ICEM

International Conference on
Entrepreneurial Motivation

Entrepreneurship 360°:

Driving Sustainable Change

Third edition published by RESOCEM – Research Society on Entrepreneurial Motivation, 2023

ISBN: 978-84-09-54507-0

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COLLABORATIVE NETWORKS AND OPEN INNOVATION. THE ROLE OF TECHNOLOGY CENTRES

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Abstract

Introduction

In the following paper we will analyze the technology centers role in innovation systems, understood as the set of elements that interact to promote new technological developments and, in addition, link the agents that carry out these processes de facto with those that deal with economic development and the transformation of a territory to make it more competitive (Lundvall, 2007).

Firstly, we will analyse how the entities of the innovation systems create collaboration networks to enable technology transfer to companies, from the legislative and executive perspectives of the public administration, together with the point of view of the different entitites that participate in these systems, including the figure of the technology centre, which will be the central focus of this thesis.

Secondly, this paper will examine the concept of open innovation, which has been extensively discussed in the literature due to its dual nature: necessary to ensure trust-building among the agents involved in innovation systems and a challenge to ensuring adequate levels of specialization and privacy in technological developments of companies.

Finally, it will be analized the role of technology centers in the health sector and their interrelation with the open innovation developed in collaborative networks.

This research seeks to answer various questions concerning the cooperation between agents within distinct innovation systems, as well as the impact of open innovation on technological advancements within the health industry.

To achieve this objective, case studies from Spain, Germany, Finland, Portugal, and Singapore will be analyzed from a strategic, relational, and organizational perspective. Their positioning within the collaborative networks they participate in and how they manage open innovation will also be evaluated. The focus will be on the health and social sector.

Based on the results obtained in the research, possible future action scenarios will be proposed related to the way open innovation is managed by technology centers and how this management can influence R&D&I in the healthcare field.

Conceptual framework

National and regional innovation systems are essential for ensuring the economic, political, and social progress of territories considering today's economic globalization (Freeman, 1995).

SMEs play a key role in world economies but there is a technology gap between the scientific-technological and productive spheres.

The technology centre, as an intermediary for innovation, engages in the technical and innovative progress of those SMEs. Additionally, it stimulates other agents to generate R&D&I. (Mas Verdú, 2021).

Strategic alliances are formed for R&D&I development while networks are used to connect associated companies and clients with external agents. Technology centres are bridges in these connections. In their intermediary capacity, they enable the acquisition of competitive capabilities through the compilation and dissemination of knowledge (Molina and Mas-Verdú, 2008) and the generation of search economies by upholding an extensive network of links (Molina-Morales, 2005). (Page 157).

It is noteworthy to consider the distinct and innovative specializations of various regions, owing partly to their unique characteristics such as the productive fabric, clustering, and entities that comprise their ecosystem. Additionally, there are several hurdles to innovation that exist. (Todtling and Trippl, 2005). With technological advancements and innovation becoming increasingly intricate, ‘the innovation systems' agents establish interrelationships to find collective solutions to region-specific problems. These challenges require a reliance on supportive entities that can facilitate trust, constructive dialogue, and generate institutional cooperation agreements (Zurbriggen, 2017).

Regional innovation systems, which bring together various entities (technology centres, public research organisations, universities, public administration and companies), maintain diverse collaborative networks. These networks are dependent on institutional, social, and economic contexts, and aim to reinforce the R&D&I system and enhance the region's competitiveness (Cooke et al., 1997).

The networks functions as information hubs, enablers, and integrators of the capacities of their constituent entities. This approach fosters the creation of constructive partnerships to enhance their high-level services.

In this networks knowledge is cogenerated, giving support to the public administration and building a unique argument in favour of decision making (Zurbriggen, 2017).

Within these collaborative networks, the concept of open innovation, as outlined by Chesbrough (2003), has become an increasingly prevalent element in their innovation processes. This is due to the mutual enrichment generated through the exchange of knowledge amongst the various entities within the network. This text already adheres to the principles and lacks context. (Valkokari, Paasi and Luoma, 2009), (Doctoral thesis "Open innovation in technology centers and its effect on performance" by Ramón Uribe-Echeberria Aranzabal).

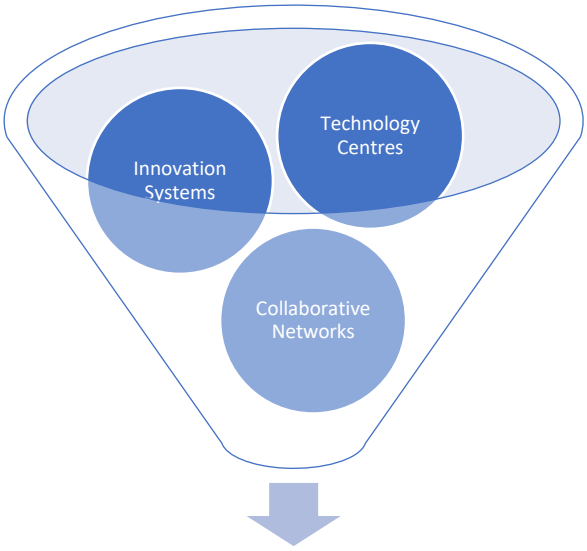
The PhD thesis will be conducted on three fronts, with the aim of providing a comprehensive analysis:

Firstly, with a systematic analysis of the current literature pertaining to technology centres and their involvement in establishing, developing, and expanding partnerships with other entities, as well as investigating the effects of open innovation on them. Furthermore, the analysis will extend to the management of open science and innovation within the European Union.

Secondly, will explore the FAIR Guiding Principles for scientific data management and stewardship, which were developed by the European Union. These principles include the concept of being "as open as possible, as closed as necessary," among others. We will also analyse how European technology centres position themselves with regards to managing open innovation beyond the R&D&I collaborative network.

Thirdly, this paper will conduct a detailed examination of open innovation within the healthcare industry, with an emphasis on its implications and potential benefits.

In this sense, the thesis will adopt the following work plan.



Case studies: open innovation in the health sector

Methodology:

- Bibliometric analysis by searching for bibliographic references in specialized journals related to technology centers, innovation systems and their recent developments, collaborative networks as working tools for implementing open innovation, and the impact of open innovation on the healthcare industry.
- Case studies: Semi-structured interviews with:
    - **Innovation systems - technology centres - collaborative networks – open innovation:** this block will analyse the function of technology centres as members of collaborative knowledge-generating networks and as innovation intermediaries, supplying technological solutions to businesses in a particular region or nation:
        - Interviews with technology centres such as Fraunhofer (Germany) and VTT (Finland) to analyze their interrelation with other agents in their innovation systems.
        - Interviews with R&D&I public organizations to gain insight into their innovation systems and gather information on co-creation tools for generating collaborative networks. National Innovation Agency of Portugal, ANI (Portugal); A*Star, Agency for Science, Technology and Research (Singapore).

- Interviews with collaborative technology center networks: European Association of Technology Centers, EARTO (Europe); Spanish Federation of Technology Centers, FEDIT (Spain) and Network of Technological Institutes of the Valencian Community, REDIT (Valencian Community).

- **Collaborative networks - open innovation - health sector:** This section will analyse networking within the health sector, considering its unique characteristics and how open innovation is managed through collaboration between a technology centre, the respective healthcare entity, and the businesses undertaking the innovation challenge. Meetings will be held with the leaders of:
  - Strategic project for economic recovery and transformation, "PERTE for cutting-edge health", approved in the Council of Ministers on November 30, 2021.
  - Cervera Network Program, strategic programs of research, development and innovation in cooperation, developed by Technological Centers and/or Support Centers for Technological Innovation at state level, focused on priority technologies related to the health sector.
  - Instituto de Investigación Sanitaria IIS La FE and Instituto de Investigación Sanitaria y Biomédica de Alicante, ISABIAL.

- Application of qualitative statistical techniques.

Expected results:

The thesis could potentially serve as an added tool for interpreting the role of technology centres within collaborative networks, as well as aiding the health sector in enhancing their understanding of open innovation as a valuable element in technological advancements, without compromising business competitiveness.

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Keywords: collaborative networks; open innovation; technology centres; health sector

Resumen

Introducción

En el siguiente trabajo analizaremos el papel de los centros tecnológicos en los sistemas de innovación, entendidos como el conjunto de elementos que interactúan para promover nuevos desarrollos tecnológicos y, además, vinculan a los agentes que llevan a cabo estos procesos de facto con los que se ocupan del desarrollo económico y la transformación de un territorio para hacerlo más competitivo (Lundvall, 2007).

En primer lugar, analizaremos cómo las entidades de los sistemas de innovación crean redes colaborativas para la transferencia tecnológica a empresas, incluyendo la figura del centro tecnológico, que será el eje central de esta tesis.

En segundo lugar, se examinará el concepto de innovación abierta, ampliamente discutido en la literatura debido a su doble naturaleza: necesaria para asegurar la generación de confianza en los sistemas de innovación y un reto para asegurar la especialización y privacidad en los desarrollos tecnológicos de las empresas.

Finalmente, se analizará el papel de los centros tecnológicos en el sector sanitario y su interrelación con la innovación abierta desarrollada en redes colaborativas.

Esta investigación pretende dar respuesta a diversas cuestiones relativas a la cooperación entre agentes en los sistemas de innovación, así como al impacto de la innovación abierta en los avances tecnológicos dentro de la industria sanitaria.

Para lograr este objetivo, se analizarán casos prácticos de centros tecnológicos en Europa (perspectiva estratégica, relacional y organizativa) y se evaluará su posicionamiento dentro de las redes colaborativas en las que participan y cómo gestionan la innovación abierta. La atención se centrará en el sector sanitario y social.

Marco conceptual

Los sistemas nacionales y regionales de innovación son esenciales para garantizar el progreso económico, político y social de los territorios teniendo en cuenta la globalización económica actual (Freeman, 1995).

Las PYME desempeñan un papel clave en las economías mundiales y el centro tecnológico, como intermediario para la innovación, participa en el progreso técnico e innovador de esas PYME. Además, estimula a otros agentes a generar I+D+i. (Mas Verdú, 2021).

Las alianzas estratégicas generan I+D+i y las redes se utilizan para conectar a las empresas asociadas y clientes con agentes externos. Los centros tecnológicos son puentes en estas conexiones, permiten la adquisición de capacidades competitivas (Molina y Mas-Verdú, 2008) y generan economías de búsqueda al mantener una extensa red de vínculos (Molina-Morales, 2005). (Página 157).

Existe especialización en las distintas regiones, debido en parte a sus tejidos productivos, la clusterización y las entidades que conforman su ecosistema. Además, existen diversos obstáculos a la innovación. (Todtling y Trippl, 2005). Los agentes de "los sistemas de innovación" establecen interrelaciones para encontrar soluciones colectivas a los problemas específicos de cada región. Estos retos requieren contar con entidades de apoyo que puedan facilitar la confianza, el diálogo constructivo y la cooperación institucional (Zurbriggen, 2017).

Los sistemas regionales de innovación mantienen diversas redes colaborativas. Estas redes dependen de contextos institucionales, sociales y económicos. Su objetivo es reforzar el sistema de I+D+i y mejorar la competitividad de la región (Cooke et al., 1997).

Las redes funcionan como centros de información, facilitadores e integradores de las capacidades de las entidades que las componen. En estas redes se cogenera conocimiento, dando soporte a la administración pública y construyendo un argumento único a favor de la toma de decisiones (Zurbriggen, 2017).

En esas redes colaborativas, se introduce el concepto de innovación abierta (Chesbrough 2003), como elemento cada vez más habitual en sus procesos de innovación. Se genera intercambio del conocimiento de las diferentes entidades que componen dichas redes y lo ponen a disposición de la misma para la generación de la I+D+i que dará respuesta a necesidades de otros agentes externos a nivel global. (Valkokari, Paasi y Luoma, 2009), (Tesis doctoral “La

innovación abierta en los centros tecnológicos y su efecto en el desempeño" de Ramón Uribe-Echeberria Aranzabal).

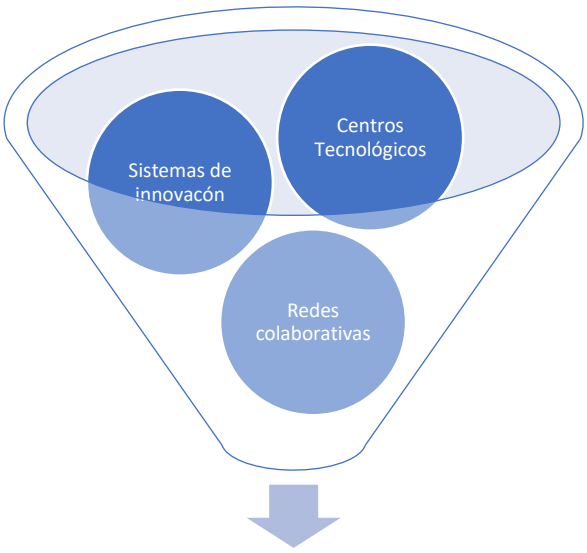
La tesis doctoral se desarrollará en tres frentes:

En primer lugar, con un análisis sistemático de la literatura actual relativa a los centros tecnológicos y su implicación en el desarrollo de alianzas con otras entidades, así como la investigación de los efectos de la innovación abierta en los mismos. Además, el análisis se extenderá a la gestión de la ciencia y la innovación abiertas dentro de la Unión Europea.

En segundo lugar, se abordarán principios acuñados por la Unión Europea como los *FAIR Guiding Principles for scientific data management and stewardship,* siendo la A de esas siglas el principio *"as open as possible, as closed as necessary",* entre otros. También se analizará cómo se posicionan los centros tecnológicos europeos respecto a la gestión de la innovación abierta más allá de la red colaborativa de I+D+i.

En tercer lugar, este trabajo realizará un examen detallado de la innovación abierta en el sector sanitario, haciendo hincapié en sus implicaciones y beneficios potenciales.

En este sentido, la tesis adoptará el siguiente plan de trabajo.



Metodología:

- Análisis bibliométrico, mediante la búsqueda de referencias bibliográficas en revistas especializadas en campos relacionados con la figura de los centros tecnológicos, los sistemas de innovación, las redes colaborativas como herramientas de trabajo para la puesta en funcionamiento de la innovación abierta y la repercusión en el sector salud.
- Casos de estudio: a través de entrevistas semiestructuradas atendiendo a diferentes perfiles y naturaleza de organismos y/o entidades:
    - **Sistemas de innovación – centros tecnológicos – redes colaborativas – innovación abierta**: análisis del papel de los centros tecnológicos como miembros de las redes colaborativas generadoras de conocimiento y como intermediarios de innovación que aportan soluciones a las empresas de una región determinada, revisando el rol desempeñado en los sistemas de innovación correspondientes:
        - Entrevistas a centros tecnológicos: Fraunhofer (Alemania) y VTT (Finlandia) ¿Cómo se interrelacionan con los demás agentes de sus sistemas de innovación?
        - Entrevistas a organismos públicos que gestionan la I+D+i en sus países de origen para disponer de información acerca de las herramientas de co-creación a través de las cuales se permite la generación de redes colaborativas: Agencia Nacional de Innovación, ANI (Portugal); A*Star, *Agency for Science, Technology and Research,* (Singapur);.
        - Entrevistas a redes colaborativas de centros tecnológicos para analizar los diferentes posicionamientos en relación con varias cuestiones, entre las cuales, se abordará la innovación abierta: Asociación Europea de centros tecnológicos, EARTO (Europa); Federación Española de centros tecnológicos, FEDIT (España) y Red de institutos tecnológicos de la Comunidad Valenciana, REDIT (Comunidad Valenciana).
    - **Redes colaborativas – innovación abierta – sector salud**: se analizará el trabajo en red en el sector salud y cómo se gestiona la innovación abierta desde el punto de vista de la colaboración entre un centro tecnológico, la entidad sanitaria correspondiente y las empresas que asumen el reto de innovar. Para ello se mantendrán encuentros con los responsables de los siguientes proyectos y fundaciones hospitalarias:

- Proyecto estratégico para la recuperación y transformación económica, "PERTE para la salud de vanguardia", aprobado **en el Consejo de ministros del 30 de noviembre de 2021**
- **Programa Red Cervera,** programas estratégicos de investigación, desarrollo e innovación en cooperación, desarrollados por Centros Tecnológicos y/o Centros de Apoyo a la Innovación Tecnológica de ámbito estatal, centrado en las tecnologías prioritarias relacionadas con el sector salud
- Instituto de Investigación Sanitaria IIS La FE e Instituto de Investigación Sanitaria y Biomédica de Alicante, ISABIAL.

- Aplicación de técnicas estadísticas cualitativas

Resultados esperados:

La tesis podría potencialmente servir como herramienta adicional para interpretar el papel de los centros tecnológicos dentro de las redes colaborativas, así como ayudar al sector sanitario a mejorar su comprensión de la innovación abierta como un elemento valioso en los avances tecnológicos, sin comprometer la competitividad empresarial.

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Palabras clave: redes colaborativas; innovación abierta; centros tecnológicos; sector salud

COLLABORATION FOR SUSTAINABLE SOCIAL ENTREPRENEURSHIP ORGANISATIONS.

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Abstract

In response to the increasingly complex and wicked social problems that challenge the traditional boundaries of the public, private, and non-profit sectors, many organisations have embraced social entrepreneurship (Kosmynin, 2021). These Social Entrepreneurship Organizations (SEO) have emerged as dynamic change agents, redefining our society's problem-solving landscape. This means SEO is the set of organisational forms where the dual-mission activities of social entrepreneurship are present, it means social goals and commercial activities, so organizations include social enterprises, social ventures, community enterprises, cooperatives, and social businesses (Kosmynin, 2021).

The significance of collaborating with and among SEO has garnered widespread attention, as it opens doors to a rich array of resources, knowledge, legitimacy, networks, and stakeholders, all of which are indispensable for achieving meaningful social impact. This collaborative approach empowers SEO and enables them to surmount institutional barriers, unlock synergies, harness complementarities, and catalyse collective action (Montgomery et al., 2012; Bruin et al., 2017; Fridhi, 2021).

Moreover, the United Nations' Sustainable Development Goals (SDGs) emphasise the pivotal role of collaboration in driving progress towards global betterment. Specifically, Goal 17, titled 'Partnerships to achieve the goals,' underscores collaboration as one of the principal vehicles to realise these objectives. This not only includes fostering collaboration among diverse stakeholders but also extends to the crucial collaboration with and between social enterprises, highlighting the interconnectedness of our efforts in building a more equitable and sustainable world.

Our central inquiry explores how the interplay between collaboration and Social Entrepreneurship (SE) has been examined in existing literature. The methodological process is divided into two parts: On the one hand, a literature search was carried out in the Web of Sciences (WoS) and Scopus database, with the search equation ("social entrepreneurship" OR "social enterprises") AND (collaboration OR cooperation), for a time range of 2003 - 2023. 349 publications were identified. On the other hand, to refine the search, the analysis of this number of publications was performed using the Tree of Science (ToS) tool, which uses graph theory to recommend the most relevant articles with respect to their position in the citation graph (Zuluaga, M., et al; 2022). As a result, 107 articles have been identified, 10 articles for the root, 37 for trunk and 60 for the leaves. From this curated dataset, we meticulously selected 44 articles, employing a set of well-defined criteria as a) ToS Result, b) Clusterization, c) Thematic

Linkage, d) Study Focus, e) Relevance and Timeliness. ToS helps to identify the development of the area of knowledge using a forest and tree metaphor, relating the scientific community to which it would like to contribute as a forest and the application of the field as a tree.

The identification and structure of the literature on the relationship of social entrepreneurship and collaboration, through the ToS tool, generates great interest in terms of the way in which the field or research question has developed and expanded over the last 10 years. Observing its current interest and importance, especially in this current process of changes and new post-pandemic and crisis challenges. We identified three clusters of current topics of research, 1) cross-sector collaboration, which has been the most studied group of research, especially between SEOs and corporations but it is also a trending one between a diversity of sectors and levels where SEO are gaining space. 2) Innovation and sustainable development, where collaboration enables decision-making and coordination for local needs in innovative ways and the call for SEO to work with, throughout, and for society, promoting a strong community/collective orientation (Akter et al., 2020; Chandra, 2018). And 3) social entrepreneurship for cooperation, highlighting the importance of stakeholder engagement and partnership in community-based organizations (Haugh, 2020; Capriello et al., 2018) but also, the ways of cooperating as procurement to play bridging roles between procurement and social enterprises in a triadic relationship (Meqdadi et al., 2019).

In this way, carrying out this analysis allows us to understand how the subject is being addressed, its structure, and current trends, which facilitates the visualization of gaps in the literature and/or future research that contributes to the literature and practices of collaboration that make social entrepreneurship organisations sustainable.

Keywords: Collaboration, social entrepreneurship, social enterprises, sustainability.

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FEELING READY? THE INTERPLAY BETWEEN DIGITAL READINESS AND SUSTAINABLE GROWTH IN THE EUROPEAN FOOD INDUSTRY.

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Abstract

In the face of the challenging demography, nutrition, and climate change crises, the world needs to achieve tangible steps toward a sustainable food system while at the same time increasing its production to meet the growing demand (Hassoun, Aït-Kaddour, et al., 2022). In this context, the agriculture and food (Agri&Food) firms must produce without interruption, healthy, safe, tasty, affordable, and sustainable food (Van Mil et al., 2014). Currently, the food system is too consuming, too polluting and too wasteful in terms of natural resources (Hassoun, Prieto, et al., 2022). If no change is made, the food system will not be able to provide safe, healthy, nutritious products to the increasing population within planetary boundaries (Marvin et al., 2022). Thus, a shift towards food system sustainability is essential and innovative solutions are urgently needed (Hassoun, Prieto, et al., 2022). It is important to note that, the production of food relies on the access to resources (i.e., land, energy, fresh water, or soil nutrients). Current degradation and use of these resources surmount their regeneration rate (Bindraban et al., 2012; Molden et al., 2007). In addition, the production of food causes emissions that deteriorate the planet environmental layers (Rockström et al., 2009). To reduce the production impact while ensuring the needs of current and future generations, the United Nations defined, in 2015, Sustainable Development Goals (SDGs). SDGs are highly entangled with the food system and call for a change of both its model of governance and structure (Hassoun, Prieto, et al., 2022). A systemic approach is essential to hit the transition and achieve the SDGs. In Europe SDGs have been translated through the EU Green Deal (European Commission, 2023). EU Green deal intend to transform the EU into a cutting-edge community, resource-efficient and economically competitive; ensuring to reach zero net emissions of greenhouse gases by 2050. Scholars have demonstrated that digitalisation represents great potential to succeed in this transition; thus recommending to combine the EU Green Deal with the Digital strategy vision (Marvin et al., 2022). Indeed, digitalisation, alluded to as the use of computer technologies and ICT, is providing innovative opportunities to sort out current challenges and opening up new avenues of growth (Hassoun, Prieto, et al., 2022; Nasution et al., 2018; Soomro et al., 2020). Expectations regarding the possibilities offered by digitalisation to achieve SDGs are rather high (Beier et al., 2021). To leverage at best the benefits offered by digitalisation, firms need to ensure and measure their digital readiness (Soomro et al., 2020). In this context, the concept of digital readiness interlinked with sustainable growth is attracting increasing interest but remains understudied (Denicolai et al., 2021; Trischler & Li-Ying, 2022). In particular, we lack a clear overview of the

link between digital readiness mechanisms and its impacts on sustainable growth options. In other words, scholars have not addressed how digital readiness favours or inhibits future real growth options particularly in the context of sustainable growth (Denicolai et al., 2021).

Over the past years, many scholars have investigated the importance of sustainability and sustainable development and how to achieve SDGs (Beier et al., 2021; Johnson & Schaltegger, 2016). The concept of sustainability refers to the ability to support current development without compromising future needs (Zaccai, 2012). For one stream of research, sustainability is the process of achieving sustainable development (Sartori & Silva, 2014), and for another, sustainable development is the journey to fulfil sustainability (Lozano, 2008). Both are based on the ''three pillars approach'' which refer to the need to balance economic, environmental and social objectives (Zaccai, 2012). From the business perspective, it refers to the firms' strategies and activities implemented to achieve the three integrated goals (Yusoff et al., 2018). Sustainable growth is a derived concept, referring to the application of the three pillars to achieve long-term perspective of growth (Doane & MacGillivray, 2001). Digitalisation, can support in this direction and help firms enlarge their business in a sustainable way (Szabó et al., 2023). For example, scholars have demonstrated that implementing and using tools such as cloud computing, Internet of Things (IoT), or wireless sensor networks, can improve the management of a supply chain. Findings, even reveal a reduction in costs and an improvement in service ensuring sustainable growth (Kittichotsatsawat et al., 2021). In a nutshell, digitalisation is transforming the entire industry structure, the nature of competition, and stakeholders' limits, exposing them to new opportunities (Ciasullo et al., 2022; A. Ferreira et al., 2022; Hervé et al., 2020; Soomro et al., 2020). Digitalisation is the result of three interlinked components of digital technologies: 1) digital artefacts (a digital component such as a digital content which is part of an offer and brings value to the user), 2) digital infrastructures (a set of digital tools that offer computing capabilities), and 3) digital platforms (a set of shared services) (J. J. M. Ferreira et al., 2023). To leverage the three components of digital technologies, firms need to ensure and measure their digital readiness (Soomro et al., 2020). Digital readiness is defined as the ability of a firm to embrace and use digital technologies (Denicolai et al., 2021), thus embracing digitalisation. Previous studies, highlight the need to align digital readiness goals with the business strategy. Firms are struggling to reach their objectives due to their lack of digital readiness (Machado et al., 2020). To measure firms' digital readiness, and as a result the gaps that need to be filled, multiple scales have been developed (Soomro et al., 2020). However, we lack an overview of how the readiness results impact sustainable development options (Denicolai et al., 2021). Knowing that, it is of concern to better understand the impacts of digital

readiness on possible sustainable growth directions (Denicolai et al., 2021). Reviewing the existing literature, conceptualising the field and identifying future research directions will be a first step in that direction (Tranfield et al., 2003; S. S. Xiao et al., 2020). Essentially, to advance knowledge, scholars must access a holistic view of what is already known and thus build their research on prior existing work. Among the different methods for reviewing the literature, the integrative one allows to screen, critique, and synthetise an exhaustive part of the literature to develop new perspectives. This method combines both the strengths of narrative review (discovery process) with the power of systematic approaches to minimise bias and improve transparency (Fan et al., 2022). Therefore, we define a clear methodology regarding our search criteria (cf. Table 1) and our selection criteria. By doing so we aim to outline 1) where we select our literature (SCOPUS and Web Of Sciences to ensure the best coverage), 2) when we conduct our research (up until September 2023), 3) how we find the articles (selection of keyword to capture conceptual boundaries connected with Boolean operators), 4) what data-set we will select, and 5) why we will include or exclude some articles (Callahan, 2010)

Table 1: Combination of keywords use to select the articles

String 1		**String 2**		**String 3**
”digital readiness*" OR “digital maturity” OR "digitalization*" OR "digital" OR "digitalisation*" OR "digital transformation" OR "information and communication technolog*" OR "industry 4.0"	**AND**	"sustainable growth*" OR "sustainable business model*" OR "sustainable business*" OR "sustainabilit*"	**AND**	"food industr*" OR "food sector*" OR "food compan*"

While scholars have focused on the role of digitalisation on sustainable transition and growth, little attention has been paid on digital readiness in this context. This study will be a first attempt to present a holistic framework from a food system perspective of the topic and identify future research directions. To the best of our knowledge, this research is one of the first to connect the two streams of research (digital readiness and sustainable growth) in terms of

sustainable growth effects. We are still at an early stage of our research but our first findings seem to confirm the importance for firms in the food industry to evaluated their digital readiness to achieve their sustainable growth objectives. In addition, our study should leads us to several recommendations for future research directions.

We believe that results shall benefits scholars, managers and policy makers. From a scholarly perspective, we will provide a better understanding of the relevant concepts to investigate the link between digital readiness and sustainable growth, thus allowing to achieve sustainable objectives. From a managerial perspective the paper will provide insights to face the food system challenges. From a European policy perspective, these insights will help in modernizing the policies and answering the EC European Green Deal communication leveraging the Digital Strategy vision.

Keywords: Digital readiness; Sustainability; Growth options; Food industry

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THE RELATIONSHIP BETWEEN DIGITAL TRANSITION AND SUSTAINABLE TRANSITION IN THE EUROPEAN UNION.

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Abstract

This paper aims to evaluate the relationship between the digital transition and the sustainability transition in the European Union, thus forming the twin transition, a concept that links these two themes. In this way, we study the two concepts individually to understand their essence and the relationship between them, since there may be some incompatibilities between the two transitions.

To do this, we carried out a documental analysis using articles, websites, and institutional information, with the aim of knowing how these concepts are treated within the European Union, and what objectives and policies are applied by this economic bloc to use technology to promote improvements. in environmental conditions. the main objective of this study is (i) to study the concepts of digital transition and sustainable transition (ii) to study the Twin Transition in the European Union and which policies are directed towards this issue and finally (iii) to evaluate the possible incompatibilities between the two transitions mentioned.

The idea behind the twin transition is that digitalization can be a powerful tool for achieving the goals of the green transition (World Economic Forum, 2022). Digital technology is seen as a crucial tool for optimizing processes, including greater control over the use of natural resources, improving waste and pollution management, increasing energy efficiency, among others, while the green transition offers crucial opportunities for the development of sustainable technologies (European Union, 2022a), making it central to the European Union's policies and strategies (European Commission, 2022).

Digitalization can be a powerful tool for making the economy more resource-efficient, highlighting the importance of the circular economy in climate terms (Bianchini et al., 2023).

The digital transition refers to the implementation of digital innovations and technologies, such as satellite imagery, smart sensors, data algorithms, the Internet of Things (IoT), artificial intelligence (AI) or data platforms (Paiho et al., 2023). The European Commission is committed to transforming Europe for the digital age, empowering people, businesses, and administrations with a new generation of technologies, where digital transformation can bring widespread benefit. Digital solutions can open new opportunities for businesses, encourage the development of reliable technologies, promote an open and democratic society, enable a sustainable economy, and help combat climate change and achieve the green transition (European Commission, 2022).

The green or sustainable transition aims to combat climate change and promote environmental sustainability. The European Union's main action in this area is the European Green Deal, which aims to make Europe climate neutral by 2050, promote a circular economy, boost sustainable industries, and transport and reduce pollution (European Union, 2022b). The European Commission has therefore proposed a series of initiatives, laws, financial resources, and other instruments under the European Green Deal that address emissions reductions in all key economic sectors, including agriculture, energy, transport, and industry (Maucorps et al., 2022).

However, it is also important to consider possible overlaps between these transitions (European Commission, 2022). For example, the rapid advance of digital technology could result in greater energy consumption if it is not fueled by renewable sources (Benedetti et al., 2023). Digitalization uses electricity and many digital technologies consume a lot of resources and generate waste, and unintended consequences can arise.

This could lead to unintended consequences, such as hybrid car owners travelling longer distances because it's cheaper. Teleworking would reduce office space but could lead to employees building separate workrooms at home and heating or cooling more space than if they were in the office (European Commission, 2022).

In addition, the production of digital devices and the disposal of obsolete electronic equipment can contribute to waste and pollution problems (ITU, 2019). That said, it is important to understand the size of the ecological footprint of technological elements.

In short, the European Union is seeking to combine the digital transition with the transition to sustainability, recognizing the potential benefits, but also the challenges and risks. It is crucial to balance technological development with environmental protection and ensure that both transitions complement each other to achieve a modern and sustainable economy. This will require carefully crafted policies, regulations, and investments to achieve these goals in a balanced and inclusive way.

That said, as for the theoretical implications of this study, we address the relationship between digitalization and sustainability, since technology is seen as a strong ally of human beings to achieve better living conditions for populations. It is therefore imperative to study the implementation of technological elements in the various sectors of society and assess their impact on sustainability, studying their contribution to climate change and reducing the impact of human action on nature, while also studying the ecological footprint left by technology.

As for the practical implications, we see that technology is seen as a fundamental aspect for society to achieve sustainability. This aspect is important to be explored by all agents of civil society so that there can be constant evolution and conditions can be created for the improvement of communities.

Despite this, the ecological footprint of the use of technology and its components should be monitored so that we can assess the real benefit (or not) of using these tools to improve environmental conditions.

Finally, for future research, we suggest continuously evaluating the environmental impact of using the technology and realizing whether the benefits of using it to combat climate change are greater than its ecological footprint. In addition, studying new ways of decarbonizing the economy and adapting policies to this issue could be beneficial for building institutions that are better prepared to deal with this problem.

Keywords: **Digital Transition; Green Transition; Twin Transition; European Union**

Acknowledgements:

This work has been supported by national funds through FCT – Fundação para a Ciência e Tecnologia through project UIDP/04728/2020

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SOCIO-ECONOMIC CHALLENGES FOR CYBERSECURITY COMPANIES IN THE CONSUMER MARKET

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Abstract

Since the beginning of the 1980s, the use of personal computers has become popular, which has allowed administrative and commercial operations to be carried out automatically. Then the need arose to connect all these computers to each other so that different users could have the same information at the same time. In this sense, many projects and ideas emerged to reach what is currently the Internet. The Internet is an increasing part of today's culture, especially regarding communication channels between people of different ages and cultures, making the world a global village, in which all kinds of information are shared. However, it also contains many risks and threats. In the 2021 State of the Union discussion, European Commission President Ursula von der Leyen stressed the need to improve EU cybersecurity (Munkøe & Mölder, 2022). In fact, there are many cases of malware, cyberbullying, pornography, ransomware, password theft, etc. In addition, these risks increase with the use of intelligent technologies (e.g., artificial intelligence) and being able to imitate and replace anyone, which represents a new paradigm of possible threats such as "fake news" or attacks on identity theft. Therefore, it is important that users pay attention to the security of all the personal information they publish, which is likely to be used by such threats.

Figure 1. Cybersecurity Threats Fast-Forward 2030: Fasten your Security-Belt Before the Ride! (Enisa, 2022)

NIST, the National Institute of Standards and Technology at the U.S. Department of Commerce, defines personally identifiable information (PII) as “information that can be used to distinguish or trace an individual’s identity, either alone or when combined with other information that is linked or linkable to a specific individual”. As a result, cybersecurity companies are now including in their portfolios new features and capabilities for the protection of information in their products and solutions and are continuing to investigate to be able to cover all new risks and threats (Newhouse et al., 2021).

The development of information technologies and their relevance in the socioeconomic field has generated a real global change called the 4th Industrial Revolution (4IR), in which information technologies and hyperconnectivity are fundamental pillars for today's society. Thus, the digital ecosystem has acquired enormous social and legal relevance that is transforming the society of the XXI century. The current socioeconomic realities pose new paradigms and situations from which all kinds of damages can be derived (Muñoz, 2019).

Business models aligned with the new challenges in cybersecurity.

In terms of business models, cybersecurity companies are also seeing some changes in their customers' behaviour. In the classical cybersecurity market, customers were just making a one-shot purchase, paying for a period of time (e.g., 1 year, 2 years, etc.). As shown in Figure 2, now customers are also looking to cybersecurity solutions as a service (SaaS), more thinking on subscription models rather than a classical sales model, where services are contracted for a certain time with certain characteristics (e.g., the Netflix model, Spootify, Amazon, etc.).

As for subscription-based business models rather than sales, subscription-based business models can be seen as a new business model innovation, a game-changer, or a breakthrough that can reshape traditional market models and dramatically influence consumer behavior. even to the point of being seen as a possible disruptive innovation. As verified in several literature reviews, customer perception of a new business model is

a viable predictor of customer success (Baek & Kim, 2022).

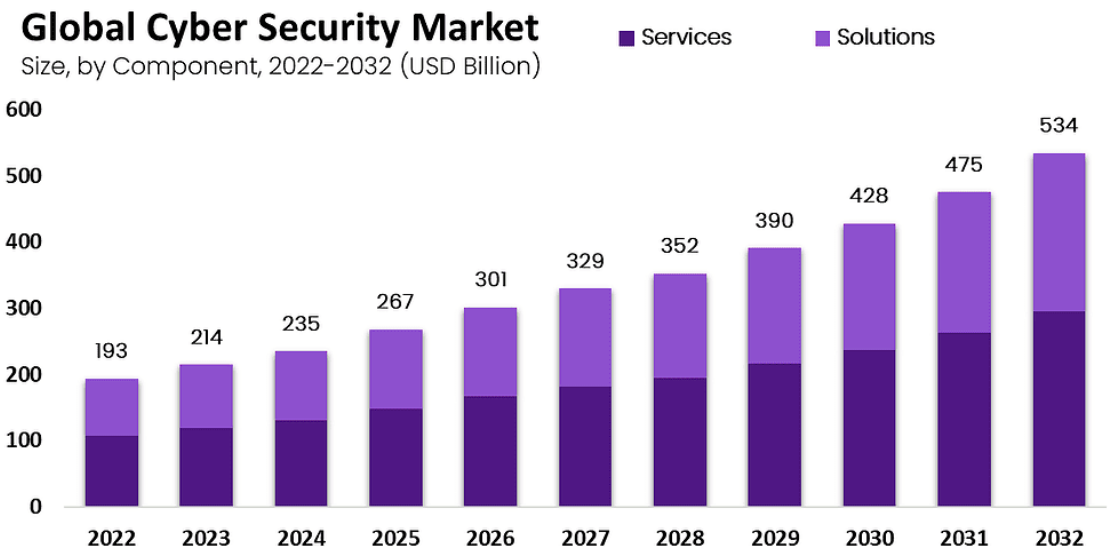

Figure 2 Cyber security market size, share, trend: Forecast 2023-2032 (2023)

The importance of cybersecurity in digital ecosystems has given rise to a large stream of research focusing on protection and technical solutions, such as encryption, intrusion prevention systems, and access controls. In addition to technical protection, the sustainability of digital ecosystems depends at least as much on aspects that can be explained more clearly and convincingly using economic language. However, research focused on the economics of cybersecurity is at an early stage (Kianpour et al., 2021).

The incidence of cloud database attacks around the world is increasing as retailers, financial institutions, healthcare providers, and businesses of all sizes rely on cloud infrastructure (Ismael et al., 2021). Since cloud provisioning requires the Internet to perform services, security has become paramount. At the same time, the PII of hundreds of millions of end users is now at risk of being hacked through insecure cloud computing practices that lead to data breaches (Kolevsky et al., 2021).

Currently, companies dedicated to user security are undergoing an imminent transformation. Most of these companies have specialized for years in the protection of devices,

creating very advanced applications called "antivirus". Antivirus software (antivirus program) is a security program designed to prevent, detect, search and remove viruses and other types of malware from computers, networks and other devices (Yasar).

Nowadays, the companies are putting all their efforts into protecting users rather than devices. Antivirus applications that are still necessary have ceased to be a growing source of income because they are commonly included in operating systems or even exist for free for users. In this sense, cybersecurity companies are focusing on everything related to the relevant personal information of users, which is a priority to be protected. Such a change in user need, based on new existing threats, is creating new business models as well as the need to explain to users new existing threats.

For ISOTools Excellence (2017), the definition of information security pays tribute to a discipline "that is responsible for the technical implementation of information protection, the deployment of technologies that establish in a way that ensures situations of partial or total failures, when information is the asset that is at risk (...) It is the discipline that tells us about risks, threats, scenario analysis, good practices, and regulatory schemes that require levels of process and technology assurance to raise the level of confidence in the creation, use, storage, transmission, recovery, and final disposal of information". (ISOTools Excellence, 2017).

Objectives

The proposed research will focus on the new challenges that new threats such as the theft and use of information pose to cybersecurity companies. In addition, it will cover how to face these new challenges; new business models will be necessary for new products to be successful in the market. This new paradigm of information protection poses social challenges, where the population must understand the existing risks and possible threats as well as be able to protect themselves efficiently.

The objective of this research is to understand the socio-economic challenges handled by cybersecurity companies in order to face all new threats, as well as the new business models

that must be offered to cover user needs regarding the protection of information available on the internet.

Keywords: cybersecurity; business models; socio-economic challenges; personally identifiable information (PII)

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EMPOWERMENT SUSTAINABILITY PERSPECTIVES IN SOCIAL ENTREPRENEURSHIP: EVIDENCE FROM PAKISTAN - OPPORTUNITIES, CHALLENGES & SOLUTIONS

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Abstract

The main objectives of this study are to examine the characteristics that support women entrepreneurs in Pakistan and to quantify the effects of those factors on the growth and progress of such businesses. The most well-known issues at regional, national, and worldwide forums are women's empowerment and gender equality (Fernández-Guadaño & Martín-López, 2023). Gender equality, high-quality education, sociocultural diversity, and policy made up the study's four key topics, according to literature review on key contributions in this domain (e.g., Sarfaraz et al., 2014; Shinnar et al., 2014). This study complements literature by focusing specifically on Pakistani women as Pakistan has a patriarchal culture, which means that women there are subject to social pressure, an uncourteous environment, disregard in the decision-making process, etc. Focusing on the economic potential of women and maintaining the importance of entrepreneurship are the keys to equitable and sustainable industrial progress in emerging nations like Pakistan (Mumtaz et al., 2023). Most women in Pakistani society are habitually ruled by men. Gender inequality affects women in Pakistan in a variety of ways. Tayyaba Naveed and Ramsha Answer suggested to study the role of women in developing countries as Pakistan, that is placed is placed 154th in the UN Development Programs and has an exceptionally low gender index (Naveed et al., 2023). Its failure to make progress toward global development objectives in gender equality has been seen as a problem for Pakistan's standing as a moderate and progressive nation internationally.

Pakistani government has stated that gender equality and women's empowerment are essential components of its social policies. They actively support women's empowerment by providing loans to help them launch new businesses, easing legislative and administrative policies by creating Women Business Development Centers (WBDCs), Benazir Income Support Program (BISP), and the Special Incentive Package for Women Entrepreneurs and in public procurement, there is frequently a quota for women entrepreneurs, ensuring their participation in government contracts and projects to win the respect and admiration of developed nations, yet Pakistan's male-dominated society cruelly contributes to the limitations of chances for women, either directly or indirectly (Mumtaz et al., 2023; Sharma et al., 2012). This study looked at Pakistani women entrepreneur's perceptions on empowerment and social sustainability.

Data from the quantitative perspective is included in this study because the topic of this research is quite well-established and in line with previous studies (e.g., Akinbami et al., 2019) leading to opportunities for quantitative analyses. To assess the potential of Pakistani society towards women entrepreneurs, variables are identified in prior studies including journal articles and research papers. The subject of this research, which concludes with prospective solutions to gender disparity, women's empowerment, and an increase in their valuable contributions for social entrepreneurship sustainability, is analyzed, explained, and comprehended. This research discusses gender inequality and the obstacles surrounding women's entrepreneurship in Pakistan. In this study, a quantitative approach is used to gather data via a structured survey administrated online to Pakistani women entrepreneurs who own small and medium companies (SMEs). Simple random sampling technique is employed. A standardized survey with a 5-point Likert scale is distributed to Pakistani entrepreneurs who operate their enterprises in Pakistan.

The theoretical foundation of the literature review, challenges, and study objectives form the basis of the survey's structure. Questions no.3,5,7 are derived from consideration of authors who researched gender discrimination effects on womens' empowerment (Alsaad et al., 2023; Lindvert et al., 2017; Naveed et al., 2023) likewise questions no. 4,8,10,11 are originated from findings of researchers who have conducted study on womens' entrepreneurship (Alsaad et al., 2023; Fernández-Guadaño & Martín-López, 2023; Sangolagi & Alagawadi, 2016) and Questions no. 2, 6,9, 12 are derived from extant contributions of researchers who conducted study on the challanges that pakistani women entrepreneurs face in business industry (Khan et al., 2018; Lindvert et al., 2017; Sangolagi & Alagawadi, 2016). Various statistical techniques, including correlation analysis, path analysis, reliability analysis, and regression testing are used to evaluate the survey data after the proper number of responses will be gathered (Fernández-Guadaño & Martín-López, 2023). These techniques analyse the relationship between the independent and dependent variables. The dependent variable, "empowering Pakistani women as entrepreneurs," is studied using four independent variables: gender equality, high-quality education, sociocultural context, and policies. A group of individuals from official source of national registry of SMEs and one of the authors acquaintances' circles will receive a survey to contribute the study's foundation of female entrepreneurs in Pakistan. In this investigation, a 5% margin of error and 95% confidence level will be set as criteria.

Data will be tested using "IBM SPSS Statistics 29.0" and Cronbach's alpha will be used to determine the degree of accuracy of survey results. Before the main data is collected, the survey items will be piloted to ensure validity. Additionally two scholars evaluated, approved, and validated the information. To significantly discover the influences of determinants on women entrepreneurs' engagement in the nation's economic operations, hypotheses are formulated and tested using statistical testing (Sangolagi & Alagawadi, 2016). Pakistani women entrepreneurs encounter several obstacles because of institutional, social, cultural, economic, and financial challenges. These difficulties impede the development and success of female entrepreneurs and constrict their options (Lindvert et al., 2017; Roomi & Parrott, 2008). Pakistan is actively empowering women, particularly in the fields of science, technology, engineering, and mathematics (STEM) education, in collaboration with numerous government and public partners through the Pakistan's Women Council, Women Business Development Centers (WBDCs), SheTrades Pakistan, Women Entrepreneurship Development Program (WEDP) (Naveed et al., 2023; Roomi & Parrott, 2008). The expected findings of this study address the numerous challenges women entrepreneurs in Pakistan face, including obstacles in getting legal approval to start their businesses, low self-confidence, failure-related fear, lack of social policy, cultural support, gender discrimination, and lack of quality education. The expected results assess four factors—quality education, sociocultural norms, gender imbalance, and policies—that can describe women's ability to start and operate profitable enterprises in Pakistan. The study's quantitative findings can suggest how crucial it is to support female entrepreneurs in Pakistani business ventures to stimulate their growth as well as the nation's economic expansion and social sustainability.

The study offered recommendations to boost the empowerment of women entrepreneurs in Pakistan, such as strengthening policies that support entrepreneurs (Khan et al., 2018). Previous studies in Asia (Rehman & Azam Roomi, 2012) show that majority of female entrepreneurs are middle aged and to accomplish their ambitions and goals, such as being role models, being financially independent, creating jobs, and finding better business possibilities, those middle-aged women took more risks and are willing to start their own businesses. Women in their middle years can lead initiatives on their own, as illustrated in literature, and have a bigger influence on Pakistan's economy (Lindvert et al., 2017; Nasir et al., 2019). The public administration in Pakistan is working diligently to increase and expedite women's economic engagement. Expected results can describe whether there is a significant association between

Pakistani women's empowerment and social sustainability, indicating a relationship between women's empowerment and Pakistan's economic success. Despite the contribution that women make to the economy and job opportunities, Pakistani society frequently downplays and undervalues the importance of women entrepreneurs(Roomi & Harrison, 2010).

Keywords: Women empowerment, Women entrepreneurship, Patriarchal society, Pakistan, Gender disparity

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ANÁLISIS DE LAS INTENCIONES INTRAEMPRENDEDORAS Y SOFT SKILLS EN DEPORTISTAS DE ÉLITE SEGÚN EL NIVEL DE COMPETICIÓN

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Resumen

El intraemprendimiento hace referencia a las iniciativas de los empleados dentro de los límites de las organizaciones o empresas ya establecidas para poner en marcha nuevas ideas o actividades de negocio que generen un valor añadido a las mismas (González-Serrano, 2019). Es por tanto un fenómeno de creciente interés en el mundo laboral y la sociedad actual, y que recientemente ha despertado un enorme interés tanto a nivel científico como profesional. La capacidad de innovar y generar nuevas ideas dentro de una organización o empresa existente puede proporcionar a los empleados, o futuros trabajadores, una valiosa experiencia en la identificación y aprovechamiento de oportunidades empresariales, lo que puede ser fundamental para el éxito en el futuro laboral (Aparicio et al., 2020).

Es por ello que la industria del deporte ha focalizado su interés también en los últimos años en este fenómeno. En esta línea, algunos estudios han analizado las intenciones de intraemprendimiento de los empleados (González-Serrano et al., 2019; Lara-Bocanegra et al., 2022), así como la de los futuros trabajadores del sector deportivo, como es el caso de los estudiantes del grado en Ciencias de la Actividad Física y del Deporte (González-Serrano, 2019; Ordiñana-Bellver et al., 2022). El enfoque de estos estudios se basa en que, en esta titulación, se incluye un alto contenido práctico, y la propia práctica de actividad físico-deportiva, junto con los contenidos adquiridos, permite el desarrollo de habilidades que pueden mejorar la empleabilidad de los mismos (Ordiñana-Bellver et al., 2023).

Sin embargo, este espectro de habilidades, experiencia y valores desarrollados con la practica deportiva y aplicables al mundo laboral, no solo influyen en las intenciones de los futuros profesionales del sector deportivo. Los deportistas, parte fundamental del sector, y no necesariamente estudiantes en esta área de conocimiento, también desarrollan diferentes habilidades de enorme transferencia y demandadas en el mundo laboral (*soft skills*), que los convierten en futuros y potenciales trabajadores de cualquier sector (Bernes et al., 2009; Smismans et al., 2021). Las exigencias, no solo a nivel físico y técnico, sino mental y social, que implican alcanzar el máximo nivel de competición y poder competir en el ámbito internacional, pueden influir en el mismo desarrollo de las habilidades mencionadas. Además, estas pueden

encontrarse relacionadas con un mayor o menor nivel de percepción de las intenciones intraemprendedoras.

Es por ello que el objetivo del presente trabajo es analizar si existen diferencias estadísticamente significativas tanto en el desarrollo de las propias habilidades emprendedoras, así como en las intenciones intraemprendedoras, entre deportistas de élite que compiten a nivel nacional o internacional. De esta manera, se pretende analizar si un mayor nivel de competición influye en un mayor nivel de desarrollo de habilidades. También se pretende analizar si existe relación entre el nivel de competición, las intenciones intraemprendedoras y el grado de desarrollo de las habilidades emprendedoras.

La muestra está compuesta por 278 deportistas de élite de la Comunitat Valenciana, con una media de edad 23,85 años (DT=8,90). De ellos, 144 son mujeres (51,8%), 133 son hombres (47,8%) y hay una persona de género no binario (0,40%). En cuanto al nivel de competición, 191 (68,70%) compiten a nivel nacional, y 87 (31,30%) compiten a nivel internacional. Para la recogida de datos, se utilizó un cuestionario online ad hoc con diferentes ítems sociodemográficos y escalas de medida previamente validadas para cada una de las variables analizadas: escala de intenciones intraemprendedoras (α=,96), adaptada y validada por González-Serrano et al. (2019), resiliencia (α=,91) de Notario-Pacheco et al. (2011), creatividad (α=,93) de Biraglia y Kadile, 2017), proactividad (α=,86) de Salessi y Omar (2021), asunción de riesgos (α=,67) de Meertens y Lion (2008) y resolución de problemas (α=,82) de Bernal-Guerrero et al. (2021). Los análisis fueron realizados a través del software SPSS v.24. Se realizaron comparaciones de medias de las diferentes variables (Prueba de Mann-Whitney) entre deportistas de nivel de competición nacional e internacional, así como una correlación bivariada de Spearman entre las variables analizadas.

En cuanto a los resultados obtenidos, se observa, en primer lugar, una diferencia estadísticamente significativa en la media de las intenciones de intraemprender de los deportistas de nivel internacional (M=3,53; DT=1,15), que es superior a la de los deportistas que compiten a nivel nacional (M=3,06; DT=1,10). En segundo lugar, en lo que respecta a la percepción de la adquisición y desarrollo de las habilidades emprendedoras, los resultados muestran diferencias estadísticamente significativas (p>.05) en todas las variables, excepto en

la toma de riesgos, entre los deportistas internacionales, que muestran medias superiores en todas las variables, y los que compiten a nivel nacional, tal y como se observa en la Tabla 1.

Tabla 1. Comparaciones de medias por nivel de competición de los deportistas de élite

	Nivel Competición	N	Media	DT	Z	*p* (Sig.)
Int. Intraemprendedoras	Nacional	191	3,06	1,10	-3,511	,000
	Internacional	87	3,53	1,15		
Resiliencia	Nacional	191	4,07	,67	-4,045	,000
	Internacional	87	4,39	,60		
Creatividad	Nacional	191	3,62	,83	-2,758	,006
	Internacional	87	3,92	,85		
Proactividad	Nacional	191	3,96	,69	-2,248	,025
	Internacional	87	4,13	,71		
Asunción de Riesgos	Nacional	191	2,73	,65	-1,730	,084
	Internacional	87	2,89	,65		
Resolución Problemas	Nacional	191	4,18	,63	-2,901	,004
	Internacional	87	4,45	,55		

En cuanto al análisis de correlación bivariada entre las variables estudiadas, se muestra que el nivel de competición se relaciona positivamente con las intenciones intraemprendedoras (r=.21; p>.001) y el grado de desarrollo de las habilidades, excepto la toma de riesgos. También existe la misma relación positiva entre las intenciones intraemprendedoras y la percepción del grado de desarrollo de las habilidades emprendedoras analizadas, excepto la asunción de riesgos.

Tabla 2. Correlación de las variables analizadas

Variables	**1**	**2**	**3**	**4**	**5**	**6**
1.Nivel Competición	1					
2. Int. Intraemprendedoras	,211**	1				
3. Resiliencia	,243**	,368**	1			
4. Proactividad	,135*	,405**	,601**	1		
5. Creatividad	,166**	,516**	,542**	,649**	1	
6. Asunción de Riesgos	,104	,115	,100	,106	,087	1
7. Resolución de Problemas	,203**	,341**	,590**	,606**	,525**	,120

Nota: (** Correlación significativa en el nivel 0,01; * Correlación significativa en el nivel 0,05)

Tras el análisis de los resultados, se puede concluir que la práctica deportiva competitiva de alto nivel puede contribuir a la adquisición y desarrollo de habilidades, conocidas como *soft skills*. Estas habilidades están altamente demandadas en el mundo laboral, y pueden suponer una ventaja tanto a la hora de empezar y desarrollar un negocio, o parar encontrar empleo o progresar dentro de una empresa como empleado. Los deportistas de élite, con gran dedicación

y esfuerzo para alcanzar los mejores resultados deportivos, desarrollan al mismo tiempo habilidades que les permitirán dedicarse a otra actividad profesional más allá del deporte. Además, parece ser, que cuanto mayor sea el nivel de competición, mayor es el desarrollo de estas habilidades emprendedoras e intenciones de intraemprender. Esto puede ser debido a que el propio hecho de alcanzar el nivel de competición internacional, que es el máximo nivel al que un deportista puede acceder, supone un mayor nivel de esfuerzo y dedicación, además de enfrentarse a situaciones más complejas, no solo a nivel deportivo, sino también a nivel psicológico y social.

Por lo tanto, se pone de manifiesto el potencial intraemprendedor de los deportistas de alto nivel, poniendo especial énfasis en los que compiten a nivel internacional, que pueden aportar un enorme valor a las empresas como futuros trabajadores. Esto, combinado con una formación académica y/o profesional, puede convertir a los deportistas de alto nivel en potenciales emprendedores o trabajadores con gran potencial intraemprendedor, con capacidad de aportar nuevas ideas y desarrollarlas en las propias empresas, siendo capaces de adaptarse a entornos cambiantes y trabajar bajo presión.

Palabras clave: intenciones intraemprendedoras; deportistas de élite; soft skills; nivel de competición.

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SUSTAINABLE RAILWAY TOURISM: AN ECO-BUSINESS MODEL

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Abstract

The concepts of "slow travel" and "slow tourism" have garnered growing scholarly and public interest in recent decades. Slow tourism emphasizes environmental and socio-cultural sustainability and a deliberate deceleration of progress by means of an immersive, genuine experience and active participation in specific regions or destinations (Conway & Timms, 2012; Dickinson & Lumsdon, 2010; Dickinson et al., 2011); slow travel can be more comprehensively described as the implementation of low-carbon travel strategies that lead to extended stays, reduced travel, an enhanced experience, a greater sense of connection with a destination, and an emphasis on sustainable and responsible consumption practices (Dickinson & Lumsdon, 2010; Dickinson et al., 2011; Lumsdon & McGrath, 2011). As a component of the broader notions of slow tourism, slow travel, and sustainable tourism, rail tourism, and zero-emission train tourism in particular, merits special consideration (Blancheton & Marchi, 2013).

Rail tourism is a sector that produces value year after year in many regions of the world, contributing significantly to the economic prosperity of the governments that support it. Even though the numbers for rail tourism are substantially lower than those for air tourism, the rail tourism sector is rising primarily due to new trends and heightened environmental consciousness among travelers (White Paper, 2020). In rail tourism, whether for long or short excursions, the landscape component plays a vital part, while the sorts of means of locomotion employed vary, based on numerous aspects, defining a higher or lower influence towards sustainable behavior. In the United States, for instance, Amtrack provides a service connecting the whole American territory and Canada, allowing its passengers/visitors a unique travel experience by passing trains through spectacular and natural wonder-rich regions. In Africa, the *Blue Train* provides opulent services between Cairo and Cape Town, going through pristine areas and natural reserves.

In Europe, due to both the morphology of the territory and the borders of the respective states, the territory is extremely fragmented and lends itself to types of rail tourism other than long-distance tourism, especially due to the presence of many kilometers of historic railways that generate considerable wealth, both in terms of revenue and in terms of tourist flows. This type of rail tourism falls within the sphere of so-called *slow tourism*, which is meant not only as moving to get to one's destination but also as a way of enjoying traveling time, discovering the beauty of historical centers, typical 'zero km' eating 'zero-kilometer' cuisine, and meeting local communities and their culture (Campolo, 2018).

Great Britain and France have the most substantial annual revenues, and visitor flows among the European nations that currently utilize old trains for tourism. With 850 kilometers of lines and 139 tourist trains, Great Britain attracts 13 million tourists annually and earns £400 million in income (F.I.F.T.M., 2018). These benefits were accomplished by utilizing around 800 steam locomotives for tourism purposes. In

contrast, France's 1,200 kilometers of tourist trains draw about 4.5 million tourists annually, generating about 60 million euros in revenue and 1,000 employment (Blancheton & Marchi, 2013).

A location in Italy with a thick network of antique railways is unquestionably Sardinia, a country of millennia rich in history, customs, and environment and frequently associated with coastal tourism, especially in the summer. Nonetheless, this country includes various additional attractions that might fuel the tourist industry in the region, promoting deseasonalization, such as slow tourism through the use of its ancient trains. There are now no fewer than 438.7 kilometers of operational historical railroads in Sardinia, grouped into four main routes (ARST, 2019). This is a very significant amount compared to the other areas of Italy and, above all, the rest of Europe. Therefore, slow tourism through the repurposing of ancient railroads is a unique opportunity that might develop a new economic model with particularly crucial attributes, including its complete sustainability.

This paper aims to demonstrate how the exploitation of the historic railway network in Sardinia can represent a new business model capable of developing the tourist offer in the form of slow tourism and, thus, generating revenue (economic sustainability) and positive repercussions for the territory and its inhabitants (social sustainability), all with absolute respect for the environment and the territories in which it is developed (environmental sustainability). In fact, for this region, it is proposed to exploit the historical railway network, no longer used for standard transport, to generate a slow tourism offer through the exploitation of four naturalistic routes with unspoiled landscapes and, above all, with the use of a 100 percent sustainable means of transport: the *ferrocycle*. The *ferrocycle* is a completely ecologically friendly mode of transportation, as described by the UNI 11685 standard and Italian Law L. 128/2017, which define it as a railway velocipede capable of carrying four passengers who propel the vehicle by pedaling. This mode of transportation utilizes the 'narrow-gauge'[1] rails of old railways, such as the more than 400 kilometers of railways in the area of Sardinia.

The *ferrocycle*, known in other countries of Europe and the world as *Velorail, Draisine*, or *Hand Bike,* is currently scarcely widespread in Italy despite the wide availability of tourist railways in the area. It is a light and maneuverable means of transport, exceptionally versatile, whose mobility comes from the natural pedaling of tourists, able to tackle even slightly sloping stretches without difficulty, thanks to the assisted pedaling system (which is also 100% sustainable). Through economic projections and the analysis of sustainability in its triple meaning, this research shows how, for Sardinia, exploiting historic railways through the means of locomotion of the *ferrocycle,* is a new eco-entrepreneurial opportunity capable of supporting slow tourism.

These projections will be realized through a business plan developed based on one of the most famous and historically suggestive railway stations in Sardinia, a 10-kilometer

[1] 'Narrow-gauge' lines are those with a width of 950 mm, as opposed to 'ordinary-gauge' lines with a width of 1450 mm. There are also models of ferrocycle that can be adapted to transport people with disabilities and allow the transport of a wheelchair.

section which, for geographical and strictly technical reasons, is particularly suitable for developing such a new eco-business model.

This research has interesting academic and managerial implications. On the one hand, it enhances the literature on slow tourism and sustainable tourism with the introduction of a new type of railway exploitation through the locomotion of the narrow-gauge railway (present only in Sardinia) with full respect to sustainability; the literature of entrepreneurship with the proposal of a new business model; and, finally, from the managerial point of view, the proposal for new eco-entrepreneurs to exploit this unique opportunity in an area with a high tourist vocation but no railway.

Keywords: Railway Tourism; Slow Tourism; Historic Railways; Sustainability; Eco-business model.

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CARBON MANAGEMENT CHALLENGE, A MATTER OF PERFORMANCE: DOING GOOD OR FEELING GOOD?

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Abstract

Climate change has become a crucial matter involving every human and business activity, required by the growing incidence of extreme natural events that characterize our era. The statement of the "global boiling era" by António Guterres (Niranjan, 2023), the UN Secretary-General, in July 2023, has brought attention to various tools implemented to address global warming, including carbon credits, introduced under the Kyoto Protocol. The increasing urgency of addressing climate change has led to a stream in the importance of carbon offsets over the past two years (Gurgel, 2022). Companies are investing in carbon offsets to mitigate their greenhouse gas emissions (Harvey, 2021), with each offset representing a tonne of emissions avoided or removed from the atmosphere. However, these investments have come under examination, with concerns about over-crediting or selling offsets that promise more emissions reductions than they achieve (Fan et al., 2021). Despite these challenges, the carbon offset market has shown resilience, even progressing during the coronavirus pandemic (Gross, 2020). This is partly due to an unexpected boost from corporate demand and high-profile initiatives.
Although carbon credits and carbon offsets are frequently used interchangeably, they represent different products with distinct purposes. In essence, a carbon offset denotes the removal of greenhouse gases from the atmosphere, while a carbon credit represents the reduction of released into the atmosphere (Calel et al., 2021). Carbon credits or offsets, often used to balance emissions that are difficult to remove, have gained traction as an essential element of corporate sustainability initiatives. However, their impact on financial outcomes remains an area of ongoing debate (Wang et al., 2022; Wang, 2023).
This research aims to shed light on the relationship between carbon credits and a firm's financial performance, examining the mediation role of Environmental score (Peterson, 2022). The study's purpose is to fill this gap and determine whether carbon credits are connected to financial outcomes.

According to the last studies in the sustainability field, carbon offsets may be considered as strategic resources or capabilities available to a company for enhancing its competitive advantage (Kaplan et al., 2023; Shrestha et al., 2023). This view represents the core of the Resource-Based View theory, which suggests that firms gain a competitive advantage by using their resources and capabilities differently compared to competitors (Barney, 1991). Furthermore, carbon credits could operate as a means for companies to acquire or maintain legitimacy in the eyes of stakeholders, ensuring actions in compliance with laws: Legitimacy Theory (Dowling & Pfeffer, 1975; Suchman, 1995). Finally, carbon offsets could be seen as a way for companies to fulfill their responsibilities to stakeholders in general (employees, customers, environment, and, so on), not only shareholders: Stakeholder Theory (Jones et al., 2017; Cornell & Shapiro, 2021).
In this setting, characterized by growing environmental concerns, organizations are increasingly investing in carbon offsets as a strategy to reduce their carbon footprint (Cadez et al., 2019). Then it becomes interesting to understand the role of carbon offsets, considered as a resource, and consider that financial outcomes are related to

the combination of a firm's resources. More specifically, we assume that the impact of carbon offsets on financial outcomes is positive and that environmental score increases their effects, moderating them. Our variables come from existing literature on the sustainability field: carbon credits variable come from carbon offsets proxies defined by Sitompul et al. (2023) and, financial outcomes from previous studies in the sustainability field (Tang et al., 2012; Dalal & Thaker, 2019; Palea & Santhia, 2022). We also used several control variables in order to avoid endogeneity problems (Sitompul et al., 2023).
To test our hypothesis, we use a worldwide sample of 50 companies with carbon offsets/credits for a time frame of 5 financial years (2018-2022), with specific attention to the sector and geographical region. To determine the impact of carbon credits on financial performance, we used the panel regression technique. The risk of endogeneity has been eliminated by fixing the direction of analysis and incorporating a lot of control variables.
The study reveals significant preliminary results. First, it sheds light on the relationships between carbon credits and, the company's financial outcomes. Carbon credit utilization has a notable impact on the financial performance of companies, with certain industries and regions experiencing more prominence. The results also highlight the Environmental score as a mediator, suggesting that companies with strong sustainability initiatives improved financial performance when incorporating carbon credits. Due to the findings obtained, it is possible to highlight many contributions. By integrating insights from recent events and empirical evidence, this research will contribute to our understanding of how investments in carbon offsets can serve as strategic resources that enhance financial performance (Meng et al., 2023). It will also shed light on how environmental scores can influence this relationship. The data comes from a worldwide sample so variations in regulatory frameworks and reporting standards across regions could impact the study's findings. Furthermore, it is essential to recognize that the adoption of carbon credits becomes mandatory for specific companies (Palea & Santhia, 2022; Zhang et al. 2023). This raises the question of whether carbon credits can be considered an effective strategy to fight climate change or just an economic/financial tool implemented by companies due to regulatory requirements (Zhang et al. 2023).
This work highlights important implications for encouraging sustainable entrepreneurship by focusing on carbon credit investment due to law recommendations and enhancing financial performance. Policymakers can use the research insights to implement effective policies that encourage businesses to adopt sustainable practices. Investors can gain valuable knowledge on the financial implications of incorporating carbon credits and ESG practices into their decision-making processes. Ultimately, the study can assist companies in making informed decisions about carbon credit utilization and sustainability practices, contributing to their long-term financial success while promoting sustainability.
In conclusion, with the growing visibility of climate change impacts, there is a notable acceleration in the adoption of decarbonization commitments. Companies are taking swift and resolute actions to mitigate greenhouse gas emissions and offset residual carbon footprints (Badri et al., 2023). However, a significant unanswered question remains: What is the source of funding for carbon credits, which companies utilize to offset their emissions, does it originate from marketing or sustainability budgets? (Hodgson, 2022).

Keywords: Carbon management, Carbon offsets, Financial performance, ESG score

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COMPARATIVA ENTRE LA INTENCIÓN INTRAEMPRENDEDORA DEL ALUMNADO DE LA TITULACIÓN DE ECONOMÍA EN ESPAÑA Y COLOMBIA

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Abstract

To ensure their survival, organizations must develop products and services adapted to the market's needs and introduce elements that favor the generation of sustainable competitive advantages. To do so, they need hard-working staff who possess knowledge, competencies, and skills specific to their training and can undertake innovative actions in the performance of their future professional tasks (Gawrycka et al., 2020). On the other hand, empirical studies highlight evidence that intrapreneurship strengthens organizations (Marques et al., 2019). Thus, companies select intrapreneurs who add value to their organization.

This reality of the labor market faced by university graduates influences universities to understand their role as active agents in developing competencies and skills that favor the future employability of their graduates (Naval-Castelao et al., 2015).

Despite their importance for the creation, development, and survival of firms, entrepreneurship, and intrapreneurship behave unevenly at the territorial level, as there are different levels of entrepreneurial activity between countries. The reasons are multiple: 1) size of economies (Liñán and Fernandez-Serrano, 2014; Lee and Peterson, 2000), 2) innovative environment conducive to the creation of new firms (Turró et al., 2014; Williams and McGuire, 2010), 2) the role played by culture (individual or group), the culture of the individual influences the willingness to undertake (Hayton et al., 2017; Liñán et al., 2013; Mueller and Thomas, 2001). Specifically, places where a positive view of entrepreneurship is prevalent, where creative thinking is encouraged, and where the entrepreneur or innovative worker is dignified, are more likely to have a higher rate of entrepreneurship than those where this is not the case (Hayton et al., 2017; Gawrycka et al., 2000).

Previous research has focused on studying the variables that influence a person to be entrepreneurial, but few studies have analyzed intra-entrepreneurs. This research aims to validate the intra-entrepreneurial model in university students and to expose the differences between people of different nationalities.

To measure Intrapreneurial Intention, a questionnaire has been used that includes a model of intrapreneurial behavior developed from the findings of Bolton & Lane (2012) and Marques et al. (2019). This model is composed of 1 dependent variable (Intrapreneurial Intention - IIN) and four independent variables:

- Risk-takers (RA): people who, aware of the probability of failure, find it attractive to develop new products, services, or processes.
- Innovation (INN): people who investigate new approaches and generate different ideas.
- Proactivity (PRO): people who look for solutions and anticipate possible problems that may be encountered.
- Attitude Towards Intrapreneurship (ATI): people who seek personal and professional development by initiating new projects and tasks within their work group.

Fashami et al. (2021) identify intrapreneurs as people who can take risks and implement actions that can lead to beneficial results for their company. These people share many traits with entrepreneurs; however, intrapreneurs differ mainly because they do not intend to leave their organization or risk their capital by carrying out their ideas to innovate and promote change outside the organization (Badoiu et al., 2020).

To measure the perception of the five variables that make up the intrapreneurial model, each construct was composed of a series of statements that the students had to rate (from 1 to 5, with 1 being the minimum score and 5 being the maximum score).

To achieve the proposed objective, a research group from the University of Seville in Spain (ESP) and another from the University of Cartagena in Colombia (COL) worked collaboratively. Each analyzed the questions formulated and adapted them to their social and cultural context. Between May and July 2023, an incidental non-probabilistic sampling of students of the Economics degree at the University of Seville and the University of Cartagena was carried out. A total of 67 responses were obtained in Spain and 43 in Cartagena.

The results were analyzed at two levels:

- Average evaluation of the Economics degree students in each territory of each variable that makes up the model.
- Analysis of the model by gender and territory.

Among the main results, it is worth highlighting that students from the University of Cartagena have a higher Intrapreneurial Intention than students from Seville (COL = 4.01 and

ESP = 3.64). This result is in line with their assessment of Risk Taking (COL = 3.72 and ESP = 3.64), Innovation (COL = 3.88 and ESP = 3.69), Proactivity (COL = 3.98 and ESP = 3.63), and Attitude towards Intrapreneurship (COL = 3.97 and ESP = 3.79). It can be seen that the male students expressed a slightly higher value than the female students in both areas:

- Intrapreneurial Intention: male COL-Pupils = 4.01 and female COL-Pupils = 3.99, male ESP-Pupils = 3.65 and female ESP-Pupils = 3.62.
- Risk-taking (RA): male COL-Pupils = 3.78 and female COL-Pupils = 3.65, male ESP-Pupils = 3.65 and female ESP-Pupils = 3.61.
- Innovation (INN): male COL-Pupils = 3.90 and female COL-Pupils = 3.83, male ESP-Pupils = 3.81 and female ESP-Pupils = 3.57.
- Proactivity (PRO): male COL-Pupils = 3,98 and female COL-Pupils = 3,96, male ESP-Pupils = 3,56 and female ESP-Pupils = 3,66.
- Attitude towards intra-entrepreneurship (ATI): male COL-Pupils = 3.84 and female COL-Pupils = 4.06, male ESP-Pupils = 3.86 and female ESP-Pupils = 3.71.

It should be noted that Spanish female students score more than male students in Proactivity and Colombian female students in Attitude towards Intrapreneurship.

Although these results are preliminary and cannot be extrapolated to the total number of people enrolled in the Economics degree, they are an approximation that adds value to research on intrapreneurship.

It is confirmed that university students have a high intention towards intrapreneurship and, to a greater extent, those at the University of Cartagena in Colombia. However, the figures are not exceptionally high, so it is necessary to encourage proactivity, risk-taking, innovation, and interest in professional and personal growth. Universities are the right place to develop these soft skills, so it is suggested that improvements be made in training with a gender perspective and that we learn from the experience of other centers and implement them.

The results have demonstrated the validity of the model for measuring Intrapreneurial Intention and the existence of differences between territories and by gender.

Among the main limitations of this research are the small sample and time frame analyzed. For this reason, as part of future lines of research, it is proposed to increase the number of responses to the form and degrees analyzed.

Keywords: higher education, intrapreneurship, innovation, students.

Resumen

Las organizaciones, para garantizar su supervivencia, deben de desarrollar productos y servicios que se adapten a las necesidades del mercado, además de introducir elementos que favorezcan la generación de ventajas competitivas sostenibles. Para ello, necesitan de personal trabajador que posea conocimientos, competencias y habilidades específicas de su formación, y a la vez sean capaces de emprender acciones innovadoras en el desempeño de sus futuras tareas profesionales (Gawrycka et al., 2020). Por otro lado, estudios empíricos ponen de relieve la existencia de evidencias de que el intraemprendimiento fortalece a las organizaciones (Marques et al., 2019). Así pues, las empresas seleccionan a personas intraemprendedora que aportan valor a su organización.

Esta realidad del mercado de trabajo al que se enfrentan los egresados universitarios influye para que las universidades hayan entendido su papel como agentes activos en el desarrollo de competencias y habilidades que favorezcan la futura empleabilidad de sus egresados (Naval-Castelao et al., 2015).

Pese a su importancia para la creación, desarrollo y supervivencia de las empresas, el emprendimiento y el intraemprendimiento se comportan de forma desigual a nivel territorial, ya que existen distintos niveles de actividad emprendedora entre países. Las razones son múltiples: 1) tamaño de las economías (Liñán y Fernandez-Serrano, 2014; Lee y Peterson, 2000), 2) entorno innovador que propicia la creación de nuevas empresas (Turró et al., 2014; Williams y McGuire, 2010), 2) el rol que juega la cultura (individual o grupal), la cultura del individuo influye en la disposición a emprender (Hayton et al., 2017; Liñán et al., 2013; Mueller y Thomas, 2001). En concreto, aquellos sitios donde predomina una opinión positiva hacia la creación de nuevas empresas, se fomenta el pensamiento creativo y se dignifica a la persona empresaria o al trabajador innovador, es más probable una tasa de emprendimiento mayor que en aquellos donde no ocurre (Hayton et al., 2017; Gawrycka et al., 2000).

Trabajos anteriores han puesto el foco en el estudio de las variables que inciden para que una persona sea emprendedora, pero son pocos los estudios que analizan a las personas

intraemprendedoras. Esta investigación tiene como objetivo validar el modelo intraemprendedor en el alumnado universitario y exponer las diferencias entre personas de diferentes nacionalidades.

Para medir la Intención Intraemprendedora se ha empleado un cuestionario que recoge un modelo del comportamiento intraemprendedor desarrollado a partir de los hallazgos de Bolton & Lane (2012) y de Marques et al. (2019). Este modelo se compone de 1 variable dependiente (Intención Intraemprendedora – IIN) y cuatro independientes:

- Asumir riegos (AR): personas que, siendo consciente de la probabilidad de fracaso, les resulta atractivo desarrollar nuevos productos, servicios o procesos.
- Innovación (INN): personas que investigan nuevos enfoques y generan ideas diferentes.
- Proactividad (PRO): personas que buscan soluciones y se adelantan a los posibles problemas que se pueden encontrar.
- Actitud hacia el Intraemprendimiento (ATI): personas que buscan el desarrollo personal y profesional poniendo en marcha nuevos proyectos y tareas dentro de su grupo de trabajo.

Fashami et al. (2021) identifica a las personas intreaemprendedora como aquellas que son capaces de asumir riesgos y de poner en marcha acciones que pueden desembocar en resultados beneficiosos para la empresa de la que forman parte. Estas personas comparten muchos rasgos con las personas emprendedoras; sin embargo, las intraemprendedoras se diferencian principalmente en el hecho de no pretender dejar su organización ni arriesgar su capital llevando a cabo sus ideas para innovar y promover el cambio fuera de la organización (Badoiu et al., 2020).

Para medir la percepción sobre las cinco variables que integran el modelo intraemprendedor, cada constructo estaba compuesto por una serie de afirmaciones que el alumnado debía de calificar (de 1 a 5, siendo 1 el puntaje mínimo y 5 el puntaje máximo).

Con el fin de alcanzar el objetivo propuesto, se trabajó de forma colaborativa entre un grupo de investigación de la Universidad de Sevilla en España (ESP) y otro de la Universidad de Cartagena en Colombia (COL). Cada uno analizó las cuestiones formuladas y las adaptó a su contexto social y cultural. Entre mayo y julio del año 2023 se procedió a un muestreo no probabilístico incidental del alumnado de la titulación de Economía de la Universidad de Sevilla y de Cartagena. Se obtuvo un total de 67 respuestas en España y de 43 en Cartagena.

Los resultados se analizaron a dos niveles:

1. Valoración media del alumnado de la titulación de Economía de cada territorio de cada variable que compone el modelo.
2. Análisis del modelo por sexo y territorio.

Dentro de los principales resultados destaca que el alumnado de la Universidad de Cartagena presenta una Intención Intraemprendedora superior a los estudiantes sevillanos (COL = 4,01 y ESP = 3,64). Este resultado está en consonancia con su valoración sobre Asumir Riesgos (COL = 3,72 y ESP = 3,64), Innovación (COL = 3,88 y ESP = 3,69), Proactividad (COL = 3,98 y ESP = 3,63) y Actitud hacia el Intraemprendimiento (COL = 3,97 y ESP = 3,79).

Se observa que los alumnos expresaron una valoración ligeramente superior a las alumnas en ambos territorios:

- Intención Intraemprendedora: COL-Alumnos = 4,01 y COL-Alumnas = 3,99, ESP-Alumnos = 3,65 y ESP-Alumnas = 3,62.
- Asumir riegos (AR): COL-Alumnos = 3,78 y COL-Alumnas = 3,65, ESP-Alumnos = 3,65 y ESP-Alumnas = 3,61.
- Innovación (INN): COL-Alumnos = 3,90 y COL-Alumnas = 3,83, ESP-Alumnos = 3,81 y ESP-Alumnas = 3,57.
- Proactividad (PRO): COL-Alumnos = 3,98 y COL-Alumnas = 3,96, ESP-Alumnos = 3,56 y ESP-Alumnas = 3,66.
- Actitud hacia el Intraemprendimiento (ATI): COL-Alumnos = 3,84 y COL-Alumnas = 4,06, ESP-Alumnos = 3,86 y ESP-Alumnas = 3,71.

Es preciso destacar que las alumnas españolas muestran un resultado superior a los hombres en Proactividad, y las alumnas colombianas en Actitud hacia el Intraemprendimiento.

A pesar de que estos resultados son preliminares y no se pueden extrapolar al total de las personas matriculadas en la titulación de economía, sí son una aproximación que aporta valor a las investigaciones sobre intraemprendimiento.

Queda confirmado que el alumnado universitario tiene una alta intención hacia el intraemprendimiento , en mayor grado las personas de la Universidad de Cartagena en Colombia. Pero las cifras no son especialmente elevadas y por ello se hace necesario fomentar las capacidades de proactividad, asumir riesgos, innovación e interés por el crecimiento profesional y personal. Las universidades son el espacio adecuado para el desarrollo de estas

habilidades blandas, por ello se sugiere el aportar mejoras formativas con perspectiva de género, y aprender de la experiencia de otros centros e implementarlas.

Los resultados expuestos han demostrado la validez del modelo para la medición de la Intención Intraemprendedora, así como la existencia de la diferencia entre territorios y por género.

Entre las principales limitaciones de esta investigación se encuentran la reducida muestra y temporalidad analizada. Por ello, dentro de las líneas futuras de investigación, se plantea ampliar el número de respuestas al formulario y titulaciones analizadas.

Palabras clave: educación superior, intraemprendimiento, innovación, estudiantes.

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RELATIONSHIP BETWEEN HUMAN CAPITAL OF MANAGEMENT TEAMS, TECHNOLOGICAL CAPABILITY, FINANCING SOURCES, AND SUSTAINABILITY IN STARTUPS

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Abstract

In recent years, research on startups has been on the rise, aiming to identify their success and failure factors, given their increasing impact on the economic development of countries and their high mortality rates. It has been found, among other factors, that management teams play a significant role in their survival and performance. This research aims to propose and validate a model that measures the impact of human capital factors, technological capacity, and funding sources on the long-term sustainability of startups. Standardized data from startups that have been supported between 2013 - 2019 by accelerator programs in 6 countries in the Americas, provided to the Global Accelerator Learning Initiative (GALI) at Emory University, were used for this study. The Partial Least Squares Structural Equation Modeling (PLS-SEM) method was used to validate the proposed model, revealing the variables with the greatest impact on performance and their effects on sustainability. This research contributes the understanding of the performance determinants within the management teams of startups.

Key Words: Human Capital; Technological Capacity; Financing; Management Teams; Startups

Introduction and Theoretical Framework

Startups are attracting attention due to their impact on economic and social development, their ability to create high-quality jobs, generate knowledge, innovate, and disrupt industries with new technologies. However, they have high failure rates. This has led researchers to investigate their success and failure factors, and to analyze what can be done to improve their chances of survival and growth. Among other things, they have found that management teams play a critical role in performance.

Previous work experience, team size, heterogeneity, and prior entrepreneurial experience (members have been part of another entrepreneurial team previously) are characteristics of management teams that positively impact performance (Aspelund et al., 2005: Eliakis et al., 2020; Song et al., 2008).

Human capital is understood as the stock of knowledge, skills, and abilities that individuals have acquired through education, training, and work experience (Becker & Collins, 1964; Helfat & Martin, 2015). According to Song et al. (2008) and Shane (2000), human capital factors influence the performance of new ventures by enabling them to develop competitive strategies and capitalize opportunities.

Jin et al. (2017) examined the relationship between entrepreneurial team composition characteristics and startup performance, arguing that higher levels of human capital enable management teams to better cope with the labor demands of startups operating in a volatile, uncertain, complex, and ambiguous (VUCA) environment.

On the other hand, management teams must make strategic decisions in order of growing their new ventures (Brinckmann & Hoegl, 2011). To do so, they harness their capabilities to manage both financial and non-financial resources required for operations, payroll, product development, marketing strategies, and self-compensation. The acquisition of these resources serve as an indicator of the success of the new startup (Chandler & Hanks, 1993; Delmar et al., 2003; Brinckmann & Hoegl, 2011).

In the case of high-tech startups, patents and the team's expertise are crucial resources for demonstrating technological quality and attracting investment (Hoening & Henkel, 2015). Patents can be valuable for getting venture capital financing, improving competitive advantage, and increasing the chances of acquisition by other companies (Hottenrott et al., 2015; Dias & Mazieri, 2020).

Another aspect to consider in the funding process is the use of digital signals. Startups that successfully establish digital connections and relationships with their customers through social networks are able to create a strong brand image. This acts as a positive signal for venture capital investors (Nigam et al., 2020).

This research aims to introduce and validate a model using PLS-SEM that assesses the influence of human capital factors within the management teams of technology startups, the developed technological capacity, and funding sources on their sustainability over time. This model is suggested to investigate whether these constructs exhibit positive correlations and to analyze the individual contributions of each factor to the survival and sustainability of the new startup.

Metodology

Standardized data provided by accelerators from 6 countries in the Americas between 2013 and 2019 have been used for the Global Accelerator Learning Initiative (GALI) at Emory University. These data are derived from the application processes of their acceleration programs and performance tracking conducted through annual surveys with the participating entrepreneurs. The database has been filtered by selecting startups that completed acceleration programs in the United States, Mexico, Colombia, Chile, Brazil, and Ecuador, and also participated in the subsequent three-year longitudinal studies. These selected startups were founded before 2016, resulting in a total of 121 cases.

The method of Partial Least Squares Structural Equation Modeling (PLS-SEM) has been used to validate the proposed model and reveal the variables with the greatest influence on performance, while also measuring the impact on sustainability.

From this perspective, we measure human capital factors based on team size, educational level, previous work and entrepreneurial experiences accumulated by the entrepreneurial team, as well as the roles founders have played in previous experiences. The technological capacity of a new startup can be measured by the extent to which it is based on invention, patents, copyrights, trademark registration, and digital presence on social media. The sources of financing are observable in debt, equity financing, own resources, and philanthropic resources that have been obtained for their operation.

The model is as follows:

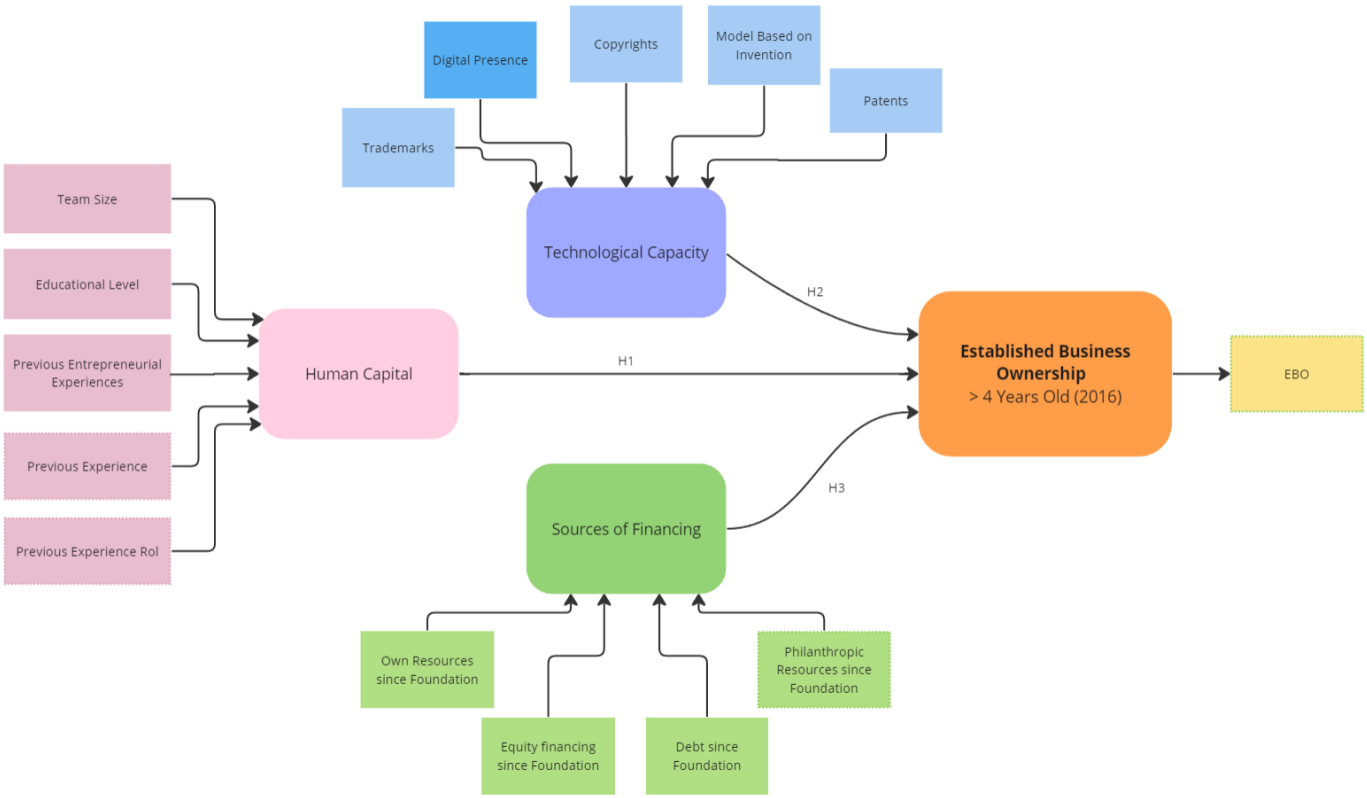

Figure No. 1: Theoretical Model of Factors Influencing the Sustainability of New Startups

Were:

H1: Human capital factors have a direct impact on the sustainability of new startups

H2: The technological capacity of startups has a direct impact on their sustainability

H3: Financing sources have a direct impact on the sustainability of new startups

Results

In Figure No. 2, the results of the structural analysis of the model can be observed. The initial analyses of the formative measurement model confirm the relationships between the indicators and their constructs, explaining the importance of each one within the overall score. It is found that the most important indicators for human capital are the education level, the team size, and the management team members role played in previous work experiences. The team size is negatively correlated with the construct, meaning that the larger the team size, the lower the value of the construct.

The most important indicators for technological capacity are trademark registration, digital presence, and copyrights. The most relevant indicators for funding sources are equity financing and philanthropic resources.

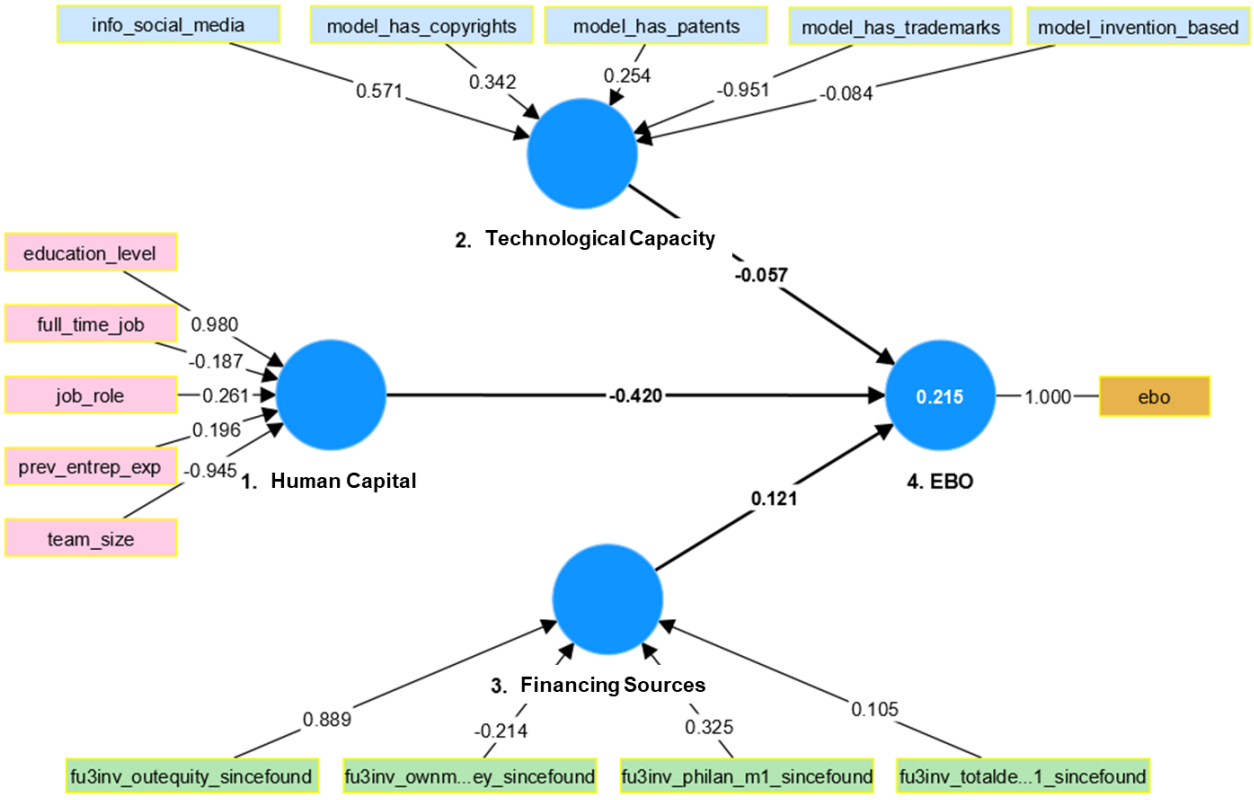

Figure No. 2: Analysis of the Structural Model

When examining the structural model to assess its ability to predict the formulated hypotheses, it became evident that there are challenges with the overall model fit. Despite our hypotheses suggesting a positive relationship, we observed negative path coefficients for both human capital and technological capacity within the model. This finding contradicts hypotheses H1 and H2, which were postulated to signify the influence of human capital and technological capacity on the sustainability of new startups. Additionally, hypothesis H3 related to the direct impact of funding sources on sustainability is weak.

Conclusions

The relationships between the indicators defined for each construct have been validated. These indicators represent characteristics that, when taken together, explain the concept contained in those constructs.

We found that a larger team size is associated with a lower value of the human capital construct. This is because, while a larger team has more knowledge resources, a greater capacity to process information, and the ability to execute more tasks simultaneously, it can also lead to communication problems and conflicts, which can negatively impact performance. It looks like a moderate team size would make it easier to achieve higher levels of behavioral integration, which would have a positive impact on the startup's performance (Simsek et al., 2005; Jin et al., 2017). To prove this, we need to do more research on the size of the management team of new startups and how it affects their performance.

Although theory suggests that human capital, technological capacity, and funding sources all have a positive impact on the survival and sustainability of new startups, the results of our study show that the proposed model is not valid. This means that we don't have any evidence about the strength or direction of the relationships between these factors (positive or negative).

It seems that the PLS-SEM methodology may not be the tool that detects it. This could be attributed to the heterogeneity of the database, the varying behavior of variables in the different countries studied, or even the way the information was collected and processed.

In future research, we will continue to look into these relationships. To do this, we propose to review the methodology we used, redefine some of the elements of the model, and/or create a more robust database.

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THE EFFECTS OF TOP MANAGEMENT TEAM GEOGRAPHIC DISPERSION ON MULTINATIONAL CORPORATIONS' PERFORMANCE

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Abstract

As multinational corporations (MNCs) expand globally, the dispersion of top management teams (TMTs) across various regions becomes increasingly prevalent. This study aims to explore how geographic dispersion of TMTs affects the performance of MNCs that struggle to maintain competitiveness in a rapidly changing global landscape. Several studies have explored the composition and characteristics of TMTs, the diversity of its members, and its influence in firms' strategic choices. However, little research on the structure and location of TMT members has been done. A systematic literature review of the top social science journals will be conducted using an interdisciplinary lens that draws on upper-echelons theory and international business. The expected results will allow the development of a conceptual framework that integrates theoretical and empirical research with TMT geographic dispersion as its focal unit of analysis. The ongoing research purpose is to contribute to the understanding of how TMT structure and geographic dispersion influence the strategic decision-making and performance of MNCs. This paper discusses implications of the foreseen findings and identifies little contribution in the literature revealing a potential avenue for future research.

Introduction

Digital transformation has revolutionized global connectivity bringing the power to unite people and ideas, and in this way, facilitating unprecedented levels of interconnection across the world. The evolution of technology in present times is breaking down borders and boundaries, enabling a seamless and interconnected global environment (Vial, 2019). The dispersion of employees as well as members of management teams is a reality that encourages analyzing the effects that these new situations are having on companies.

What makes virtual teams virtual is geographical dispersion and the use of technologically mediated communications. The members of virtual teams are not collocated; their primary work sites are different from one another. They may be located in different buildings, cities, states, nations, and even continents. Team members may belong to the same organization or multiple organizations. Thus, these teams may be transnational or global and multiorganizational (Gibson & Cohen, 2003)

As multinational corporations evolve and expand globally, the understanding of MNC structure and organization becomes crucial to establish the firm network (Ghoshal & Bartlett, 1990). Consequently, geographic dispersion as the physical separation of members across different countries, regions, or time zones, becomes more prevalent. It presents unique challenges to communication, coordination, and decision-making within MNCs.

The literature on TMT highlights that they are major decision-makers in the MNCs, and their foreign knowledge and international experience will influence strategic choices and outcomes. Research has emphasized the significance of TMT characteristics in shaping strategic decision-making processes within MNCs. The diversity of TMTs, including functional, demographic, and cultural diversity, has been found to positively influence decision quality, innovation, and overall firm performance (Hambrick & Mason, 1984).

However, researchers of international business have paid little attention to the structure of top management teams, especially the location of its members (Cuypers et al, 2022). Such limited contribution may be addressed by investigating the cross-border TMT in the relationship between its members' location and MNC performance.

Although cross-border is related to overseas or international, the definition more suitable to this research is the involving movement or activity across a border between two countries or more. Hence, cross-border top management teams could be defined as top management teams whose members are dispersed across a border in different physical locations than the headquarters of the multinational corporation, either in its subsidiaries, intermediate units, or even other sites.

Drawing upon the Upper Echelons Theory, International Business Theory, and TMT structure literature, this research proposal focuses on multinational's TMT and contends that the degree of TMT geographic dispersion will influence firms' outcomes.

The review of the large and diverse literature on top management teams in the context of international business (Cuypers et al, 2022) offers an open window to the redefinition of the

structure of TMTs in terms of geographic dispersion. Building on the arguments above, this research proposal is aligned with the existing literature and intends to move a step beyond the relationship between Cross-border TMT and MNC performance.

Objectives

This research main objective is to study the effects of geographic dispersed top management teams in multinational corporations.

Due to the lack of theoretical studies that investigate the geographic dispersion of top management teams, this research also aims to develop a conceptual framework that integrates theoretical and empirical research with TMT dispersion as its focal unit of analysis. Therefore, to provide a development in this field, a systematic literature review is required.

Correspondingly, to achieve the general objective, three research questions may be outstanding in the context of multinational enterprises:

RQ1: How is the geographical dispersion of European MNCs' TMT?

RQ2: Which characteristics have the firms that have TMTs dispersed?

RQ3: How TMT geographic dispersion impacts on the MNC competitiveness?

Methodology

Top Management Team researchers are calling for empirical studies on how TMT structure influences MNCs' strategies (Cuypers et al, 2022). Moreover, given that this topic has not been explored through the perspective of geographic dispersion, a literature review will give the chance to widen the scope of the research on TMT structure in international business (Cannella et al, 2008).

In sum, this research pretends to examine whether and how TMT geographic dispersion of TMT members affects firms' strategic choices and outcomes by the collection of primary and secondary data.

Therefore, this dissertation is focused on European multinational enterprises since they play a major role in the EU economy. They contribute substantially to all EU countries to the production of goods and services, employment, and investment.

More precisely, the research will target a sample of MNCs operating in various industries with a significant global presence. TMT members from different functional areas within the organizations will be included in the study.

Expected results

The study will examine the impact of geographic dispersion on the effectiveness of TMT decision-making and coordination within MNCs. By considering the challenges and opportunities associated with dispersed TMTs, the research aims to identify the mechanisms through which geographic dispersion affects the overall performance of MNCs.

The first stage is to systematically review the literature related to top management teams in the international business context to show the scarce contribution and draw a conceptual framework of the geographic dispersion of TMTs.

A sample of data gathered from a European MNC database will show that a high percentage of members within MNCs work at a different physical address than the headquarter due to the evolution of technology and the interconnected global environment.

The expected findings within this dissertation are to know to which extent the top management teams are dispersed, what are the characteristics of the multinational enterprises that have their TMT dispersed and where are its members located within the enterprise network, classifying it into domestic or cross-border dispersion.

In the last stage, a sample of multinational enterprises will determine whether the dispersion of their top management team has an impact on the firm outcomes and how this effect is managed within the corporations.

Conclusions

The study aims to contribute to the understanding of how TMT structure and geographic dispersion influence the strategic decision-making and performance of MNCs. The findings can provide valuable insights for multinational companies in optimizing TMT structure, improving communication and coordination mechanisms, and enhancing overall organizational performance in IB contexts.

This study will contribute to analyzing the effects of global work and their influence in International HRM, helping to understand the new boundaries. It aims to offer new perspectives in terms of TMT structure. Our purpose is to assess MNC managers whether to dislocate the TMT in order to achieve greater competitiveness.

A limitation of this dissertation is that the target population is limited to European Multinational Companies. Future research on MNC in emerging markets (EM) would allow us to know if the geographical dispersion of TMTs depends on the evolution of EM.

Keywords: Top Management Teams, Multinational Corporations, Geographical dispersion, Upper Echelons, International Business

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HARNESSING THE POWER OF PROMPT PATTERNS FOR ENTREPRENEURSHIP

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Abstract

The rapid advancement of technology has transformed the entrepreneurial landscape, the continuous emergence of innovative tools requires entrepreneurs to adapt to and leverage them to thrive in the digital era. Large Language Models (LLMs) have emerged as powerful communication tools, capable of generating coherent and contextually relevant text. However, ensuring the accuracy, clarity, and customization of LLM outputs remains a challenge. In the literature, there are a plenty of studies exploring the use of prompts for code generation. Building upon the literature, this paper identifies the main prompt patterns (Schmidt et al., 2023) applicable to the field of entrepreneurship (Short & Short, 2023). It also analyzes the potential benefits of prompt patterns in improving entrepreneurship in the digital era, focusing on decision-making, problem-solving, process optimization, automation, and visualization.

Entrepreneurs face a multitude of decisions throughout their entrepreneurial endeavors. The Alternative Approaches pattern (White, Fu, et al., 2023) equips entrepreneurs with the ability to make well-informed decisions by introducing a range of alternative approaches for addressing various challenges. Whether it is selecting cloud services, developing marketing strategies, or streamlining operational processes, this pattern encourages entrepreneurs to explore different options and consider alternative solutions that may offer cost-effectiveness, scalability, and reduced maintenance effort. By embracing this pattern, entrepreneurs can optimize their decision-making process and align their choices with their business objectives in the ever-evolving digital age.

Critical thinking and problem-solving skills are crucial for entrepreneurs navigating the complexities of the digital landscape. The Cognitive Augmentation pattern (Wang et al., 2023) enhances these skills by guiding LLMs to subdivide complex questions into smaller, more manageable sub-questions. By encouraging the generation of additional questions that provide a better understanding of the original question, entrepreneurs can engage in comprehensive and critical thinking, leading to more accurate and insightful responses. This pattern finds particular value in software engineering and entrepreneurial decision-making, where thorough analysis and reasoning are paramount.

The Fact Check List pattern (White, Fu, et al., 2023) addresses the challenge of ensuring factual accuracy in LLM outputs, a critical consideration in the digital era. Entrepreneurs heavily rely on data analysis and research to inform their decisions. By prompting the generation of a fact check list, entrepreneurs can validate the accuracy of information generated by LLMs, enabling them to make well-informed decisions based on reliable data. This pattern fosters transparency, maintains trust, and enhances the credibility of the information presented, aligning entrepreneurship with the demands of a data-driven society.

Optimizing processes and streamlining workflows are crucial for efficient entrepreneurship in the digital age. The Generic Template pattern (White, Hays, et al., 2023) enables entrepreneurs to define precise structures or formats for LLM outputs, ensuring consistency and adherence to specific requirements. In digital technology and entrepreneurship, where standardized formats and specific templates are prevalent, this pattern streamlines processes and enhances compatibility with existing systems and tools. By providing clear instructions and placeholders within the template, entrepreneurs can leverage LLMs to generate outputs that seamlessly integrate with their established workflows, reducing errors and enhancing efficiency.

Automation is a key enabler for entrepreneurs seeking to maximize productivity and focus on high-value tasks. The Infinite Generation pattern automates repetitive tasks by instructing LLMs to generate a series of outputs without re-entering the prompt (White, Fu, et al., 2023). Entrepreneurs can rapidly generate multiple outputs, such as code snippets, marketing content variations, or product descriptions, saving time and enhancing efficiency in fast-paced entrepreneurial environments. By reducing manual effort and providing a continuous stream of generated outputs, this pattern allows entrepreneurs to dedicate more time to strategic planning and creative problem-solving.

Visual representation of complex concepts is vital for effective communication in the digital age. The Visual Generator pattern combines LLMs with visualization tools (Liu & Chilton, 2022), allowing entrepreneurs to create informative and visually appealing imagery. From system architecture diagrams (Abukhalaf et al., 2023) to data visualizations, entrepreneurs can leverage the power of LLMs to convey complex information in a clear and engaging manner. This pattern

enhances communication and comprehension, facilitating effective decision-making, investor presentations, and user engagement in entrepreneurial ventures.

Entrepreneurship in the digital age thrives on innovation, adaptability, and engagement. The Game pattern introduces an interactive and stimulating approach to LLM interactions (Cotroneo & Hutson, 2023). By defining game-like rules and leveraging LLM capabilities, entrepreneurs can enhance problem-solving skills, creative thinking, and user engagement. This pattern fosters an environment conducive to exploring novel ideas, gamifying entrepreneurial tasks, and developing ventures that embrace the dynamics of the digital age. The incorporation of prompt patterns within game-like contexts can spur creativity, motivate entrepreneurs, and enable them to tackle challenges with enthusiasm.

In conclusion, this paper highlights the potential benefits of prompt patterns in enhancing entrepreneurship. By leveraging these patterns, entrepreneurs can make informed decisions, improve problem-solving abilities, ensure factual accuracy, optimize processes, automate tasks, visualize complex concepts, and foster engagement. As the digital landscape continues to evolve, entrepreneurs who effectively harness the power of prompt patterns in conjunction with LLMs will be well-equipped to navigate the challenges and seize the opportunities presented by the digital age.

Keywords: Large Language Models; Prompt Engineering; Prompt Patterns; Automatic Problem-solving

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OVERCOMING BARRIERS: PROFILES, CIRCUMSTANCES AND EXPERIENCES OF DISABLED ENTREPRENEURS

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Abstract

Social perceptions of people with disabilities have not remained uniform over the years. Several centuries ago, people with disabilities were not considered active and participating members of society (Shaheen, 2016). Gradually, the idea that the diagnosis made by health professionals would fatally condition the lives of people with disabilities has been abandoned. It has become more apparent that these people can significantly contribute to the socio-economic processes of the society in which they live (Wiklund et al., 2019). Their role in carrying out entrepreneurial activities confirms this. Entrepreneurship and the creation of one's job can be seen as viable alternatives to tackle the high incidence of unemployment among people with disabilities (INR, 2021) because among the skills that can be demonstrated are their entrepreneurial skills (Alvord et al., 2,004; Austin et al., 2006; Harris et al., 2013). Entrepreneurs with disabilities do not allow themselves to be sentenced by their physical and mental condition and fight actively and creatively for social inclusion (Lin et al., 2019; Casado & Casaú, 2019). The motivations that lead people with disabilities down the path of entrepreneurship depend on the context of each individual. These motivations can result from multiple circumstances, expectations and life projects: financial need, the need to have a flexible and adapted job, escape from discrimination, personal development, contribution to society, personal independence, self-realisation and autonomy (Csillag et al., 2019; Klangboonkrong & Baines, 2022; Norstedt & Germundusson, 2021).

The present study traces the profile, circumstances and path of entrepreneurs with disabilities. It is based on a qualitative approach by conducting semi-structured interviews with 12 disabled entrepreneurs. The content of these interviews was analysed using MAXQDA PRO 20 software. The data analysis and processing is made in this order: 1. Transcription of interviews; 2. Organization of meaning structures; 3. Identification of emerging themes; 4. Entering data into MAXQDA PRO 20; 5. Analysis of the data obtained. Then the Emerged Themes are: Reasons to resort the Entrepresneruship; Entrepreneur Profile; Entreprise; Self – Employment; Barriers; Support to Entrepreneurs with Disabilities; Educational Dimensional; Territorial Development and Social Inclusion.

The results show an entrepreneurial profile in which attributes such as a strong ability to adapt to different circumstances, clarity of ideas, sociability, a willingness to innovate, and acumen for successful entrepreneurship stand out. The interviewees demonstrated that they have the characteristics to develop entrepreneurial activity successfully. They have entrepreneurial skills that enable them to establish and develop relevant business ideas.

For this to happen, they can negotiate between the agents involved - they demonstrate the ability to mediate and the resilience to overcome the obstacles. Their life experience has increased their resilience and fostered their tenacity. They have innovative capacities in the provision of a wide variety of services. Based on this realisation, they can detect a lack of service provision in society and develop their entrepreneurial activity. They tend to develop their activity by targeting not only the disabled public but also the rest of the population through innovative actions to capture the attention of a more significant number of people (Garcia & Capitán, 2019; León, Cifuentes & Martínez, 2019; Saxena & Pandya, 2018). Concerning their entrepreneurial journey, the interviewees show that it takes on different configurations and timings, involves overcoming multiple barriers and generally tends to receive recognition and admiration from society. This study also aimed to arouse the interest of political decision-makers at local and national levels. In this way, they will better understand the needs/barriers/obstacles these entrepreneurs encounter. This would impact the development of policies for access to the various types of support: bureaucratic, legal and economic, aiming to make them more egalitarian. It is suggested that an Ombudsman for Entrepreneurs with Disabilities be created to oversee local multidisciplinary teams working to educate entrepreneurs with disabilities and help them overcome personal or institutional barriers.

No study of this kind has yet been carried out in Portugal. The valorisation of their experiences and their direct speeches is one of the main factors in the originality of this work.

Keywords: Entrepreneurship; Entrepreneurs with Disabilities; Profile; Obstacles; Socio-professional path.

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TOWARDS THE DATA ECONOMY: ASSESSING THE ADOPTION OF ARTIFICIAL INTELLIGENCE AND BIG DATA IN THE DIGITAL TRANSFORMATION LANDSCAPE IN SPAIN

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Abstract

Artificial Intelligence (AI) is now emerging as a transformative force in business, recognised as a driver of productivity, efficiency and innovation in a variety of economic sectors. This is for at least three types of reasons. First, its ability to improve predictions, optimise operations and personalise services makes it an essential tool in digital transformation. Organisations implementing AI applications are expected to reap benefits in terms of added business value, such as increased revenue, reduced costs and improved business efficiency (AlSheibani et al., 2020). Second, because it provides objective decision support and promotes hyper-personalisation as well as the development of natural interfaces in a wide range of sectors (Correia Loureiro et al., 2021). Third, because in various applications, AI systems significantly outperform human performance, underscoring their crucial relevance in today's economy (Davenport and Ronanki, 2018).

This disruptive influence of AI extends globally, enabling a diverse set of new technologies in the marketplace, and is causing a reconfiguration in business, economic, and societal paradigms by transforming interactions between stakeholders and citizens (Davenport and Ronanki, 2018; Correia Loureiro et al., 2021).

AI and the Data Economy are intrinsically related. AI relies on large amounts of data to train and improve algorithms (LeCun et al., 2015). In turn, AI empowers the ability to extract valuable information from data, automating complex analyses and revealing patterns not visible to humans. These advances have the power to transform the economy, generating new business models and opportunities, as well as improving quality of life. A recent MIT Sloan Management Review study revealed that more than 80% of organisations see AI as a strategic opportunity, and nearly 85% as a way to achieve competitive advantage (Ransbotham et al., 2017).

Artificial Intelligence and Big Data is one of the strategic axes of the Digital Spain 2026 agenda and the European Union's Agenda 2030.

The adoption of Big Data emerges as a crucial element to boost the digitisation of the Spanish economy. By 2030, the European Union has set an ambitious target for 75% of companies in Europe to implement services related to cloud computing, big data and artificial intelligence. In line with the strategy set out in Digital Spain 2026, the goal is for 25% of companies in Spain to make use of technologies such as artificial intelligence and Big Data by 2025.

While the relevance of the Data Economy and the technologies that support it, and its consequences in the economic, social and cultural spheres, is undeniable (Pérez et al, 2018), its adoption in Spanish companies remains a minority (Eurostat 2021).

The aim of the current research is to assess the implementation of the data economy as a key to the digital transformation of companies by identifying both models and barriers, as well as possible facilitators and making proposals for recommendations for its implementation.

One of the starting hypotheses of the research is that "the adoption of data-driven enabling technologies varies by industry, company size and location". In order to test this hypothesis, a systemic approach combining the use of both quantitative and qualitative analysis methodologies is being undertaken.

The analysis carried out to date allows us to know the reality of the implementation of Information and Communication Technologies (ICT) and specifically the adoption of AI and Big Data in Spain, compared to the rest of the European Union countries, as well as the level of penetration of these technologies according to the productive industries, the size of the companies, and their geographical location.

Although the implementation of ICT tools has experienced an annual growth of 15% in 2022 (Source: IDC 2022), the largest increase in the last 20 years, we are still far from the target set.

In terms of Artificial Intelligence, the average implementation rate in Spain among companies is 11%, with large differences depending on the industry, ranging from 6.3% to 41.3% in the ICT industry (Source: INE 2023). These figures are in line with the taxonomy by Van Ark, de Vries and Erumban (2021) in which they classify industries according to their digital intensity, defining three groups: "digital-producing industries", "more digitally intensive" and "less digitally intensive". to apply a taxonomy of digital intensity by industry

Likewise, the variation in the use of technologies is notable depending on the region analysed, ranging from 2.5% in Melilla to 16.8% in the Community of Madrid, and the number of workers, varying from 4.6% in the case of micro-companies to 41.2% in the case of companies with more than 250 employees (Source: INE). This information is especially relevant, considering the direct effect that ICT investment has on the growth of regions (Mas et al., 2023).

Within the framework of this study, a qualitative and quantitative analysis will be carried out in order to identify the main barriers and drivers to ICT adoption by companies.

Keywords: Data Economy; Digital Transformation; Innovation; Artificial Intelligence; Big Data.

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DIGITAL ENTREPRENEURSHIP: VIRTUAL REALITY, AUGMENTED REALITY AND METAVERSE

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Abstract

With the rapid development of digital technology, all areas of society can accelerate their entry into the virtual world, thus blurring the boundary between the physical and digital worlds (Huang et al., 2022). Phenomena such as virtual reality, augmented reality, and the metaverse are currently in a position of potential growth as an industry and activity to develop entrepreneurial activity (Weking et al., 2023). Proof of this is how an essential part of the so-called digital entrepreneurship takes the current speed of technological change as its starting point and how this technology is an excellent enabler for entrepreneurship.

Technology, in many cases, enables potential entrepreneurs to operate in turbulent and uncertain environments in search of new ways to obtain competitive advantages and differentiating elements (Calandra et al., 2023). With the development of digital technology, digital migration from the real universe is already a more feasible and possible possibility (Huang et al., 2022).

This paper performs an in-depth bibliometric analysis of the related scientific literature that addresses the reality of entrepreneurship in a way connected to the phenomena of virtual reality, augmented reality, and the metaverse. As a consequence of their topicality and recent development, these have been little analyzed in the academy, but this is not the case for other realities connected with entrepreneurship.

The two leading scientific databases currently in use, Web of Science (WoS) and Scopus have been consulted to achieve this objective. This fact is a differential element over other bibliometric works (Caputo & Kargina, 2022). The analysis has been carried out on the results of a single database, thus diminishing a global and homogeneous vision of the possible connections and interrelationships of the realities under study.

Keywords entrepreneurship; digital entrepreneurship; virtual reality; augmented reality; metaverse

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LEADERSHIP FACTORS IN FEMALE ENTREPRENEURSHIP: TWO STRUCTURAL MODELS PROPOSAL

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Abstract

For any business to survive, entrepreneurs need a large set of factors, competencies and skills that are crucial for the prosperity and survival of their company (Mitchelmore *et al.*, 2014).

Entrepreneurship leadership factors are important in all entrepreneurial ventures, and several research studies show that entrepreneurship leadership is more critical at certain stages of entrepreneurship and that not all of its component factors are uniformly positives. (Vecchio, 2003). There is a consensus that leadership factors change throughout the entrepreneurial process and are manifested depending on the entrepreneurial phase in which it is found. (Aparisi-Torrijo and Ribes-Giner, 2022c). It is especially important to analyze these competencies in women-led companies, as there is a gender gap in the knowledge of these leadership factors. (Aparisi-Torrijo and Ribes-Giner, 2022b).

The main objective of this research is to propose two structural models to understand how some exogenous variables that make up the entrepreneurial leadership (EL) impact on the conception and launching of female entrepreneurship, on the one hand, and on the consolidation on the other through the PLS-SEM methodology, widely used in different social and behavioral researches. (Martínez Ávila and Fierro Moreno, 2018).

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Following the instructions for PLS-SEM analysis proposed by Hair *et al.* (2019), we first specify the structural models. The models are formed with the unobservable theoretical construct, such as female entrepreneurial leadership, which impacts the construct representing the different phases of entrepreneurship, in the first model in the conception and launch of the venture, and in the second model, in the consolidation phase.

In the initial phase, the EL is considered as one of the most significant organizational elements in conditioning the start of the entrepreneurial activity (Ensley et al., 2006). The entrepreneur has little experience in the process of creating a company, but evidences certain leadership skills (Wasdani and Mathew, 2014), so the first hypothesis arises with these theoretical foundations:

H1. Female entrepreneurial leadership factors are positively related to the launch phase of entrepreneurship.

According to Wasdani (2014), the entrepreneur, in the consolidation stage, has had sufficient experience in the process of business creation so she has selected and formed

her close networks, also revealing certain leadership factors. Consequently, a second structural model is proposed, very similar to the previous one, which investigates the impact that leadership factors have on female entrepreneurship in its consolidation phase. Therefore, the second hypothesis is established.

H2. Female entrepreneurial leadership factors are positively related to the consolidation phase of entrepreneurship.

Following Hair et al., (2019), the measurement model for each structural model is specified below. To do so, first, the factors that make up the construct of female entrepreneurial leadership must be obtained. This embryonic construct benefits from the cross-fertilization of the domains of entrepreneurship and leadership (Leitch and Harrison, 2018) and is recently recognized with its own identity (Aparisi-Torrijo and Ribes-Giner, 2022a). However, EL has not benefited from the progress made in the fields of gender entrepreneurship and leadership (Harrison et al., 2015).

A literature review was conducted in order to obtain the leadership factors that conform the construct. First, a literature review was performed of an extraction of articles from the Web of Science core collection, from the periods 2000 to 2020, on the topic, with the terms: "leader*" and "entrepre*", combined with factors or skills including all relative terms "abilit*" or "capabilit*" or "attribut*" or "skill*" or "factor*" or "competenc*" or "behavior*" or "trait*" or "feature*", following Aparisi-Torrijo and Ribes-Giner (2022b), and with gender focus with the words "female" or "gender" or "wom*" or "femin*". Filtering the articles and reviews obtained in English and adding some seminal articles after reading the abstracts, we obtained and reviewed the literature base finding a wide variety of entrepreneurship drivers (Harrison and Burnard, 2016) and largely unstructured (Harrison et al., 2018) and without consistent conceptual framework.

Secondly, to obtain the most significant leadership competencies and justify the EL variable, the factors were mapped through a co-occurrence analysis of key factors. Ten most recurrent factors were obtained in women entrepreneurs: innovativeness or use of technologies (Cho *et al.*, 2020), communication (Zapalska *et al.*, 2015), relationships with other entrepreneurs or with

the environment (Bodolica and Spraggon, 2015; Mueller, 2018; Bernardino and Freitas Santos, 2019; Huq *et al.*, 2020), passion (Kuschel *et al.*, 2017), risk taking (Mcgowan *et al.*, 2015), vision (Ruvio *et al.*, 2010), perceived opportunities (Adom and Anambane, 2019; Huq *et al.*, 2020), decision making (Raudeliūnienė *et al.*, 2018), self-efficacy (Bodolica and Spraggon, 2015; Agarwal *et al.*, 2020; Botha, 2020), need for achievement (Mcgowan *et al.*, 2015; Botha, 2020).

For the measurement model, this study will conceptualize the construct of women's LE, the external measurement model of exogenous variables, using the dimensions of innovativeness, networking, vision, risk-taking, opportunity perception, self-efficacy and achievement orientation in different contexts. For this purpose, the report of *Global Entrepreneurship Monitor (GEM)*, "*GEM 2021/22 Women's Entrepreneurship Report From Crisis to Opportunity*" (GEM, 2022), from 50 countries around the world. However, variables such as passion, communication or decision-making are not included in the report, which is one of the main limitations of the study.

For the endogenous variable measurement model, the different phases of the life cycle of women's entrepreneurship are explored as a function of EL. Also based on GEM, two well-defined sub-phases of entrepreneurship are identified. The first one would be the from the birth of the company up to 3 months of activity and second the one, from the initiative or initial operation that can go up to 42 months. This first global phase is known as TEA (*Total Early Stage*). The following phase, called EBO (*Established business ownership*), would be the one that begins with the well-established company and, therefore, the persistence or consolidation stage which are companies with more than 42 months.

In summary, the first conceptual research model would be the one in which the female EL, reflexively formed by the exogenous variables representing the leadership factors, impacts the endogenous conceptual variable which is the conception and launching phase of the new company, defined by the TEA. The second model would be formed by the female entrepreneurial leadership variables that impact the endogenous conceptual variable that is the consolidation phase, defined by the EBO.

The following phases proposed by Hair *et al.* (2019) are left for future lines of research: the examination of the data, the estimation of the Path model and the assessment of the measurement models and the interpretation of the results through the PLS-SEM partial least squares technique, both to validate the causal hypotheses of the effects of these combined leadership factors and to understand their impact on the different phases of entrepreneurial activity.

This study aims to make several significant contributions to the current body of knowledge. Firstly, greater empirical knowledge in this field by understanding how these leadership factors impact, on the one hand, the moment of birth and launch of women's entrepreneurial activity, and on the other, the moment of consolidation. In addition, the aim is to investigate whether the impact of these factors is uniform or not throughout the different phases. Finally, it provides a gender perspective for progress in the field.
The beneficiaries of this research are scholars in female entrepreneurship and leadership notably to fill empirical gaps on the attributes of female entrepreneurial leadership.

One of the limitations of this study is the database used from the GEM report, since it has not been possible to obtain data representing some factors such as passion, communication or decision making.

As a future recommendation, this study should be developed by exploring different combinations of leadership factors for the launching and consolidation phase of female entrepreneurship by reinforcing the structural framework employed. This represents an avenue of exploration that could help considerably in advancing the field of female EL aimed at its various stakeholders.

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Keywords: entrepreneurial leadership factors; female entrepreneurship; entrepreneurial leadership; GEM; PLS-SEM

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ENHANCING THE GROWTH OF A LONG-ESTABLISHED SMALL BUSINESS THROUGH REAL-TIME SOCIAL MEDIA IMPLEMENTATION

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Abstract

Sustained growth can increase firms' competitive advantage, allowing them to secure a stronger market position and attract valuable resources. From a strategic standpoint, the pursuit of growth is aligned with organizations' adaptability and their ability to thrive and endure. In today's rapidly moving business environment, traditional sources of sustainable competitive advantage are becoming nearly nonexistent; Instead, as adaptability is key for long-term business success, firms should focus on developing the ability to adapt and change continuously, namely the so called "dynamic capabilities" (Teece et al., 1997).

Nowadays, as we say, adaptability is crucial for long-term success. Traditional businesses, especially those with limited or nonexistent online presence, are facing challenges in reaching wider audiences and staying competitive. Hence, the changing consumer behavior and increasing reliance on online channels emphasize the need for businesses to establish a meaningful online presence. Moreover, studies reveal that a lack of digital integration can inhibit companies from effectively leveraging emerging market trends and staying competitive (Hess et al., 2016). The digital gap between traditional and digital-savvy businesses has grown significantly, highlighting the importance of addressing this gap to remain relevant and resilient in today's business landscape (Weill & Woerner, 2018). Therefore, the mentioned challenges faced by traditional businesses adapting to shifting market dynamics, emphasize the urgency of a social media strategy, in order to mitigate these disparities and unlock sustained growth.

This challenge involves an even greater difficulty for small traditional long-established businesses. Such enterprises, often without resources to hire staff in charge of marketing tasks, grapple with a multitude of complexities when attempting to integrate digital platforms into their existing operations.

In this context of companies' digital growth, this project seeks to determine whether small traditional and limited marketing resources business can benefit from a social media presence.

In order to achieve this objective, this project aims to formulate and execute in real-time an internal strategic growth plan for a small business that has been competing for over four decades. The chosen company is a small shop located in Bilbao, with over 72.000 products and a target audience of various ages, ranging from 18 to 93 years old. The main differentiation strategy of the mentioned company is personalized and face-to-face customer service, as it lacks the capacity to compete on prices with large multinational corporations that operate online.

Taking this data into account and in order to accomplish the established goals, this initiative will be focused mainly on the utilization of social media platforms, as the company possesses limited engagement in the digital landscape. Based on the firm's background, we aim to develop a customized social media strategy, namely the creation of a web page, a choice of platforms, content generation, posting routines, and interactive approaches. Once the strategy is set, it would be then applied in real-time by incorporating a real-time social media strategy in the aforementioned firm. The strategy would be then re-planned if needed according to the obtained results and potential deviations. Our goal is to increase the company's digital footprint, stimulate active engagement and expand the company's influence with the target audience in order to attract new customers, which would be achieved by exploiting the huge opportunities of the current social media platforms.

In short, the aim of this project is to demonstrate whether enhancing the online visibility can lead to the long-term growth of companies with limited resources and a firmly established traditional business model. The ultimate goal is to empower small businesses, so as they can manage their social media presence independently since they usually cannot afford the input of a professional marketing team.

In order to achieve this empowerment, the use of Artificial Intelligence (AI) and automation would be crucial, as these technologies have the potential to significantly enhance the efficiency of social media marketing efforts. Making use of this advanced features, such as content scheduling and content design, business could reduce the time and effort required for content creation. Our main goal in this regard is to optimize the time and money invested in enhancing the visibility of businesses through social media. By automating content scheduling and leveraging AI-driven insights, businesses could streamline their social media efforts and allocate

their resources more effectively. In brief, these technologies empower small businesses to adapt, compete, and thrive in the digital era, all while maintaining a lean and efficient approach to their marketing strategies.

Our contribution sheds light to the understanding of whether small, offline businesses can adapt and face by themselves the continuously evolving digital landscape. The findings not only will highlight the potential for small traditional businesses to benefit from a slightly active and less polished social media presence, especially when compared to the big players, but also offer practical insights into strategies and best practices to drive growth with minimal to no existing marketing resources.

Keywords: Small Business; Social Media Implementation; Digital Transformation; Business Growth; Customer Engagement

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DIMENSIONES DE GOBERNANZA DE SISTEMAS REGIONALES DE INNOVACIÓN. EVIDENCIA DESDE CHILE

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Resumen

Introducción

Parece posible analizar la gobernanza de los sistemas de innovación a partir de las preguntas de quién, cómo y qué se gobierna (Hillman et al., 2011; Lange et al., 2013) considerando un enfoque multidimensional que tenga en cuenta los procesos políticos y las estructuras institucionales, y que pueda reflejar la complejidad del fenómeno (Lange et al., 2013).

Así, la **dimensión QUIÉN s**e referirá a la representación de los diferentes intereses de los **actores** en la iniciación y coordinación del mecanismo de gobernanza (Hillman et al., 2011). Aquí el concepto de actores incluye empresas (asociaciones), universidades, organizaciones de interés y organismos gubernamentales (Asheim, 2019; Bergek, Jacobsson, & Sandén, 2008). Otro elemento de esta dimensión son las **redes**, tanto informales como formales, estando algunas establecidas para resolver una tarea específica, como consorcios o plataformas tecnológicas, y otras estarían menos organizadas (Asheim, 2019; Bergek, Jacobsson, Carlsson, et al., 2008). El último elemento estaría dado por las **instituciones,** cultura y normas de conducta, que regulan las interacciones entre los actores (Asheim, 2019; Bergek, Jacobsson, Carlsson, et al., 2008).

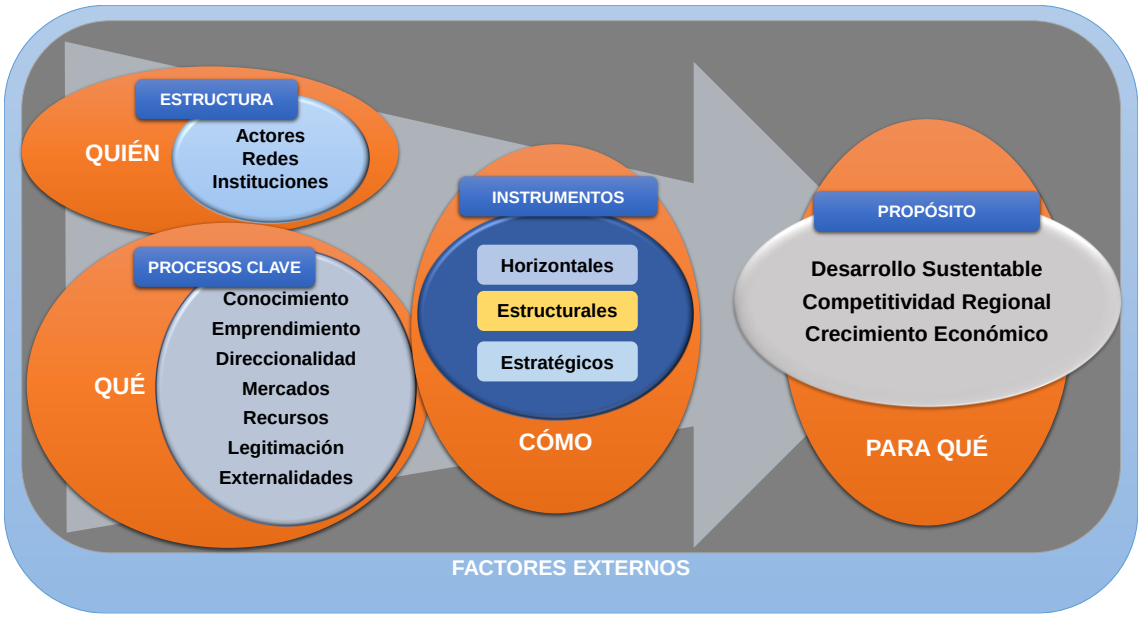
La **dimensión QUÉ** trata de qué partes del sistema son los objetivos de la gobernanza (Hillman et al., 2011).Además, considerando que la función general de un sistema de innovación es desarrollar, difundir y utilizar innovaciones, se ha propuesto que existirían unos ***procesos clave*** del sistema en su conjunto, que contribuyen a ese objetivo general y que definirían la dinámica del propio sistema (Bergek, 2019; Bergek et al., 2015; Sandoval-Nehme et al., 2022). Estos procesos claves serían: desarrollo de conocimiento; experimentación empresarial; formación de mercados; movilización de recursos; externalidades positivas; direccionalidad; y legitimación (Bergek, 2019; Hillman et al., 2011; Johnson, 2001; Ulmanen & Bergek, 2021).

La **dimensión CÓMO** implicaría a los diversos modos o mecanismos de dirección (Hillman et al., 2011) que pueden entenderse como una herramienta o un ***instrumento de gobernanza***. Estos sería introducidos (principalmente) por entes de gobierno, para abordar un problema o para lograr determinados objetivos (Rogge & Reichardt, 2016), aunque ciertos instrumentos son diseñados e implementados específicamente para facilitar el cambio (Smits & Kuhlmann, 2004).

La **dimensión PARA QUÉ** nace a partir de la propuesta de análisis de tres dimensiones a las que se suma otro pilar que relacionado con la legitimidad, entendida como el porqué de las

iniciativas y esfuerzos para “gobernar” el sistema (Borrás & Edler, 2014). Lo que puede estar asociado a conceptos como desarrollo regional, competitividad o crecimiento.

Figura 1.- Dimensiones de Gobernanza



FUENTE 1. Elaboración propia.

Método

La metodología de **análisis cualitativo comparativo de conjuntos difusos** (fsQCA) es una técnica de análisis de datos asimétricos que reuniría la robustez lógica y la información contextual de los métodos cualitativos, con la capacidad de los métodos cuantitativos de manejar muchos casos y obtener generalizaciones (Pappas & Woodside, 2021). Este enfoque metodológico permite que “el grado de pertenencia” a un concepto pueda ser incorporado al conjunto de datos e incluir variables cuya medición es imprecisa o de carácter más subjetivo, además de posibilitar conclusiones tanto de casos particulares como de conjuntos de casos, (Martel & Paguillo, 2017; Roig-Tierno et al., 2017; Schneider & Wagemann, 2012). Por último, hace posible detectar **causas necesarias**, que están presentes cada vez que ocurre el fenómeno, así como **causas suficientes**, relacionadas con un resultado, aunque ese resultado pueda aparecer sin que estén tales condiciones (Roig-Tierno et al., 2017).

Al respecto, se formulan tres proposiciones:

1. El impacto en desarrollo regional puede deberse a trayectoria distintas en cuanto a las diferentes dimensiones de la gobernanza
2. La intervención pública a través de instrumentos de gobernanza es parte del modelo, pues el gobierno es endógeno en un sistema de innovación regional

3. Trayectorias distintas muestran fortalezas y debilidades en elementos estructurales y procesos claves

Principales resultados y discusión

Se han utilizado datos respecto de las 16 regiones chilenas. En particular, los resultados esperados del modelo estarían vinculados a un propósito especifico (**PARA QUÉ**), el desarrollo regional (sustentable), para lo que se ha usado el Índice de Desarrollo Regional que tiene una perspectiva multidimensional (Vial Cossani et al., 2020).

A su vez, se contempló incluir una serie de variables como condiciones que representan a las otras dimensiones de la gobernanza: **QUIÉN, Redes** de colaboración que tienen los actores regionales (Asheim, 2019), expresado en el porcentaje de empresas que realizó alguna actividad de colaboración con otras empresas o instituciones, del total de empresas que realizó alguna actividad innovativa, en el periodo 2015 a 2016; **QUÉ, Recursos,** la capacidad de movilizarlos del sistema, que puede apreciarse en la tasa de inversión en I+D como porcentaje del Producto Interno Bruto Regional, para el año 2018; **CÓMO HORIZONTAL, Innovación Empresarial,** utilizando los montos de apoyo adjudicados por habitante en cada región, de tal manera de reflejar la capacidad del sistema; **CÓMO ESTRUCTURAL, Spin Off Académicos,** es la capacidad de los sistemas de innovación de financiar el emprendimiento en base a ciencia, que se puede estimar mediante los fondos adjudicados destinados al emprendimiento científico tecnológico entre los años 2016 y 2022, en millones de pesos por millón de habitantes; y, por último, **CÓMO ESTRATÉGICO, Corporaciones,** la existencia de Corporaciones de Desarrollo Regional, que además tienen un énfasis en desarrollo productivo e innovación.

Una vez obtenido el modelo, siguiendo un criterio que ha logrado bastante consenso, se puede observar que no existen condiciones necesarias respecto del desarrollo regional (Mas-Verdú et al., 2020; Schneider & Wagemann, 2012).

Por su parte, las diferentes recetas estarían definidas por la **existencia de un alto desarrollo** regional: **Trayectoria 1**, aun cuando no existe una alta colaboración cuando hay una corporación de desarrollo regional, y los casos están asociados a cuatro regiones; **Trayectoria 2**, si hay un alto gasto en I+D, como porcentaje del PIB, junto con altos montos de adjudicación de fondos estatales para innovación empresarial, a pesar de no contar con un alto número de acciones de colaboración, y esta trayectoria involucra a tres regiones; **Trayectoria 3**, si hay un alto gasto en I+D junto a una alta adjudicación de fondos para emprendimiento en base a ciencia, a pesar de no contar con acciones de colaboración significativas, y serían cuatro regiones involucradas; y, finalmente, **Trayectoria 4**, si se encuentran presente una alta inversión en I+D, alta adjudicación

de fondos para la innovación empresarial, alta adjudicación de fondos para el emprendimiento en base a ciencia y una corporación con enfoque en innovación, siendo sólo dos las regiones que responden a esta receta.

Una primera conclusión interesante podría estar relacionada con el hecho de que no se detectan **condiciones necesarias,** lo que podría implicar que, tal como muestra la literatura al respecto, en materia de innovación no existirían las "balas de plata".

Proposición 1: Las recetas presentadas implican que es posible encontrar diferentes combinaciones de condiciones para el desarrollo regional ("PARA QUÉ") y, miradas en conjunto, puede apreciarse que elementos de las tres **dimensiones,** consideradas como condiciones, aparecen en las diferentes configuraciones, aunque su importancia relativa sea diferente en los distintos casos.

Proposición 2: Es notorio que en todas las configuraciones existe algún tipo de instrumento de gobernanza presente, pero que su tipología (horizontales, estructurales y estratégicos) es distinta, lo que podría obedecer a las diferencias de complejidad entre los destinos sistemas. Con todo, el enfoque de dimensiones de gobernanza indicaría que el actuar de la política pública no es exógeno a los sistemas de innovación.

Proposición 3: Por una parte, respecto de los **elementos estructurales**, la ausencia de una alta **colaboración** es consistente con diferentes estudios que muestran que es un problema relevante en el efecto que la innovación tiene en el desarrollo regional. (AliasGroup, 2012; IDEACONSULTORA, 2010; INNPULSAR, 2016), lo que parece requerir combinaciones de otros elementos, en particular de un "QUÉ" y una serie de distintos elementos del "CÓMO", para generar un alto desarrollo regional. Por otro lado, respecto de los **procesos claves**, la existencia de una alta **inversión en I+D** como porcentaje del PIB, un elemento de la dimensión "QUÉ", aparece presente en varias configuraciones causales, lo que confirmaría una relación entre la inversión en I+D y el desarrollo bien documentada (Rodríguez-Pose & Crescenzi, 2008), pero que requeriría de contextos institucionales y otros factores para potenciar sus efectos (Bianchini et al., 2019; Mas-Verdú et al., 2020). Todo ello sugiere que, para el caso de las regiones chilenas, la fortaleza de este proceso clave es un elemento que considerar.

Palabras clave: Sistemas regionales de innovación; Gobernanza; fsQCA; Innovación; Desarrollo Regional.

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FOMENTANDO EL ESPÍRITU EMPRENDEDOR EN EL AULA: DESARROLLO DE ACTITUDES EMPRENDEDORAS ENTRE ESTUDIANTES UNIVERSITARIOS DE ENFERMERÍA EN LA UBE

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Resumen

El emprendimiento en Ecuador ha adquirido importancia en el contexto actual, y los estudiantes universitarios son considerados un grupo clave para fomentar esta cultura emprendedora. Factores individuales y contextuales influyen en la intención emprendedora de los estudiantes. Por lo tanto, es fundamental abordar estos temas en el contexto de la Universidad Bolivariana del Ecuador, que cuenta con el emprendimiento como un aprendizaje trasversal en sus carreras. El objetivo de este estudio analítico-descriptivo es determinar el perfil emprendedor de las y los estudiantes de la carrera de enfermería de la universidad, con el fin de que las autoridades puedan conocer las actitudes de las de los futuros profesionales. Para lograr esto, se utilizan métodos de revisión bibliográfica, análisis estadístico y un cuestionario de 25 preguntas cerradas, distribuidas en siete características del emprendedor (motivación, iniciativa y energía personal, perfil psicológico, capacidad de relación, capacidad de análisis, innovación y creatividad y propensión al riesgo. Los resultados obtenidos revelan situaciones complejas en áreas clave del emprendimiento, como actitud al cambio y reconocimiento externo, prospección al riesgo, creatividad Estas áreas muestran puntuaciones medias por debajo del nivel óptimo deseado, lo que indica la necesidad de desarrollar y fortalecer estas habilidades en los estudiantes. En conclusión, este estudio resalta la importancia del emprendimiento y sus beneficios en el contexto de la Universidad Bolivariana del Ecuador y los estudiantes de enfermería. Los resultados obtenidos proporcionan información valiosa para mejorar las habilidades emprendedoras de los estudiantes y promover una mayor inserción laboral exitosa en un entorno laboral desafiante. En conclusión, en la materia Emprendimiento y Plan de negocio, se pone énfasis en la transformación de la mentalidad, de manera que el emprendimiento se vea más allá de un simple intercambio comercial, sino como una actividad con propósito. Se presentan modelos de negocios innovadores que buscan generar impacto social y que rompen con los esquemas tradicionales.

Palabras claves**:** emprendimiento universitario, actitudes emprendedoras, aprendizaje, impacto social, innovación.

Abstract

Entrepreneurship in Ecuador has gained importance in the current context, and university students are considered a key group to foster this entrepreneurial culture. Individual and contextual factors influence students' entrepreneurial intention. Therefore, it is essential to address these issues in the context of the Bolivarian University of Ecuador, which counts on entrepreneurship as a transversal learning in its careers. The objective of this analytical-descriptive study is to determine the entrepreneurial profile of the students of the nursing career of the university, so that the authorities can know the attitudes of those of future professionals. To achieve this, methods of bibliographic review, statistical analysis and a questionnaire of 25 closed questions are used, distributed in seven characteristics of the entrepreneur (motivation, initiative and personal energy, psychological profile, relationship capacity, capacity for analysis, innovation and creativity and propensity to risk. The results obtained reveal complex situations in key areas of entrepreneurship, such as attitude to change and external recognition, risk prospecting, creativity These areas show average scores below the desired optimal level, indicating the need to develop and strengthen these skills in students. In conclusion, this study highlights the importance of entrepreneurship and its benefits in the context of the Bolivarian University of Ecuador and nursing students. The results obtained provide valuable information to improve the entrepreneurial skills of students and promote greater successful labor insertion in a challenging work environment. In conclusion, in the subject Entrepreneurship and Business Plan, emphasis is placed on the transformation of mentality, so that entrepreneurship is seen beyond a simple commercial exchange, but as an activity with purpose. Innovative business models that seek to generate social impact and break with traditional schemes are presented.

Keywords: university entrepreneurship, entrepreneurial attitudes, learning, social impact, innovation.

INTRODUCCIÓN

En el contexto actual, el emprendimiento ha emergido como un componente vital en el panorama educativo, particularmente en el ámbito universitario. Como señala Hernández et al (2019), la integración del emprendimiento en la educación superior es esencial para formar profesionales capacitados no solo en habilidades técnicas, sino también en la mentalidad y las habilidades emprendedoras necesarias para afrontar los desafíos del siglo XXI. Esta tendencia ha encontrado arraigo en Ecuador, donde el enfoque en el emprendimiento universitario ha

ganado impulso significativo en los últimos años (González, 2021). En sintonía con esta perspectiva, la Universidad Bolivariana del Ecuador (UBE) ha adoptado una posición destacada al incorporar el emprendimiento como un aprendizaje transversal en sus carreras. Este enfoque se alinea con la visión de Tapia y Córdova (2018), quienes destacan la importancia de fomentar el espíritu emprendedor entre los estudiantes universitarios, considerándolos agentes clave en la construcción de una cultura emprendedora sólida en el país.

Este artículo se centra específicamente en la carrera de enfermería en la UBE, reconociendo la singularidad de este campo en el contexto del emprendimiento. A través de métodos rigurosos de revisión bibliográfica y análisis estadístico, el estudio busca aportar a la comprensión del perfil emprendedor de los estudiantes, en consonancia con las investigaciones de Pérez y Mendoza (2020), quienes argumentan que comprender las características emprendedoras específicas en diferentes disciplinas es crucial para el diseño efectivo de programas de desarrollo emprendedor. Además, se explorará la conexión entre el perfil emprendedor y el éxito laboral, enriqueciendo así la discusión sobre cómo estas habilidades impactan la inserción profesional de los graduados en un contexto laboral dinámico y desafiante. Este enfoque se alinea con los argumentos de Guzmán y Cevallos (2017), quienes sostienen que el emprendimiento no solo es esencial para la innovación, sino que también es un catalizador para el desarrollo económico y social en Ecuador. En última instancia, este estudio no solo busca contribuir al entendimiento y fomento del emprendimiento en el ámbito académico, sino que también aspira a ser un recurso valioso para las autoridades universitarias, destacando la relevancia de cultivar habilidades emprendedoras entre los estudiantes de enfermería para su éxito futuro en el campo profesional.

REVISIÓN DE LA LITERATURA

La dinámica intersección entre el emprendimiento y la educación universitaria ha sido explorada por una plétora de investigadores, cada uno aportando perspectivas valiosas. En el ámbito global, Antonakis (2019) destaca la necesidad de desarrollar líderes emprendedores en la formación académica, señalando cómo estas habilidades son cruciales en un mundo en constante cambio.

En el contexto específico de Ecuador, Molina y Serrano (2018) profundizan en la relación entre la formación académica y el espíritu emprendedor, aportando conocimientos fundamentales para entender la dinámica única de este país. Además, Salazar et al. (2017)

analizan cómo las políticas gubernamentales impactan el fomento del emprendimiento en el ámbito universitario ecuatoriano.

En una perspectiva histórica, Schumpeter (1934) pioneramente conceptualizó el emprendimiento como un impulsor de la innovación. Desde esta teoría, la investigación de Shane y Venkataraman (2000) ha delineado cómo la identificación y explotación de oportunidades son fundamentales en el fenómeno emprendedor.

En el ámbito de la enfermería, Fitzgerald y Miles (2019) abogan por la integración del espíritu emprendedor en la formación de enfermeros, evidenciando cómo la iniciativa y la creatividad son elementos esenciales en la atención sanitaria. La perspectiva de Smith y Brown (2017) enriquece la discusión al explorar las habilidades emprendedoras específicas requeridas en profesionales de la salud.

Desde una visión más general, Guerrero et al. (2016) profundizan en la relación entre la educación emprendedora y la intención emprendedora de los estudiantes universitarios, proporcionando una comprensión más completa de cómo los programas educativos influyen en las actitudes hacia el emprendimiento.

La obra de Rodríguez y Gutiérrez (2018) se enfoca en el papel de la mentoría en el desarrollo de habilidades emprendedoras. Este aspecto se vincula con los hallazgos de García y Pérez (2015), quienes exploran cómo las interacciones sociales y el entorno influyen en la formación de mentalidades emprendedoras.

Este estudio se ubica en la convergencia de estas diversas voces al examinar el perfil emprendedor de estudiantes de enfermería en la UBE, mediante un autodiagnóstico. Al integrar las perspectivas de estos autores, se pretende no solo comprender las actitudes emprendedoras en general, sino también identificar áreas específicas de mejora, contribuyendo de manera integral al crecimiento del conocimiento sobre el emprendimiento universitario en Ecuador y, de manera particular, en la formación de profesionales de enfermería.

METODOLOGÍA

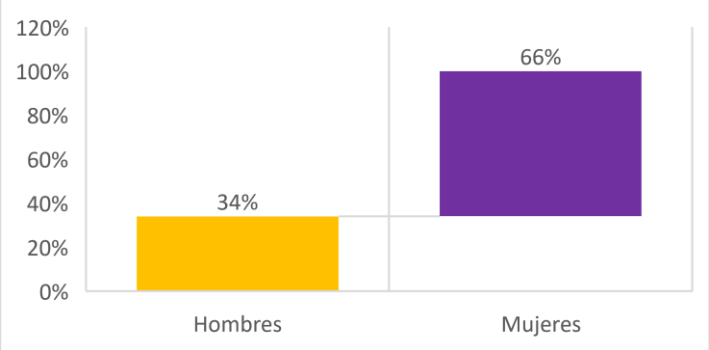
La metodología de investigación tuvo un enfoque mixto cuali-cuantitativo, dado que se empleó la recopilación de datos para describir las características de las y los emprendedores y de los factores del entorno, de una determinada población, siendo esta específicamente de la Carrera de Enfermería del ciclo académico de marzo a septiembre del 2023. Los principales análisis estadísticos que se realizaron fueron descriptivos. La población objeto de estudio estuvo conformada por 50 estudiantes de la materia Emprendimiento y Plan de Negocio. Los datos se recolectaron mediante un cuestionario de autodiagnóstico con 25 preguntas cerradas, distribuidas en siete características personas del emprendedor (motivación, iniciativa y energía personal, perfil psicológico, capacidad de relación, capacidad de análisis, innovación y creatividad y propensión al riesgo)

RESULTADOS

Luego de recolectada la información a 50 estudiantes de la materia Emprendimiento y Plan de Negocio al inicio de la materia, la muestra estuvo compuesta por 34% de hombres y 66% de mujeres ver figura 1.

Figura 1.

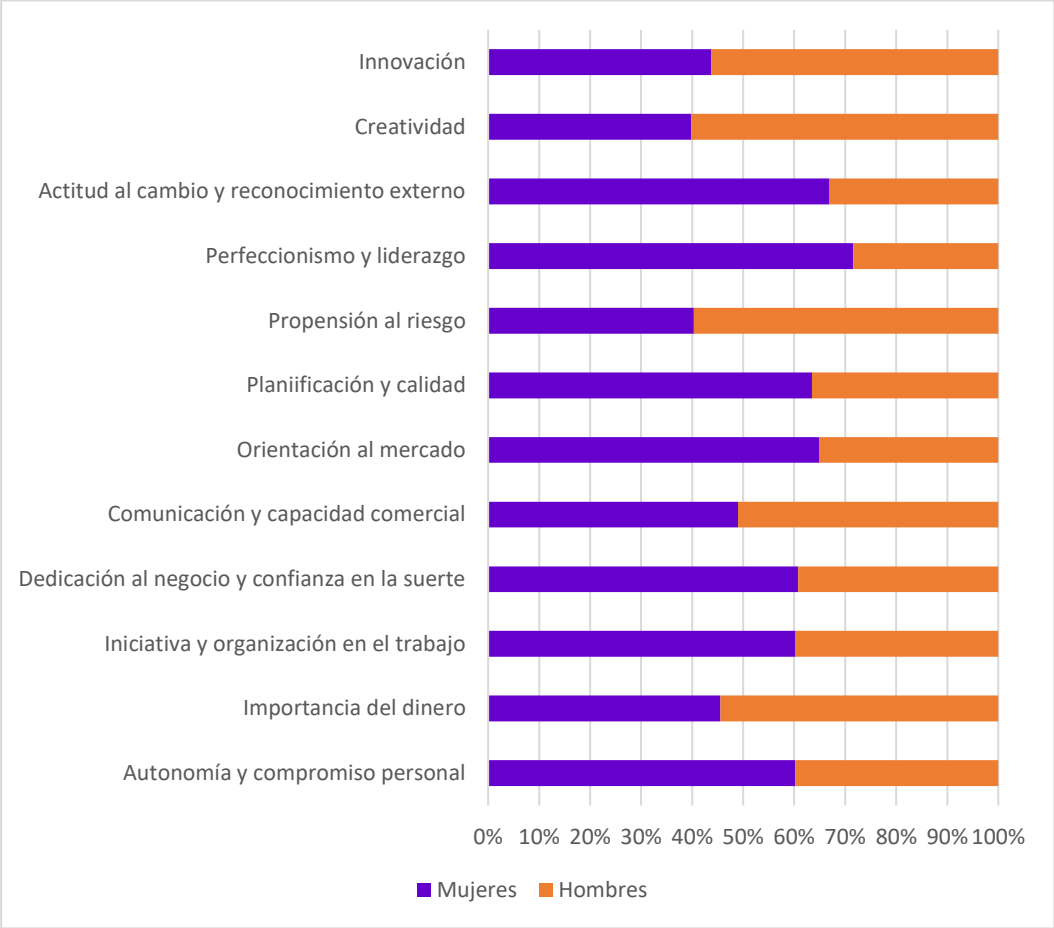
Género



Los patrones hallados en las características emprendedoras entre mujeres y hombres, destacando diferencias significativas en diversas dimensiones, se observan la figura 2.

Figura 2.

Dimensiones



- **La dimensión de Autonomía y Compromiso Personal**

La figura 2 se muestra que las mujeres muestran una mayor puntuación en autonomía 76.61% y compromiso personal en comparación con los hombres con un 50,64%,

Esto indica una disposición intrínseca hacia la autonomía y la dedicación personal en sus esfuerzos emprendedores.

La dimensión de Importancia del Dinero:

El 90.29 % de los hombres asignan una importancia significativamente mayor al dinero en comparación con las mujeres con 75.45%. Este hallazgo puede indicar que, para los hombres, el aspecto financiero es un motivador clave en el emprendimiento.

La dimensión de Iniciativa y Organización en el Trabajo:

Las mujeres 88.48 exhiben una mayor iniciativa y organización en el trabajo en comparación con los hombres 58.57%. Esto sugiere que las mujeres pueden ser percibidas como más proactivas y orientadas a la organización en el ámbito emprendedor.

La dimensión de Propensión al Riesgo:

Los hombres muestran una mayor propensión al riesgo 64.71% en comparación con las mujeres 43.79%. Este resultado resalta las diferencias en la disposición a asumir riesgos entre los géneros en el contexto emprendedor.

La dimensión de Creatividad: Se observa una diferencia significativa en la creatividad, siendo los hombres más propensos a demostrar habilidades creativas en el contexto emprendedor, 76.79 en relación con las mujeres con un 50,76%.

La dimensión de Innovación:

Los hombres 98.21% muestran una puntuación notablemente más alta en innovación en comparación con las mujeres 76.45%, indicando una mayor disposición hacia la introducción de nuevas ideas y prácticas.

CONSLUSIONES

La investigación examina características de las y los emprendedores y de los factores del entorno, de los estudiantes de la Carrera de Enfermería de la materia Emprendimiento y Plan de Negocio entre las que podemos destacar:

- Género y emprendimiento: Se observan diferencias notables entre mujeres y hombres en diversas dimensiones emprendedoras. Este hallazgo resalta la necesidad de estrategias específicas para fomentar el emprendimiento, considerando las particularidades de cada género.
- Desarrollo Continuo de Habilidades: La identificación de áreas de mejora, como la actitud al cambio y reconocimiento externo, sugiere la necesidad de programas de desarrollo continuo que aborden específicamente estas

habilidades en los estudiantes de enfermería y los estudiantes de otras carreras y estudios de posgrado.

- Rol de la Universidad Bolivariana del Ecuador: La Universidad Bolivariana del Ecuador desempeña un papel crucial en el fomento del espíritu emprendedor. La efectividad de sus programas actuales sugiere un enfoque positivo, pero también señala áreas de mejora específicas para maximizar su impacto.

Esta investigación proporciona un llamado a la acción para diseñar e implementar intervenciones educativas específicas que no solo fomenten el emprendimiento sino que también aborden las diferencias de género y promuevan un ambiente propicio para el desarrollo emprendedor en la UBE y más allá.

Estas conclusiones ofrecen una síntesis de los hallazgos clave del estudio y establecen el terreno para futuras investigaciones y acciones en el ámbito del emprendimiento entre los estudiantes.

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VARIABLES PARA LA MEDICIÓN DE LA INTENCIÓN INTRAEMPRENDEDORA

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Abstract

In recent years, society has been experiencing constant technological development, accelerating globalization and changing customer expectations. For this reason, companies must invest structurally in Research and Development (R&D) to adapt to customer requirements and differentiate themselves from their competitors, thus guaranteeing their sustained viability over time. Research and development of new goods, services, or production processes is a precious business strategy in this new scenario. For this reason, organizations in their personnel selection processes emphasize the evaluation of competencies such as innovation, proactivity, the ability to take risks, and problem-solving, i.e., they are looking for intrapreneurs: those who, from an entrepreneurial mindset, from within an organization, are capable of tackling their tasks beyond their organizational purposes (Blanka, 2019).

The training offered by educational centers and providing technical knowledge must also develop the soft skills companies require in an ever-changing world. This ensures a higher degree of employability for their students. In particular, universities are catalysts for change, cutting-edge, and innovation. For this reason, higher education must echo society's needs and orient its training towards the development of intra-entrepreneurs.

In recent decades, research has focused on analyzing entrepreneurial intention as a way to enter the labor market. Still, not enough studies on intra-entrepreneurial intention have been found in the literature, pointing out the benefits in the entrepreneurial ecosystem. This research aims to propose and validate a model to measure the variables that influence Intrapreneurial Intention. To this end, four independent variables and one dependent variable (Intrapreneurial Intention -IIN-) have been created. These variables were set out in a questionnaire comprising a series of statements assessed according to a rating scale (from 1 to 5, with 1 being the minimum score and 5 being the maximum score). The variables and reference sources are presented below:

- Risk-taking (RA): four statements drawn from research by Bolton & Lane (Bolton & Lane, 2012) and González-Serrano et al. (González-Serrano et al., 2019).
- Innovation (INN): five statements drawn from the research of Bolton & Lane (Bolton & Lane, 2012) and González-Serrano et al. (González-Serrano et al., 2019).
- Proactivity (PRO): three statements drawn from research by Trifiletti et al. (Trifiletti et al., 2009) and Bolton & Lane (Bolton & Lane, 2012).
- Attitude Towards Intrapreneurship (ATI): five statements drawn from research by Gawke et al. (Gawke et al., 2019).
- Intrapreneurial Intention (IIN): six statements drawn from research by Douglas & Fitzsimmons (2013).

In the months of May, June, and July 2023, an incidental non-probabilistic sampling was carried out among students with degrees in Business Administration and Management, Labour Relations and Human Resources, Business Administration and Management and Law, Marketing and Market Research, Finance and Accounting and Economics (FICO) of the University of Seville (Spain). In total, a sample of 205 people from the Social and Legal Sciences branch was reached. The use of the university student population is supported by previous work in entrepreneurship (Harrison and List, 2004; Cui, Sun, and Bell, 2019) and is therefore also appropriate for research on Entrepreneurial Intention.

For the initial validation of the model, Cronbach's alpha was calculated. This test showed results above or very close to 0.7 (AR = 0.791, INN = 0.709, PRO = 0.692, ATI = 0887, IIN = 0.914) so that the selection of questions that make up each variable, and the scale used shows internal consistency. Before this, a pilot study and a factor analysis were carried out to eliminate those statements that do not contribute value to the construct. In addition, research on each variable validated the measurement scale.

The results were analyzed at four levels:

1. Mean rating of each variable comprising the model.
2. Analysis of the model by gender.

3. Assessment of the incidence of previous training in entrepreneurship.
4. Determination of the influence of the independent variables on Intrapreneurial Intention using a multiple linear regression analysis:

$Y= a0 + \beta1X1+ \beta2X2+ \beta3X3+ ...+ \beta nXn$

Y dependent variable. In this case, the IIN is studied

$\beta1, \beta2, \beta3 ... \beta n$ = coefficient (weight) of the independent variable.

X1, X2, X3 .... Xn = independent variables.

Among the main results, it should be noted that students in the field related to economics, business, and labor relations have an Intrapreneurial Intention of 3.81. This result is in line with their assessment of Proactivity (3.81), as well as their predisposition for Innovation (3.87) and their Attitude towards Intra-entrepreneurship (4). On the other hand, the construct measuring risk-taking is rated lower (3.69).

It can be seen that the male students expressed a slightly higher rating than the female students:

- Intrapreneurial Intention: male pupils = 3.84 and female pupils = 3.76.
- Risk-taking (RA): male pupils = 3.73 and female pupils = 3.62.
- Innovation (INN): male pupils = 3.86 and female pupils = 3.83.
- Proactivity (PRO): male pupils = 3.81 and female pupils = 3.77.
- Attitude towards Intrapreneurship (ATI): male pupils = 4 and female pupils = 3.97.

In addition, the group that has previously received specific training in entrepreneurship shows higher average scores:

- Intra-entrepreneurial Intention: Without Training = 3.74 and With Training = 3.92.

- Assuming risks (AR): Without Training = 3.60 and With Training = 3.82.
- Innovation (INN): Without Training = 3.80 and With Training = 3.96.
- Proactivity (PRO): Without Training = 3.77 and With Training = 3.87.
- Attitude towards Intrapreneurship (ATI): Without Training = 3.95 and With Training = 4.07.

Finally, evidence was found of a significant and positive relationship between "risk-taking," "Innovation," and "Attitude towards Intrapreneurship." And the incidence of "Proactivity" in Intrapreneurial Intention remains to be confirmed.

It is confirmed that university students have a high intention towards intrapreneurship. Still, society needs individuals with a greater capacity to take risks, who are proactive, innovative, and self-confident to develop new products or services. University education aimed at developing intrapreneurs will increase their professional expectations and improve their performance at work. Furthermore, the results highlight the need to focus on intra-entrepreneurial training with a gender perspective to increase women's integration into the labor market.

The evidence shown has demonstrated the model's validity for measuring Intrapreneurial Intention.

Among the main limitations of this research are the small sample and time frame analyzed. For this reason, as part of the future lines of research, it is proposed to increase the number of responses to the form and degrees analyzed.

Keywords: intrapreneurship, university, innovation, risk-taking, proactivity.

Resumen

En los últimos años, la sociedad vive en constante desarrollo tecnológico, aceleración del fenómeno de la globalización y cambios en las expectativas de los clientes. Por esta razón, las empresas deben invertir en Investigación y Desarrollo (I+D) de forma estructural para adaptarse a los requerimientos de los clientes y diferenciarse de sus competidores, y de esta manera garantizar su viabilidad sostenida en el tiempo. En este nuevo escenario, la investigación y el desarrollo de nuevos bienes, servicios o procesos productivos constituye una estrategia empresarial de gran valor. Por tal motivo, las organizaciones dentro de sus procesos de selección de personal enfatizan la evaluación de competencias tales como innovación, proactividad, la capacidad de asumir riesgos y resolución de problemas, es decir, buscan a personas intraempendedoras: aquellas que, a partir de una mentalidad emprendedora, desde dentro de una organización, son capaces de abordar sus tareas más allá de los propios fines organizativos (Blanka, 2019).

La formación que ofrecen los centros educativos, además de proveer de conocimientos técnicos, también debe de desarrollar las habilidades blandas que requieren las empresas ante un mundo en continuo cambio. De esta forma se garantiza un mayor grado de empleabilidad de sus estudiantes. En particular, las universidades son agentes catalizadores del cambio, la vanguardia e innovación. Por ello, la enseñanza superior debe hacerse eco de las necesidades de la sociedad y orientar su formación al desarrollo de personas intraemprendedoras.

En las últimas décadas, las investigaciones se han centrado en analizar la intención emprendedora como una vía de inserción laboral, pero no se han hallado suficientes estudios sobre la intención intraemprendedora en la literatura, señalando los beneficios en el ecosistema empresarial. Esta investigación tiene como objetivo plantear y validar un modelo para medir las variables que inciden en la Intención Intraemprendedora. Para ello se ha confeccionado 4 variables independientes y 1 dependiente (Intención Intraemprendedora -IIN-). Estas variables se plasmaron en un cuestionario compuesto por una serie de afirmaciones valoradas siguiendo una escala de calificación (de 1 a 5, siendo 1 el puntaje mínimo y 5 el puntaje máximo). A continuación, se presentan las variables y las fuentes de referencia:

- Asumir riegos (AR): cuatro afirmaciones extraídas de las investigaciones de Bolton & Lane (Bolton & Lane, 2012) y González-Serrano et al. (González-Serrano et al., 2019).
- Innovación (INN): cinco afirmaciones extraídas de las investigaciones de Bolton & Lane (Bolton & Lane, 2012) y González-Serrano et al. (González-Serrano et al., 2019).

- Proactividad (PRO): tres afirmaciones extraídas de las investigaciones de Trifiletti et al. (Trifiletti et al., 2009) y Bolton & Lane (Bolton & Lane, 2012).
- Actitud hacia el Intraemprendimiento (ATI): cinco afirmaciones extraídas de las investigaciones de Gawke et al. (Gawke et al., 2019).
- Intención Intraemprendedora (IIN): seis afirmaciones extraídas de las investigaciones de Douglas & Fitzsimmons (2013).

En los meses mayo, junio y julio del año 2023 se procedió a un muestreo no probabilístico incidental del alumnado de los grados de Administración y Dirección de Empresas, Relaciones Laborales y Recursos Humanos, Administración y Dirección de Empresas y en Derecho, Marketing e Investigación de Mercados, Finanzas y Contabilidad y Economía (FICO) de la Universidad de Sevilla (España). En total, se alcanzó una muestra de 205 personas de la rama de Ciencias Sociales y Jurídicas. El uso de la población de estudiantes universitarios viene avalado por distintos trabajos previos en el campo del emprendimiento (Harrison y List, 2004; Cui, Sun y Bell, 2019), por lo que son oportunos también para investigar sobre Intención Intreaemprendedora.

Para la validación inicial del modelo, se calculó el Ala de Cronbach. Esta prueba mostró resultados superiores o muy próximos al 0,7 (AR = 0,791, INN = 0,709, PRO = 0,692, ATI = 0887, IIN = 0,914) por lo que la selección de cuestiones que componen cada variable y la escala empleada presentan consistencia interna. De forma previa, se ha realizado un estudio piloto y un análisis factorial para eliminar aquellas afirmaciones que no aportan valor al constructo. Además, las investigaciones que versan sobre cada variable validaron la escala de medición.

Los resultados se analizaron a cuatro niveles:

3. Valoración media de cada variable que compone el modelo.
4. Análisis del modelo por sexo.
5. Valoración de la incidencia de la formación previa en emprendimiento.
6. Determinación de la influencia de las variables independientes sobre la Intención Intraemprendedora mediante un análisis de regresión lineal múltiple:

$$Y= a0 + \beta1X1+ \beta2X2+ \beta3X3+ \ldots+ \beta nXn$$

Y= variable dependiente. En este caso se estudia la IIN

β1, β2, β3 … βn = coeficiente (peso) de la variable independente.

X1, X2, X3…. Xn = variables independientes.

Dentro de los principales resultados, se destaca que el alumnado del campo relacionado con la economía, empresa y relaciones laborales presenta una Intención Intraemprendedora del 3,81. Este resultado están en consonancia con su valoración sobre la Proactividad (3,81), además destaca positivamente su predisposición para la Innovación (3,87) y su Actitud hacia el Intraemprendimiento (4). En cambio, el constructo que mide la asunción del riesgo presenta menor valoración (3,69).

Se observa que los alumnos expresaron una valoración ligeramente superior a las alumnas:

- Intención Intraemprendedora: Alumnos = 3,84 y Alumnas = 3,76.
- Asumir riegos (AR): Alumnos = 3,73 y Alumnas = 3,62.
- Innovación (INN): Alumnos = 3,86 y Alumnas = 3,83.
- Proactividad (PRO): Alumnos = 3,81 y Alumnas = 3,77.
- Actitud hacia el Intraemprendimiento (ATI): Alumnos = 4 y Alumnas = 3,97.

Además, el colectivo que previamente ha recibido formación específica en emprendimiento muestra valoraciones medias superiores:

- Intención Intraemprendedora: Sin Formación = 3,74 y Con Formación = 3,92.
- Asumir riegos (AR): Sin Formación = 3,60 y Con Formación = 3,82.
- Innovación (INN): Sin Formación = 3,80 y Con Formación = 3,96.
- Proactividad (PRO): Sin Formación = 3,77 y Con Formación = 3,87.
- Actitud hacia el Intraemprendimiento (ATI): Sin Formación = 3,95 y Con Formación = 4,07.

Por último, se han encontrado evidencias de la relación significativa y positiva entre “asumir riesgos”, “Innovación” y “Actitud hacia el Intraemprendimiento”. Y queda por confirmar la incidencia de la “Proactividad” sobre la Intención Intraemprendedora.

Queda confirmado que el alumnado universitario tiene una alta intención hacia el intraemprendimiento, pero la sociedad necesita a individuos con mayor capacidad de asumir riesgos, proactivos, innovadores y confianza en sí mismo para desarrollar nuevos productos o servicios. Una formación universitaria orientada a desarrollar personas intraemprendedoras incrementará sus expectativas profesionales y mejorará su desempeño en el trabajo. Además,

los resultados obtenidos ponen de relieve la necesidad de incidir en una formación intraemprendedora con perspectiva de género para aumentar la inserción laboral de las mujeres.

Las evidencias mostradas han demostrado la validez del modelo para la medición de la Intención Intraemprendedora.

Entre las principales limitaciones de esta investigación se encuentran la reducida muestra y temporalidad analizada. Es por ello que, dentro de las líneas futuras de investigación, se plantea ampliar el número de respuestas al formulario y titulaciones analizadas.

Palabras clave: intraemprendimiento, universidad, innovación, asumir riesgo, proactividad.

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INTENCIÓN EMPRENDEDORA SOSTENIBLE: UN ANÁLISIS BASADO EN LOS ANTECEDENTES DEL COMPORTAMIENTO INDIVIDUAL Y LA EDUCACIÓN EMPRENDEDORA EN LATINOAMERICA

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Abstract

Sustainability has been extensively discussed in recent years. The emergence of this concept has strengthened the opportunity for new trends and business models, capturing the interest of many individuals who are consciously or unconsciously focused on environmental conservation and integrating social aspects and healthy coexistence into the value chain. Since the introduction of the term "sustainable development" by the Brundtland Commission in 1987, which defined it as "meeting the needs of the present without compromising the ability of future generations to meet their own needs," various interpretations of this phrase have been proposed. Nevertheless, there is still no consensus on its complete interpretation. However, we do know that its goal is human well-being and that of its environment. This is why we now refer to sustainable companies or behaviors as derivative ideas.

In this research, we propose that entrepreneurial education influences sustainable entrepreneurial intention mediated by cognitive antecedents in Latin American entrepreneurial students. To do this, we have adopted Ajzen's Theory of Planned Behavior (TPB) from 1991, which asserts that intentions and behavior can be predicted from entrepreneurial attitudes and self-efficacy and subjective norms. However, considering that entrepreneurs, especially those involved in sustainable ventures, may act out of moral obligation, which represents the cognitive dimension of desirability, as suggested by Krueguer (1993) and Kruegger et al. (2000), we have incorporated this idea for evaluation and interpretation. Moral obligations are relevant when it comes to self-discipline regarding certain behaviors. Therefore, subjective norms could be complemented with social norms or obligations that enhance the desire to develop a business with sustainable value. For this reason, we have decided to add another variable to the study that better interprets this moral obligation, which we have called sustainable consciousness, to determine whether it effectively contributes to sustainable entrepreneurial intention. It has been recently noted that moral obligations and sensitivity to nature play a significant role in increasing environmental awareness (Pearce et al., 2022). Therefore, it is expected that sustainable consciousness, as a cognitive predictor, could also be influenced by entrepreneurial education.

Entrepreneurial education, in general, aims to instill the intention to engage in entrepreneurial behaviors or some of the elements that influence that intention, such as knowledge, skills, attitudes, and certain personal qualities associated with entrepreneurship (Liñán, 2004). This author develops his vision of entrepreneurial education based on entrepreneurial intention models, further delving into the TPB. In his analysis, he considers that, in addition to training, other attitudes and personal qualities such as collaborative work, systemic thinking, and innovative creativity, which are now present in modern and up-to-date entrepreneurs, especially sustainable entrepreneurs, play a role. These are individuals who have gone a step further in their business vision, and their performance is related to what is outlined in Goal 4.7 of the 2030 Agenda, which relates to sustainable development on the planet.

Business education can lead those immersed in it to have the intention to become entrepreneurs. However, it is reasonable to assume that entrepreneurial education is more strongly linked to entrepreneurial intentions than business training because the former delves into the knowledge-intensive aspects of entrepreneurship (Bae et al., 2014), contributing to economic development with young people or those with little experience, as well as their fledgling organizations, capable of responsibly serving society. These individuals may exhibit social and community commitment in addressing problems related to a new business fostered precisely by entrepreneurial education (Bueno & Casani, 2007).

Sustainable entrepreneurial intention can have a series of triggering factors, many of which are nurtured at the university. Sustainable entrepreneurial intention, a construct closely related to social entrepreneurial intention, is linked to certain predictors of sustainable entrepreneurial behavior. Intentional and planned entrepreneurship can be explained by the TPB, specifically in its sustainable variant. Therefore, to explain the antecedents of sustainable entrepreneurial intention, we have referred to the model proposed by Hockerts (2017), which uses the modified and adapted TPB by Mair & Noboa (2006) when explaining the determinants of social entrepreneurial intentions.

Finally, we test whether the entire model varies in the presence of previous experience or not among the participants. Due to the prior knowledge gained through experience, we consider it an important variable to determine if significant differences are observed in the model.

In conclusion, sustainable entrepreneurial behavior should logically result from sustainable entrepreneurial intention. Sustainable attitudes and values, as well as environmental awareness, are increasingly being instilled in new entrepreneurs, who are dedicated to developing sustainable ventures. In universities, these attributes are cultivated through initiatives, courses, and competitions that reward the efforts and sensitivity of students and other members of society. The ethical responsibility of current and future entrepreneurs, their entrepreneurial education, and their interest in trends such as social entrepreneurship and sustainable entrepreneurship are on the rise (Diepolder et al., 2021).

The study was conducted between March 2022 and June 2023 among groups of entrepreneurial individuals or those in the process of becoming entrepreneurs, who were part of the databases of universities in Peru, Colombia, and El Salvador. These individuals had received specific education or training in entrepreneurship (ranging from university students to those affiliated with incubators or those who had already started their own ventures). We employed a quantitative methodology with explanatory scope. Preliminary analyses indicate the importance of entrepreneurship education, but the presence or absence of previous experience is crucial for the significance of variables as important as entrepreneurial self-efficacy and its effect on entrepreneurial intention.

Keywords: Sustainable entrepreneurial intention, entrepreneurial education, cognitive antecedents, Latin American entrepreneurs

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HAS NON-FINANCIAL INFORMATION (NFI) DISCLOSURE IMPROVED AFTER THE DIRECTIVE 2014/95/EU? A PANEL DATA ANALYSIS OF SPANISH FIRMS

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Abstract

In the last decade there have been some regulatory changes about sustainability reports in the EU and the Member States. One of the most relevant ones is the EU Directive 2014/95/UE, which was transposed into each Member State national legal framework. Due to this new regulation, there has been a shift from voluntary to mandatory reporting in a great number of large organizations. There are very few studies investigating mandatory reports (Ottenstein et al., 2022); usually literature focuses on voluntary reporting (Haji et al., 2022). Also, there is a lack of research that compares the reports provided by EU organizations before and after the Directive to learn which was the effect of the transposition on the reports (Matuszak & Różańska, 2021).

A key objective of the regulations is to improve the quantity and quality of CSR reporting (Haji et al., 2022). However, it remains unclear whether this objective has been accomplished or not. These regulatory changes that have shifted NFI reporting from voluntary to mandatory raise some questions: Has the recent mandatory reporting had any effect on the quantity and quality of NFI? And if so, what have been the effects on both variables?

We analyse all the firms listed on the Ibex35 index for the period of 2015-2019. We employ three different methods of static panel data analysis to estimate our regression: the Pooled OLS, Fixed Effects (FE) and Random Effects (RE). We also checked for multicollinearity, heteroscedasticity, and autocorrelation.

The results show us that the increase of regulation regarding NFI reports have served to improve these reports among firms.

The shift from voluntary to mandatory has achieved the goal of increasing the quantity and quality of reporting. We can point out that companies have not only sought to comply with the legal minimums required, but also that a significant improvement has been generated. Therefore, these results serve to positively assess the organizational response. As a general conclusion, it should be noted that when social interest (which is what motivates legislation) and business interests are aligned, companies are willing to generate change.

For future research, it would be interesting to replicate the same study in smaller companies (SMEs) since they will soon begin to be required to disclose NFI due to the new European Directive 2022/2464.

This study is not without limitations. We only included IBEX-35 companies in the sample. Although it is the most representative index of the Spanish stock market, it is composed of a limited number of large companies from a single country so it should be considered to extrapolate the results.

Acknowledgements

This research has been funded by the National Plan for Scientific and Technical Research and Innovation 2021-2024 of the Ministry of Science and Innovation (reference PID 2020-119642GB-I00).

Keywords regulation; non-financial information; sustainability reports; ibex35

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THE RELEVANCE OF WOMEN ON THE BOD FOR THE IMPROVEMENT OF CSR REPORTS

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Abstract

Although there is extensive literature on the board of directors (BoD), very little has attempted to determine if and how its composition affects NFI reporting.

Some authors indicate that there might be a relationship between the composition of the BoD and the NFI reports. The argument supporting that idea is grounded on the Upper Echelons Theory, and argues that the background, beliefs, and motives of those in charge of formulating and taking decisions in the firm, may influence the outcomes, in this case, CSR disclosures (Khan et al., 2013). It is also claimed that the more heterogeneity among the members of the board, the better representation of the diverse perspectives that businesses require nowadays (Walt & Ingley, 2003).

When it comes to women on the BoD, as Giannarakis (2014) indicates: gender composition has been largely associated with financial performance, but there is no satisfactory evidence with its relationship with CSR reports. Bannò et al. (2021) perform a literature review of 77 articles on the relationship between women on BoD and the disclosure of NFI. Although most studies document a positive impact (Velte, 2022), consensus hasn't been reached yet. Therefore, the purpose of this study is to answer the following question: Do women on the BoD increase the quantity and quality of NFI reports?

We perform a panel data analysis of the Ibex35 firms, including the years 2015, 2017 and 2019. The results show that women directors have no significant relationship with the quantity, however, they positively affect the quality of NFI. These findings could be explained by the female leadership style. Our study contributes to the existing literature by providing evidence on how the gender composition of the BoD affects the NFI reports.

For further research we suggest combining directors' characteristics (Dwekat et al., 2021) looking for moderating effects between the variables. For example, not focusing only on gender, but also other characteristics such as if they are independent or proprietary directors, their age or professional background.

Finally, we are aware that this study is not without limitations. We have considered just one country: we include in our sample only large Spanish firms. Therefore, the extrapolation of results is limited.

Acknowledgements

This research has been funded by the National Plan for Scientific and Technical Research and Innovation 2021-2024 of the Ministry of Science and Innovation (reference PID 2020-119642GB-I00).

Keywords women directors, non-financial information; sustainability reports; ibex35

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ADDRESSING CASUAL COMPLEXITY IN TEACHERS´S INNOVATE BEHAVIOR DRIVERS. A CONFIGURATIONAL QUALITATIVE COMPARATIVE APPROACH

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Abstract

Since researchers and policymakers are interested in promoting innovation and intrapreneuship, it is vital to explore the drivers that push individuals to develop innovative behavior (IB), a key dimension of intrapreneurial behavior. The specialised literature highlights the importance of promoting employees' IB, especially in knowledge-intensive sectors such as education to achieve school innovation, provide high-quality educational services and sustain the educational and organisational development, ensuring the success of educational institutions (Ayoub et al., 2023; Gkorezis, 2016; Shafait et al., 2021). The need for innovative teachers is set to increase substantially as education at all levels undergoes transformative changes (Lambriex-Schmitz et al.; 2020). Teachers' innovative behaviours are actions that are designed to develop, apply, promote or change ideas and that are self-initiated by teachers to improve the quality of learning and facilitate student engagement (Thurlings et al., 2015; Zainal et al., 2020).

The specialised literature presents analyses of a variety of innovative behaviour antecedents. Thurlings et al. (2015) classify these antecedents in demographic (age, gender, tenure, years of teaching experience, education), individual (personality, traits and competences) and organizational (actors and/or relations with other people, facilities and resources, culture, task factors, physical characteristics of the organization and external factors). El Alfy and Naithani (2021) differentiate between employee-related factors (demographic characteristics, personality traits and cognitive and affective factors) and institutional related factors: (leadership, organization climate and organization systems and policies, mainly human resources practices and job design).

Most authors agree on the existence of direct and indirect relationships between institutional related factors and IB mediated or moderated by combinations of employee-related and other institutional related factors. However, the study of the determinants of IB has traditionally been carried out using variable-oriented methods that treat each independent variable as analytically distinct and separate, when, in fact, the relationships between the antecedents of IB are often complex and the factors included as mediators or moderators often

have, in turn, a diversity of antecedents. This circumstance could, at least partially, explain the existence of inconclusive and, in some cases, contradictory results.

This paper uses Qualitative Comparative Analysis (QCA) as a methodological approach to capture both the causal complexity and equifinality underlying this phenomenon. QCA is often used in research on causal complexity, where there are multiple causes that interact with each other to produce an outcome (Rioux & Ragin, 2009). As Schneider et al. (2010: 247) state, configurational comparative methods "can be employed to test whether all, or only a fraction of, the causal conditions are related to the outcome, and how the relevant conditions must be combined". Therefore, it allows to analyze combinations of causal determinants and to provide results in situations where causal asymmetry and equifinality may exist (Fiss, 2011; Ragin, 2008; Ragin & Fiss, 2008; Schneider et al, 2010).

The variables included in this research as antecedent conditions of IB were carefully selected taking into account the relevance given to them in the literature, as well as the sector (education y public sector) and the nature of the work developed (jobs with high complexity). These antecedent conditions are: high performance work system [HPWS], empowering leadership [ELQ], public service motivation [PSM], engagement [ENG], experience [EXP] and gender [GEN].

Data was gathered from a questionnaire that was sent to teachers at state schools in the region of Aragon (Spain). Three types of school were targeted: primary schools, secondary schools and vocational training colleges. A total of 1,416 valid responses were collected from a population of 17,011 teachers.

The QCA model tests both the configurational role of the selected conditions in driving innovative behavior of teachers (Model 1) and its absence (Model 2).

Model 1: IB = f(HPWS,ELQ,PSM,ENG,GEN,EXP)

Model 2: ~IB = f(HPWS,ELQ,PSM,ENG,GEN,EXP)

The first analysis undertaken is related to the necessary conditions for the model (and the presence and absence of the outcome IB). In the first model (presence of innovative behaviour) the engagement [ENG] is a necessary condition, while in the second model (absence of innovative behaviour), high performance work system [HPWS] is a necessary condition. Engagement [ENG] is the enthusiasm from teachers about their work, showing a high commitment in pursuing their vocational goals. HPWS is a set of interrelated, complementary and mutually reinforcing high performance work practices, practices that are intended to foster employee commitment to their organization.

When dealing with the sufficient conditions analysis, Model 1 has 4 causal configurations (Solution coverage: 0.868, Solution consistency: 0.825) where, as previously stated, engagement is present in all the paths. Specifically, a causal configuration that leads to the outcome: HPWS*ENG. Thus, it seems crucial for the educational system to foster innovative behavior by promoting practices related to socialization, performance appraisal and reward systems, following the Ability-Motivation-Opportunity (AMO) model (Appelbaum et al., 2000; Boxall & Purcell, 2003). Moreover, through a variety of methods, including emphasizing the value of training and development, HPWS can enhance employees' ability to assess issues and take advantage of possibilities in a more innovative manner..

Regarding model 2, and in coherence with the previous model, HPWS is absent in all causal configurations that lead to the absence of the outcome. Specifically, one of the causal configurations is: ~HPWS*~ELQ*~ENG. In this sense, the absence of HPWS and ENG and empowering leadership [ELQ] leads to the absence of innovative behaviour in teachers. As a result, ELQ—defined as the process of sharing power and assigning autonomy and responsibilities to followers, teams, or collectives through a particular set of leader behaviors for employees to improve internal motivation and achieve professional success (Cheong et al., 2019)—becomes a crucial factor to consider when encouraging IB.

Keywords (innovative behaviour; high-performance work systems; public service motivation; engagement)

Resumen

Dado que los investigadores y los formuladores de políticas están interesados en promover la innovación y el intraemprendimiento, es vital explorar los impulsores que empujan a las personas a desarrollar un comportamiento innovador (CI), una dimensión clave del comportamiento intraemprendedor. La literatura especializada destaca la importancia de promover el BI de los empleados, especialmente en sectores intensivos en conocimiento como la educación, para lograr la innovación escolar, brindar servicios educativos de alta calidad y sostener el desarrollo educativo y organizacional, asegurando el éxito de las instituciones educativas (Ayoub et al. ., 2023; Gkorezis, 2016; Shafait et al., 2021). La necesidad de docentes innovadores aumentará sustancialmente a medida que la educación en todos los niveles experimente cambios transformadores (Lambriex-Schmitz et al.; 2020). Los comportamientos innovadores de los docentes son acciones diseñadas para desarrollar, aplicar, promover o cambiar ideas y que son iniciadas por ellos mismos por los docentes para mejorar la calidad del aprendizaje y facilitar la participación de los estudiantes (Thurlings et al., 2015; Zainal et al., 2020.

La literatura especializada presenta análisis de una variedad de antecedentes del comportamiento innovador. Thurlings et al. (2015) clasifican estos antecedentes en demográficos (edad, género, antigüedad, años de experiencia docente, educación), individuales (personalidad, rasgos y competencias) y organizacionales (actores y/o relaciones con otras personas, instalaciones y recursos, cultura, tarea). factores, características físicas de la organización y factores externos). El Alfy y Naithani (2021) diferencian entre factores relacionados con los empleados (características demográficas, rasgos de personalidad y factores cognitivos y afectivos) y factores relacionados con las instituciones: (liderazgo, clima organizacional y sistemas y políticas organizacionales, principalmente prácticas de recursos humanos y diseño de puestos de trabajo).

La mayoría de los autores coinciden en la existencia de relaciones directas e indirectas entre factores institucionales y el BI mediado o moderado por combinaciones de factores relacionados con los empleados y otros factores institucionales. Sin embargo, el estudio de los determinantes de la BI se ha llevado a cabo tradicionalmente utilizando métodos orientados a variables que

tratan cada variable independiente como analíticamente distinta y separada, cuando, de hecho, las relaciones entre los antecedentes de la BI son a menudo complejas y los factores incluidos como Los mediadores o moderadores suelen tener, a su vez, diversidad de antecedentes. Esta circunstancia podría explicar, al menos parcialmente, la existencia de resultados no concluyentes y, en algunos casos, contradictorios.

Este artículo utiliza el Análisis Comparativo Cualitativo (QCA) como enfoque metodológico para capturar tanto la complejidad causal como la equifinalidad subyacentes a este fenómeno. El QCA se utiliza a menudo en investigaciones sobre complejidad causal, donde existen múltiples causas que interactúan entre sí para producir un resultado (Rioux y Ragin, 2009). Como señala Schneider et al. (2010: 247), los métodos comparativos configuracionales "pueden emplearse para comprobar si todas, o sólo una fracción de, las condiciones causales están relacionadas con el resultado, y cómo deben combinarse las condiciones relevantes". Por lo tanto, permite analizar combinaciones de determinantes causales y proporcionar resultados en situaciones donde pueden existir asimetría causal y equifinalidad (Fiss, 2011; Ragin, 2008; Ragin & Fiss, 2008; Schneider et al, 2010).

Las variables incluidas en esta investigación como condiciones antecedentes del BI fueron seleccionadas cuidadosamente teniendo en cuenta la relevancia que se les otorga en la literatura, así como el sector (educación y sector público) y la naturaleza del trabajo desarrollado (trabajos de alta complejidad). . Estas condiciones antecedentes son: sistema de trabajo de alto rendimiento [HPWS], liderazgo empoderador [ELQ], motivación de servicio público [PSM], compromiso [ENG], experiencia [EXP] y género [GEN].

Los datos se obtuvieron a partir de un cuestionario enviado a profesores de centros públicos de la región de Aragón (España). Se dirigieron a tres tipos de escuelas: escuelas primarias, escuelas secundarias y escuelas de formación profesional. Se recogieron un total de 1.416 respuestas válidas de una población de 17.011 docentes.

El modelo QCA pone a prueba tanto el papel configuracional de las condiciones seleccionadas para impulsar el comportamiento innovador de los docentes (Modelo 1) como su ausencia (Modelo 2).

Modelo 1: IB = f(HPWS,ELQ,PSM,ENG,GEN,EXP)

Modelo 2: ~IB = f(HPWS,ELQ,PSM,ENG,GEN,EXP)

El primer análisis realizado está relacionado con las condiciones necesarias para el modelo (y la presencia y ausencia del resultado IB). En el primer modelo (presencia de comportamiento innovador) el compromiso [ENG] es una condición necesaria, mientras que en el segundo modelo (ausencia de comportamiento innovador), el sistema de trabajo de alto rendimiento [HPWS] es una condición necesaria. Engagement [ESP] es el entusiasmo de los docentes por su trabajo, mostrando un alto compromiso en la consecución de sus objetivos vocacionales. HPWS es un conjunto de prácticas laborales de alto rendimiento interrelacionadas, complementarias y que se refuerzan mutuamente, prácticas que tienen como objetivo fomentar el compromiso de los empleados con su organización.

Al abordar el análisis de condiciones suficientes, el Modelo 1 tiene 4 configuraciones causales (Cobertura de la solución: 0,868, Consistencia de la solución: 0,825) donde, como se indicó anteriormente, el compromiso está presente en todos los caminos. Específicamente, una configuración causal que conduce al resultado: HPWS*ENG. Así, parece crucial que el sistema educativo fomente comportamientos innovadores fomentando prácticas relacionadas con la socialización, la evaluación del desempeño y los sistemas de recompensa, siguiendo el modelo Capacidad-Motivación-Oportunidad (AMO) (Appelbaum et al., 2000; Boxall & Purcell, 2003).). Además, a través de una variedad de métodos, incluido el énfasis en el valor de la capacitación y el desarrollo, HPWS puede mejorar la capacidad de los empleados para evaluar problemas y aprovechar las posibilidades de una manera más innovadora.

Respecto al modelo 2, y en coherencia con el modelo anterior, HPWS está ausente en todas las configuraciones causales que conducen a la ausencia del resultado. Específicamente, una de las configuraciones causales es: ~HPWS*~ELQ*~ENG. En este sentido, la ausencia de HPWS, ENG y de liderazgo empoderador [ELQ] conduce a la ausencia de comportamientos innovadores en los docentes. Como resultado, ELQ, definido como el proceso de compartir el poder y asignar autonomía y responsabilidades a seguidores, equipos o colectivos a través de un conjunto particular de comportamientos de líder para que los empleados mejoren la motivación interna

y logren el éxito profesional (Cheong et al., 2019). —se convierte en un factor crucial a considerar a la hora de fomentar el BI.

Palabras Clave (comportamiento innovador; sistemas de trabajo de alto rendimiento; motivación del servicio público, compromiso)

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TREND RESEARCH WITH HELP OF ARTIFICIAL INTELLIGENCE

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Abstract

Thanks to current developments in Artificial Intelligence (AI) and Large Language Models (LLM), software can recognize patterns, learn from experience, and predict outcomes. One area of application for AI and LLM is trend research. Based on huge amounts of data, the software is used to identify current and future trends. For companies, this has the advantage of enabling them to adapt more quickly to changing environmental conditions, customer needs, and general conditions based on increasing automation in trend research. AI can already identify new trends by analyzing data. However, it is also only as good as the data on which it is based.

So, to be effective, it needs to have both high-quality and comprehensive data sets. The better and more extensive these are, the more accurately AI can work and make predictions.

Looking at current technical developments, our case study demonstrates how AI can already be used in the process of trend research. AI can already provide good support, but recognizable limitations remain, at least today. For the development of a real-life trend radar, the use of AI was tested in one company. Two different types of tools were used. On the one hand, a web crawler was used to work out the correlation of keywords, which were previously identified based on desk research, with certain topics and a point in time in the near future. On the other hand, ChatGPT 3.0 was used.

Both approaches proved to have advantages but sacrifices in quality and precision. The web crawler tools had difficulties to correctly limit the topic areas and thus keywords that are currently strongly present in the media showed a high relevance across all topic areas. ChatGPT, however, was very general and superficial. In both cases it turned out that the results of the two tools had to be checked and corrected again by Subject Matter Experts to use them for further analysis and strategic decisions.

Keywords: trend research, artificial intelligence, large language models, foresight

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THE ENTREPRENEURIAL EDUCATION AND ENTREPRENEURIAL ACTIVITY GENDER-BASED GAP IN UNIVERSITY STUDENTS

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Abstract

Evidence suggests that entrepreneurial involvement may operate distinctively along demographics, needing tailored approaches for varying ages, developmental stages, or genders. Focusing on the last aspect, and given higher education's role as a bridge to the labour market, a gender-sensitive approach to higher entrepreneurial education seems to be essential; or at least is what literature argues when widely considering entrepreneurship as a gendered process. Building on this, the current study provides an updated snapshot on gender related variables associated with entrepreneurship education, drawing from a comprehensive sample of university students studying at one the most significant and thriving business hubs in the Mediterranean region, EDEM-Business School.

Our results show that female students outperform male students, specifically in business-related subjects, where this difference is twice as pronounced when compared to non-business subjects. Moreover, the percentage of female student members that belonged to a recently created entrepreneurship club was 32,6%, similar to the general sample of the students studying at EDEM (35%). Unfortunately, this scenario changes when shifting our focus to the actual implementation of entrepreneurial ideas. Here, only 10% of the participants in the over 1,300 projects launched in this institution are women. This points to a gender-based gap between entrepreneurial education and entrepreneurial activity.

In this regard, the present work tries to identify the reasoning of such paradox, helping policy makers and entrepreneurial educators in designing more effective entrepreneurial programs, and in so doing, helping them to better tailor provision to the particular characteristics of participants.

Keywords: female entrepreneurship; entrepreneurial education; entrepreneurial intentions; imposter phenomenon; business launcher.

Introduction and theoretical framework

Rates of entrepreneurial activity do not always increase over time (Fairlie et al., 2016; Peña et al., 2016). Evidence suggests that the effectiveness of some current entrepreneurship policies and entrepreneurial education methodologies can be enhanced, emphasizing a need for a closer look at the intricacies involved (Acs et al., 2016; Martínez-Gregorio et al., 2021).

Entrepreneurship is a complex, evolving phenomenon (Shepherd et al., 2019). Policies and educational interventions may work differently across demographics, necessitating tailored approaches for varying ages, developmental stages, or genders. Accordingly, continual

monitoring of the entrepreneurial landscape is vital to updating policies, support mechanisms, and educational interventions, that can help ensure adaptability to sociocultural change.

Entrepreneurship is widely acknowledged as a gendered process (Jennings & Brush, 2013; Hechavarria & Ingram, 2016; Ladge et al., 2019). Equitable opportunities for women in non-traditional female domains like entrepreneurship are vital (Salavou et al., 2021). Given higher education's role as a bridge to the labour market, a gender-sensitive approach to higher entrepreneurial education is essential. Building on this, and through a gendered lens, the current study aims to provide an updated snapshot on gender related variables associated with entrepreneurship education, drawing from a comprehensive sample of university students studying at one the most significant and thriving business hubs in the Mediterranean region, EDEM business-school.

Methodology

This is a descriptive, cross-sectional and quantitative study where information was extracted from student grades, their entrepreneurial intentions (growth, lifestyle and social-oriented) and their membership of an extra-curricular entrepreneurship club. The sample consists of 10.500 students from the degree *'Business Administration and Management'* at 'EDEM-Business School'[2] over four complete academic years (18/19, 19/20, 20/21, 21/22), which equates to 210 subjects and 1,320 ECTS. The gender distribution and average degree grades are shown in Table 1.

Table 1 Gender percentages and average grades of the total sample

EDEM-Business School students	Distribution	Average grades
All students	100%	6,1
Female students	35%	6,3
Male students	65%	6,0

[2] *EDEM-Business School' is a Spanish academic institution founded in 2002. Currently, the institution has an educational offer of 50 programs, including both university and management training, it houses a total of 2,500 students and employs more than 500 professors and researchers. Likewise, it is important to highlight that 'EDEM-Business School' is part of 'Marina de Empresas', a consolidated business ecosystem made up of a business accelerator, 'Lanzadera', an investment vehicle, 'Angels', and an educational center, 'EDEM-Business School', concentrated in what has become one of the most important and successful business hubs in the Mediterranean area.*

Source: Own elaboration.

It is noteworthy to highlight certain distinctive aspects of the institutional environment to help understand why this particular sample is of specific relevance in comprehending various facets of entrepreneurship education in the region.

Firstly, EDEM-Business School is affiliated to the University of Valencia (UV), and therefore offers an official degree title. However, EDEM only offers one track of the five possible tracks of this degree offered at the UV, which is the track in 'Business creation and management'. In essence, both institutions offer this particular specialization, but EDEM stands out for its distinct focus and reputation in the field of entrepreneurship.

Additionally, another distinctive feature of EDEM is that 44% of its faculty members are employed in the private sector and come to the institution as external professors to deliver lessons. As a result of this practical perspective and real-world experience brought by these professors, the educational methodology employed at EDEM is notably practice-oriented. Entrepreneurial education scholars argue that a more practical approach, rather than purely theoretical provision, improves learning effectiveness (Bae et al., 2014; Neck at al., 2014). Indeed, these active methodologies, where students assume a leading role in the learning process, aligns with a constructivist educational approach, currently highly valued in entrepreneurship education (Baggen et al., 2022).

Results

Despite the entrepreneurial context and practical teaching-learning methods employed at EDEM-Business School, certain paradoxical results have emerged when viewed through a gender-oriented lens. This study not only aims to highlight these paradoxes but also seeks to propose potential avenues for future research to enhance understanding in the domain.

Female students outperform male students, specifically in business-related subjects, which constitute 46% of the total subjects. As shown in Table 2, this difference is twice as pronounced when compared to non-business subjects (0,2 points versus 0,4 points).

Table 2 Differences in average grades by gender across subject types

EDEM-Business School students	Females	Males	Difference

Business subjects	6,8	6,4	0,4
Other subjects	5,9	5,7	0,2

Source: Own elaboration.

Furthermore, EDEM has created an 'Entrepreneurship Club' where students can voluntarily sign up to receive additional training on entrepreneurship, including talks, support with their ideas and projects, etc. The percentage of female student members of this club was 32,6%, similar to the general sample of the students studying at EDEM (35% as shown in Table 1). In this context, alignment may serve as an encouraging indicator of acceptable interest in entrepreneurship.

Consequently, given their higher grades, especially in business subjects, and their reasonable contextualized rate of entry into the 'Entrepreneurial Club', there is evidence to suggest that female students at EDEM are well-prepared to initiate and manage their own business.

However, regrettably, the scenario changes when we shift our focus to the actual implementation of entrepreneurial ideas. Only 10% of the participants in the over 1.300 projects launched in Lanzadera, the business accelerator of the combined 'Marina de Empresas' initiative as defined earlier, are women. This same percentage is observed in the investment forums organized by the ecosystem (Lanzadera and Angels) to attract funding for these ventures, where only 10% of investors are women.

This points to a gender-based gap between entrepreneurial education and entrepreneurial activity, indicating that only a small percentage of women studying business and entrepreneurship actually proceed to start and manage a business or actively participate in the entrepreneurial process (e.g., becoming investors).

Conclusions

Potential reasoning behind such paradox in female entrepreneurship can be related to socialised gender roles (Eagly & Karau, 2002) and their involvement during formal and informal education concerning entrepreneurship and their environment. Specifically, we propose two avenues for future research: (1) internalized impostor fears, and (2) addressing the diversification of entrepreneurship types.

The traditional 'entrepreneur' construct is stereotypically masculine (Gupta et al., 2019) leading to women encountering more systematic challenges in comparison to their male counterparts, especially during nascency (Zhao & Yang, 2021). For instance, even when accounting for enterprise characteristics, "male and female entrepreneurs appear to be rewarded differently by capital providers, often to the detriment of women" (Eddleston et al., 2016, p. 490). Notwithstanding these challenges stemming from external sociocultural factors associated with social gender roles (Eagly & Karau, 2002), women frequently internalize them. The process of internalization holds particular significance in education, as Vygotsky (1978), the father of social constructivist learning theory, posits. Internalization takes place as students construct knowledge and meaning within the teaching-learning process, drawing from their social and cultural interactions that subsequently become internalized as cognitive functions (e.g., attitudes, intentions, beliefs, reasoning...).

On one hand, this internalization can potentially result in the establishment of elevated self-imposed standards and self-doubt or imposter fears concerning their own entrepreneurial capabilities (Ladge et al., 2019). Imposter fears, better known as imposter phenomenon (Clance & Imes, 1978), is defined as a pervasive psychological experience based on self-perceptions of intellectual inadequacy, anticipated failure, self-doubt, and a constant fear of being discovered as an imposter, despite objective evidence of success.

Impostor phenomenon is a barrier to career advancement and development (Neureiter & Traut-Mattausch, 2016). In the case of female students at EDEM, impostor fears may be hindering business creation, despite the objective evidence of success as seen in scoring the highest grades. As aforementioned, constructivist learning methodologies are increasingly gaining prominence in entrepreneurship education (Baggen et al., 2022). Studying the role of impostor phenomenon in the internalization learning process within entrepreneurship education from a gender perspective can help shed light on this paradox.

On the other hand, this internalization of social gender roles can be related to varying conditional pathways that females and males have towards specific entrepreneurial intention types. For instance, Table 3 shows the results of Donaldson et al. (2023) where female students at EDEM hold higher preferences towards social and lifestyle projects, while males lean towards those that are growth-oriented. The latter is more aligned with the 'masculine' stereotypical notion of 'entrepreneurial' business creation and with the start-up business model mostly promoted by business accelerators, such as Lanzadera.

Table 3 Mean comparisons of entrepreneurial intention types

Entrepreneurial Intentions Types	Female	Male	P Value
Growth Oriented Entrepreneurial Intentions	4.58	5.00	.011*
Social Entrepreneurial Intentions	6.04	5.32	.000*
Lifestye Entrepreneurial Intentions	6.00	5.47	.004*

Source: Extracted from Donaldson et al. (2023)

Consequently, one of the main results of this study is to disentangle the apparent paradox that some policy makers currently observe when, in spite of exposing more individuals to entrepreneurship, it does not always result in higher overall entrepreneurial activity (Acs et al., 2016). In this regard, the present work and suggestions offered could prove valuable in aiding policy makers and entrepreneurial educators in designing more effective entrepreneurial programs, and in so doing, helping them to better tailor provision to the characteristics of participants.

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