.

This study is based on an online survey among 607 Gen Z SHEIN consumers, born between 1995-2003, aged 18-26. The questionnaire was presented in the following order: 1) respondents were asked about their attitudes toward the brand SHEIN, purchase intention and purchase behavior regarding SHEIN, materialistic motivations to buy fashion and objective knowledge about environmental issues in the fashion industry, and ascription of responsibility for sustainability; 2) the respondents were provided with information about the extremely low sustainability of SHEIN addressing use of polluting

chemicals, poor working conditions, and air pollution through product distribution around the world; 3) the respondents were asked about feelings of deception, attitudes toward SHEIN and PI (the same items as before the information was provided).

The descriptive statistics show that respondents reported high initial PI of SHEIN products (M=5.53, scale 1-7), which decreased (M=4.06, SD=1.88) significantly after receiving environmental information (t(606)=23.6, p<0.01). The attitudes toward SHEIN before receiving environmental information were relatively positive (M=5.42, scale 1-7) but decreased significantly (M=3.62) after exposure to environmental information (t(606)=31.1, p<0.01). The respondents reported a moderate feeling of deception (M=4.33, scale 1-7). Objective knowledge of sustainability of fast fashion was relatively low (M= 2.26 scale 0-6). Consumer materialistic motivations to buy fashion were medium-low (M=3.56, SD=1.56), while consumer ascription of responsibility for fashion sustainability was medium (M=4.32, scale 1-7). Multivariate analysis indicates that the gap in purchase intention before and after providing negative environmental information is only explained by a decrease in positive attitudes toward SHEIN and by feelings of deception after exposure to negative information. The association between other independent variables derived from the generational identity of Generation Z: objective knowledge on online fashion, ascription of responsibility and materialistic motivations and the gap in purchase intention were insignificant.

Exploring the complex domain of Generation Z's perceptions, our study reveals nuances and unexpected dynamics in terms of attitudes, purchase intentions, and materialistic tendencies among SHEIN consumers which challenge prevailing assumptions and strongly suggest a reevaluation of generational stereotypes. Contrary to expectations, "digital natives" Gen Z displayed limited knowledge of fashion's environmental impact. Exposure to negative environmental information surprisingly led to a decline in both attitudes and PI for SHEIN, challenging the conventional attitude-behavior gap seen in sustainable brands and emphasizing the importance of accurate communication from independent sources in ethical decision-making

Insights into the attitudes and behaviors among SHEIN consumers can help policy makers and marketers promote the adoption of sustainable-oriented attitudes and ethical behaviors by reducing the purchase of non-sustainable brands. To enhance Corporate Social Responsibility, companies should prioritize transparent and honest communication about their sustainability efforts, making sure consumers are well-informed about the environmental impact of their purchases. Engaging in ethical marketing strategies that inspire and motivate rather than exploit consumer fears can lead to a more positive brand perception and drive sustainable purchasing behaviors. Companies should also

explore product lifecycle management initiatives, such as recycling or upcycling programs, to reduce waste and encourage consumers to participate in sustainability practices. Finally, exceeding legislative compliance by adopting higher environmental standards can set a brand apart as a promoter of corporate responsibility, aligning with the values of environmentally conscious consumers, especially those from Generation Z.

Keywords: sustainable consumption, Generation Z, fashion, environmental information, environmental knowledge, sustainability

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ADVERTISING IN TIMES OF CRISIS: COMPARING STRATEGIES AND CONSUMER RESPONSES BETWEEN WARTIME AND ROUTINE CONDITIONS

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ABSTRACT

This paper investigates the impact of advertising strategies on consumer attitudes toward ads and brands during periods of crisis. It focuses on comparative analyses of routine and wartime contexts. By analyzing TV commercials and conducting surveys across two distinct periods, the study reveals significant shifts in advertising content and consumer responses. Results indicate that during wartime, ads adopted altruistic and informational appeals, emphasizing empathy and brand contribution to consumer well-being. This leads to perceived excitement and credibility with increased brand recognition and brand trust. In contrast, routine time ads prioritize individualistic and transformational appeals, focusing on enjoyment and future aspirations. The findings align with the Response Advertising to National Crises approach, highlighting the importance of sincere messaging in reducing consumer uncertainty and perceived risk during crises. The study underscores the significance of brands demonstrating crisis awareness and commitment to consumer welfare. It offers valuable insights for advertisers navigating turbulent times.

Keywords: Response advertising to national crises; Cause-Related Marketing; TV commercials; Effectiveness; Attitude toward the ad; Attitude toward the brand; Informational appeal; Transformational appeal; Altruistic message; Individualistic message.