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# Factors Influencing the Emergence of Digital Entrepreneurship: A Conceptual Approach

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## ABSTRACT

The rise of digital technologies has ushered in a new era of entrepreneurship known as digital entrepreneurship, which is crucial for fostering socio-economic development. Despite its importance, the factors contributing to the emergence of digital entrepreneurship remain poorly explored in the academic environment. This special issue seeks to fill this gap. To do so, we conducted a comprehensive literature review of 40 peer-reviewed articles indexed within Scopus and Web of Science. Our review identified ten key factors grouped into individual, organizational, and ecosystem levels. While factors like digitalization are closely associated with the digital landscape, personality traits relate to wider entrepreneurial research. We propose a multi-level conceptual framework that emphasizes essential digital elements to enhance comprehension and stimulate the growth of digital entrepreneurship.

**KEYWORDS:** Digital Entrepreneurship, Entrepreneur Profile, Entrepreneurial Process, Entrepreneurial Ecosystem, Conceptual Approach

**JEL CODES:** M13, O31, O33

A vital question for researchers, practitioners, and policymakers is which factors contribute to the emergence of different forms of entrepreneurship. Although this may appear straightforward, it has inspired substantial academic research on traditional entrepreneurship to promote entrepreneurial activity (Pinelli *et al.*, 2021; Berman *et al.*, 2023). Researchers have identified several factors that help traditional entrepreneurship thrive. These include the skills and knowledge of entrepreneurs, the market environment (Meek *et al.*, 2010), the search for business opportunities (Elia *et al.*, 2020), qualities like determination and resilience (Ratten, 2021), and involvement in

supportive entrepreneurial ecosystems (Andrade Rojas *et al.*, 2022). However, the application of these findings to digital entrepreneurship remains uncertain (Kraus *et al.*, 2019). This ambiguity arises from the distinct challenges that digital entrepreneurs encounter compared to those faced by traditional entrepreneurs (Nambisan, 2017).

Nambisan (2017) and Kraus *et al.* (2019) pioneered digital entrepreneurship as a field of study, emphasizing the profound impact of digital technologies, platforms, and infrastructure on entrepreneurial activity. This shift has disrupted traditional innovation and entrepreneurship paradigms, ushering in a new era of entrepreneurial projects. The rise of the platform economy, driven by tech giants like Alphabet-Google, Apple, Facebook, Amazon, and Microsoft, has supported businesses at all stages of development and blurred traditional boundaries, facilitating the emergence of digital ventures (Kiesling, 2020). Data-driven, algorithmic online platforms, including the Internet of Things, big data, cloud computing, and artificial intelligence, have revolutionized business transactions (José van, 2018). This rapid evolution has made digital entrepreneurship an essential area of research with significant implications for both academia and practice (Ghezzi, Cavallo, 2020; Paul *et al.*, 2023).

Kollmann (2006) introduced the concept of “e-entrepreneurship,” defining it as entrepreneurial ventures that utilize digital technologies to develop innovative business models within the digital economy. These ventures use digital platforms and information technology to deliver products and services, create value, and operate within the interconnected digital ecosystem. Sussan and Acs (2017) posit that digital entrepreneurship emerges from the intersection of digital infrastructure, entrepreneurial actors, and supportive ecosystems. Ebert and Duarte (2018) expand this definition to encompass all innovative aspects of entrepreneurship within the digital realm. This includes activities such as market research, creativity, innovation, product development, opportunity identification, revenue generation, risk-taking, stakeholder collaboration, platform integration, and competitive advantage.

The digitalization of entrepreneurial processes has blurred the boundaries between physical and digital operations, leading to revolutionary achievements in the business world (Paul *et al.*, 2023). Digitalization is increasingly crucial for supporting entrepreneurial ventures and fostering innovation (Ben Youssef *et al.*, 2021; Ruutu *et al.*, 2017). A well-defined digitalization strategy is currently essential for business success (Kraus *et al.*, 2023). Entrepreneurs play a pivotal role in capitalizing on digital opportunities (Kallinikos *et al.*, 2013), and digital competence, linked with personal traits like risk-taking and innovation, significantly influences digital entrepreneurship (Dutot, Van Horne,

2015). Consequently, digital ventures are distinguished from other forms of entrepreneurial activities (Cavallo *et al.*, 2023; Felicetti *et al.*, 2023). However, scholars have noted a lack of consensus or clear definitions regarding the goals, characteristics, and factors of digital entrepreneurship (Farani *et al.*, 2017; Beliaeva *et al.*, 2020; Nambisan, 2017; Jafari-Sadeghi *et al.*, 2021).

Anim-Yeboah *et al.* (2020) highlighted the absence of robust theoretical foundations in the digital entrepreneurship literature. Ladeira *et al.* (2019) emphasized that the factors contributing to the emergence of digital entrepreneurship remain largely unexplored. While some potential factors have received limited attention, they could significantly impact the development of digital entrepreneurship. Therefore, a comprehensive understanding of these factors is essential to drive its growth. To address this gap, we propose a multi-level conceptual framework encompassing individual, organizational, and environmental factors. This framework responds to the research question for this special issue: “What factors contribute to the emergence of digital entrepreneurship?”

A comprehensive literature review of 40 peer-reviewed articles from Scopus and Web of Science identified ten factors categorized into these three levels. This study has two primary objectives: first, to establish a theoretical foundation for the research, and second, to propose a conceptual model with its associated propositions. The structure of the paper is as follows: we begin by outlining the research methodology, followed by a theoretical foundation on digital entrepreneurship and its conceptual model. Next, we present the research propositions, concluding with an analysis of the results derived from the conceptual model.

## Research Methodology

This research is based on the methodology of Mullen and Klimaitis (2021) to identify the factors influencing the emergence of digital entrepreneurship. The study organizes existing concepts to establish a foundation for future theoretical development (Leidner, 2018).

The review covered studies published between 2003 and 2022, sourced from the Scopus and Web of Science (WoS) databases. We selected Scopus as the primary data source for its extensive coverage of peer-reviewed journals, conference proceedings, and multidisciplinary focus, making it ideal for our research (Younis *et al.*, 2024; Barlatier *et al.*, 2024). Its comprehensive publication coverage is well-regarded in digital entrepreneurship research (Mariani *et al.*, 2022; Kraus *et al.*, 2019). Additionally, Scopus offers effective

search and filtering features that enhance the thoroughness and reliability of literature reviews (Tandon *et al.*, 2020). Its user-friendly interface and robust search functionalities (Schotten *et al.*, 2017) also aid in maintaining the quality and integrity of the review process, particularly under time and resource constraints. However, relying solely on Scopus could introduce biases by excluding papers from other respected databases, potentially missing valuable insights. Therefore, the study also incorporated the WoS database to ensure a more comprehensive understanding of the topic, encompassing reliable and high-impact scientific studies (Echchakoui, 2020). The selection of these two databases aimed to gather a diverse range of essential academic research sources and scholarly articles in the social sciences field (Paul *et al.*, 2023).

We conducted the literature search using a combination of the search keywords (“digital entrepreneurship” OR “internet entrepreneurship” OR “cyber entrepreneurship” OR “e-entrepreneurship”) AND (“emergence” OR “growth” OR “development”). Scholars recommend against limiting the selection of studies to peer-reviewed journal articles in emerging fields, as these areas often lack legitimacy, which can affect the publication decisions of journal editors (Tranfield *et al.*, 2003; Busenitz *et al.*, 2014). Consequently, in this research, we selected peer-reviewed articles and conference papers with empirical data from reputable publishers such as Elsevier, Springer, and Emerald Publishing. We started our evaluation process by reviewing the title, abstract, and keywords of each paper to confirm their direct relevance to our main topic.

After removing duplicates, 148 search results remained: 115 papers from Scopus and 33 papers from WoS. During the screening process, we examined titles and abstracts using exclusion criteria. We excluded articles that were not in English (53 articles), not published in peer-reviewed sources, such as book sections (13 articles), or that addressed aspects of digital entrepreneurship irrelevant to our study (42 articles). After applying these criteria, we retained 40 articles for the final analysis. The selected articles included quantitative and qualitative research on factors promoting digital entrepreneurship. Our study identified ten key factors which we elaborated on in the next section.

Nambisan (2017) has significantly shaped the definition of digital entrepreneurship and laid foundational concepts for further research. Despite this foundational work, research in this area is still emerging, with a relatively small number of articles dedicated to the topic. Before 2010, researchers published only one article, and the first empirical study did not appear until 2014 (Kraus *et al.*, 2019). Since then, we have seen a significant increase in publications on the factors driving the emergence of digital entrepreneurship, with more than one-third of these papers released in 2020 alone.

Our analysis revealed that the selected articles covered diverse fields, with the majority in entrepreneurship (15 articles), management (seven articles), and information systems (four articles). We also identified papers in marketing, education, psychology, and innovation, highlighting the substantial diversity of publication sources. The leading journals are Technological Forecasting and Social Change with four articles, followed by Small Business Economics and the International Journal of Entrepreneurial Behavior and Research, each with three articles, and then Entrepreneurship Theory and Practice, Strategic Entrepreneurship Journal, Computers in Human Behavior, and Journal of Business Research, each with two articles. Thus, we identified 29 journals (see Table 1 for a comprehensive overview of these settings).

**Table 1 - List of the journals included in the literature review**

S. No.	List of the Journals as final selection	Research Field	Total no. of articles selected
1	Technological Forecasting and Social Change	General Management	4
2	International Journal of Innovation Studies	Entrepreneurship	1
3	Technology in Society	Technology & Society	1
4	International Journal of Entrepreneurial Behavior and Research	Entrepreneurship	3
5	Strategic Entrepreneurship Journal	Entrepreneurship	2
6	Journal of Engineering Education Transformations	Education	1
7	Strategy & Leadership	Strategic Management	1
8	Canadian Journal of Administrative Sciences	Administrative Sciences	1
9	Computers in Human Behavior	Information Systems	2
10	Transnational Corporations Review	International Business Strategy	1
11	European Journal of Training and Development	Human Resource Development	1
12	Futures	Future studies	1
13	Journal of Business Venturing Insights	Entrepreneurship	1
14	Journal of Business Research	Business	2
15	International Journal of Innovation and Technology Management	Technological Innovation	1
16	Journal of Interactive Marketing	Marketing	1
17	Frontiers in Psychology	Psychology	1
18	International Journal of Networking and Virtual Organisations	Information Systems and Management	1
19	International Journal of Technology Management	Management	1
20	International Entrepreneurship and Management Journal	Entrepreneurship	1
21	Asian Journal of Technology Innovation	Innovation	1
22	Entrepreneurship Theory and Practice	Entrepreneurship	2
23	Journal of Small Business and Enterprise Development	Entrepreneurship	1
24	Small Business Economics	Entrepreneurship	3
25	Cogent Business & Management	Management	1
26	Business Information Systems Engineering	Information Systems	1
27	International Journal of E-Entrepreneurship and Innovation	E- Entrepreneurship	1
28	Journal of Business Venturing	Entrepreneurship	1
29	Information Systems Journal	Information Systems	1

This research has proven to have a wide geographical scope. Two studies conducted multi-country analyses, while twelve studies focused on distinct single-country contexts. Only four studies were conducted in countries ranked within the top 30 of the Global Entrepreneurship Index (GEI; Acs *et al.*, 2019) and the Digital Platform Economy Index (DPEI; Acs *et al.*, 2021). This indicates a limited number (see Table 2). While China's position outside the top 30 in the relevant indices is remarkable, its participation in two research studies underscores the growing importance of the digital entrepreneurship landscape within the country. Kosovo, however, is not included in the rankings.

**Table 2 – List of countries where studies were conducted<sup>1</sup>**

Countries	GEI Rank <sup>1</sup> (2019)	DPE Rank <sup>1</sup> (2020)	Studies
Oman	39	56	1
Italy	36	30	1
Germany	15	14	1
Philippines	86	71	1
Taiwan	18	29	2
France/ UAE	N/A	N/A	1
Iran	64	86	1
China	34	58	2
Cameroon	121	107	1
Qatar	28	37	1
USA/France/ Finland	N/A	N/A	1
Kenya	96	91	1
Brazil	118	51	1
Kosovo	-	-	1

## Theoretical Foundations

A review of the literature reveals that various terms have been used interchangeably with digital entrepreneurship, including e-entrepreneurship (Abdelfattah *et al.*, 2022; Alzamel *et al.*, 2020; Lai, To, 2020; Shimoli *et al.*, 2020), internet entrepreneurship (Huang *et al.*, 2022), cyber-entrepreneurship (Chang *et al.*, 2020; Tseng *et al.*, 2022), technopreneurship (Belmonte *et al.*, 2022; Koe *et al.*, 2021), digital autpreneurship (Yeh *et al.*, 2020), and digital start-up (Suparno *et al.*, 2020).

Several scholars have applied the Theory of Planned Behavior (TPB) to examine how beliefs, attitudes, intentions, and perceived control influence the factors contributing to the rise of digital entrepreneurship (Al-Mamary, Alraja, 2022; Alzamel *et al.*, 2020; Farani *et al.*, 2017; Lai, To, 2020; Tseng *et al.*, 2022; Younis *et al.*, 2020). The TPB, developed by Ajzen in 1991, proposes that intentions are the primary determinants of behavior. In the context of digital entrepreneurship, individuals with strong intentions are more likely to engage in entrepreneurial activities. A strong desire to become a digital entrepreneur positively impacts the adoption of digital entrepreneurial behavior. The theory also highlights the importance of attitudes, subjective norms, and perceived behavioral control in shaping behavior, clarifying how personal beliefs and motivations, along with digital technology opportunities, foster the growth of digital entrepreneurship.

Marvel *et al.* (2016) developed human capital theory to explain traditional and digital entrepreneurship. This theory emphasizes the factors that influence digital entrepreneurship, particularly the role of human capital in

1. GEI and DPE ranking (<http://thegei.org/global-entrepreneurship-and-development-index/>)

identifying and seizing opportunities (Marvel, 2013) and effectively utilizing those opportunities by acquiring financing and launching ventures (Dimov, 2010). Additionally, human capital is vital for acquiring new digital knowledge and creating advantages for new firms (Bradley *et al.*, 2012).

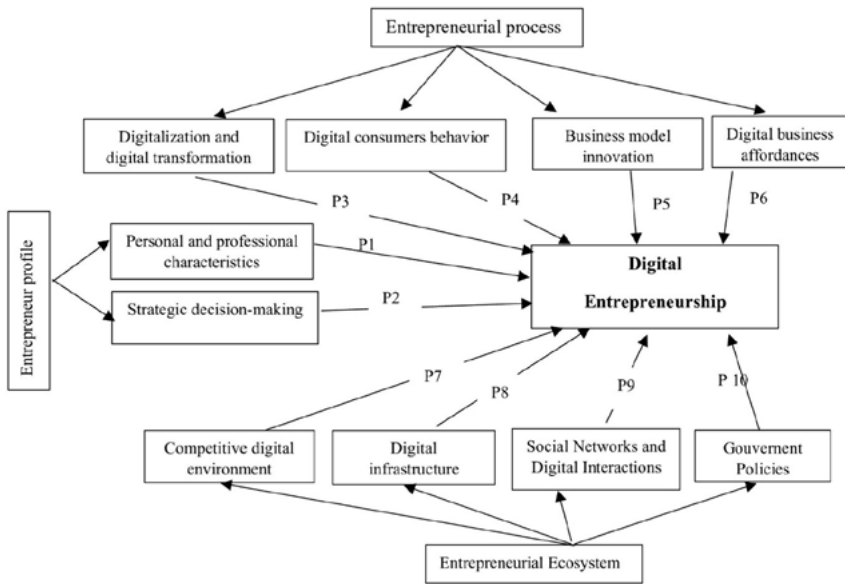
Giones and Brem (2017) observed that the convergence of entrepreneurship and technology has introduced new facets to the field. Hair *et al.* (2012) defined digital entrepreneurship by emphasizing three key factors. First, technological know-how is essential, with its complexity linked to the level of digitalization in a business. As digitalization increases, so does the demand for advanced technological expertise. Second, access to digital information is critical, as highly digitalized companies can gain valuable insights about customers, competitors, and stakeholders, unlike those primarily operating in the physical world. Finally, the digital market is a defining characteristic of digital entrepreneurship, allowing digital entrepreneurs to reach a wide and diverse global audience without geographical limitations.

Bogdanowicz (2015)'s conceptual model of digital entrepreneurship identifies five key pillars for analysis. The first pillar, the digital knowledge base, and ICT market, underscores the importance of digital infrastructure and the entrepreneur's expertise in digital technologies. The second pillar, the digital business environment, includes regulatory and legal frameworks that can either facilitate or impede digital entrepreneurship. The third pillar, access to finance, is crucial for securing the financial resources needed to support digital ventures. The fourth pillar, digital skills, and e-leadership, highlights the competencies necessary for successful engagement in digital entrepreneurship. Finally, the fifth pillar, entrepreneurial culture, encompasses the attitudes, values, beliefs, and norms that significantly influence the behavior of individuals and organizations in the entrepreneurial context.

In their conceptual framework, Zhao and Collier (2016) highlight the significant role of social networks and social capital in digital entrepreneurship development. Van Welsum (2016) notes that digital entrepreneurship relies on a combination of skills, infrastructure, and the business environment, which are crucial in a dynamic landscape where start-ups, smaller companies, and highly innovative sectors face increased risks. This rise in digital entrepreneurship has opened numerous opportunities for individuals with essential skills like online customer acquisition, prototyping for ideas, and data-driven refinement of business concepts. Digital business models play a crucial role in shaping digital entrepreneurship compared to traditional models (Kraus *et al.*, 2019). Digitalization has accelerated the entrepreneurial process by enabling faster product development and leveraging advanced technology and computing power (Ojala, 2016; Kooskora, 2021).

These advancements have made digital entrepreneurship highly dynamic. Previous research has categorized the determinants of digital entrepreneurship into three dimensions: the entrepreneur, the process, and the ecosystem (Hafezieh *et al.*, 2011; Ladeira *et al.*, 2019; Nambisan, 2017; Samara, Terzian, 2021). Our study adopts this framework to explore the key factors influencing the development of digital entrepreneurship. The proposed model, illustrated in Figure 1, seeks to directly examine the impact of these factors on the emergence of digital entrepreneurship.

**Figure 1 - Conceptual model of digital entrepreneurship emergence**



## Research Propositions Development

This section focuses on understanding the entrepreneur, the process, and the ecosystem within the digital context. We begin by defining and analyzing the key factors that shape an entrepreneur's profile.

### The Entrepreneur's Profile

Hair *et al.* (2012) argue that digital entrepreneurs seize emerging business opportunities through digital media, the Internet, and information and communication technologies. Researchers (Dutot, Van Horne, 2015; Van Welsum, 2016; Ammirato *et al.*, 2020; Samara, Terzian, 2021) have studied

the characteristics of digital entrepreneurs. Ladeira *et al.* (2019) emphasize that the entrepreneur's profile is the most significant factor influencing the development of digital entrepreneurship.

### **Personal and Professional Characteristics**

Individual characteristics, such as personality traits, motivation, and skills significantly influence digital entrepreneurship. Personality traits play a crucial role in motivating human behavior and shaping the decision to engage in entrepreneurial activities (Sarwar *et al.*, 2020; Hachana *et al.*, 2018). These traits distinguish entrepreneurs from non-entrepreneurs and considerably impact an individual's intention to pursue self-employment (Caliendo *et al.*, 2014). Successful entrepreneurs possess a diverse skill set across various functions, such as investor, leader, inventor, marketing specialist, accountant, dispute resolver, technologist, and top seller (Frese, Gielnik, 2014). Continuous learning and skill development are essential for success in a highly competitive environment. Furthermore, digital culture, as emphasized by Abubakre *et al.* (2022), is a significant factor in determining success in digital entrepreneurship.

Nambisan (2017) and Koe and Sakir (2020) emphasize the importance of individual motivation in driving the growth of digital entrepreneurship. Cnossen *et al.* (2019) distinguish between two types of motivation: extrinsic and intrinsic. Successful digital entrepreneurs demonstrate traits like autonomy, motivation, and a positive attitude toward digital technology (Nambisan, 2017). Autonomy, the ability to work independently and make decisions, enhances interest in an organization's industry and fosters intrinsic motivation, which is crucial for success, persistence, and productivity (Koe, Sakir, 2020). Digital entrepreneurs face a distinctive obligation to innovate, driven by the influence of digital platforms. Attitudes are central to digital entrepreneurship, shaping entrepreneurs' intentions, decisions, and perceptions. These attitudes encompass views on entrepreneurship, subjective norms, perceived control, external pressures, and a company's digital maturity (Philip, Williams, 2018).

In a more recent study, Qasim *et al.* (2023) and Aloulou *et al.* (2024) discuss e-entrepreneurial attitudes as key drivers of digital entrepreneurship. Becoming a digital entrepreneur largely depends on personal perceptions. Digital entrepreneurial perceptions are shaped by attitudes toward entrepreneurship, subjective norms (reflecting positive beliefs from family, friends, and colleagues), perceived behavioral control (evaluating the ease or difficulty of entrepreneurial endeavors), external pressures (including institutional influences

from various stakeholders), and a company's internal digital maturity (Philip, Williams, 2018; Gieure *et al.*, 2019; Schlaegel, Koenig, 2014). Digital entrepreneurial intention is pivotal in driving economic growth and capitalizing on the expanding opportunities created by the widespread adoption of digital technologies (Aloulou *et al.*, 2024). According to Qasim *et al.* (2020), risk and trust influence the e-entrepreneurial intention to start an online business.

Voda and Florea (2019) underline the importance of digital entrepreneurial education as a critical factor for success, equipping digital entrepreneurs with the essential knowledge, skills, and capabilities needed to establish new ventures. Digital knowledge is increasingly important as the success of virtual projects increasingly relies on digital skills (Bayrakdaroglu, Bayrakdaroglu, 2017). Entrepreneurs venturing into the digital realm must typically embrace Internet culture and technologies to successfully launch their businesses. In today's digital world, digital literacy is essential for young entrepreneurs with internet-based business ideas (*ibid.*). It is a critical skill for addressing modern challenges. Ngoasong (2018) highlights the importance of digital skills and competencies for digital entrepreneurship, enabling effective engagement and competitiveness. The study emphasizes that entrepreneurs proficient in digital competencies are more capable of creating innovative digital businesses.

Digital entrepreneurs, as noted by Xing *et al.* (2020), should excel at making quick and effective decisions in response to unpredictable changes brought about by rapid shifts in digital technologies. This requires mobilizing rapid responses through prompt and proficient decision-making and effective realization. Adaptability is crucial for swiftly and efficiently adjusting to new situations and environments. Successful strategic decision-making hinges on a clear definition of objectives, motivation, and effective execution in the right context, coupled with the ability to acquire new information, remain adaptable, and make timely decisions to avoid costly delays (Glassman *et al.*, 2014). Digital entrepreneurs must adapt their business models and strategies to market conditions while acquiring new skills and technologies. This involves a commitment to continuous learning and improvement, underscoring the importance of adaptability and a growth mindset for thriving in an ever-evolving business landscape. Hence, we propose the first proposition:

*Proposition 1:* Personal and professional characteristics influence the emergence of digital entrepreneurship.

## Strategic decision-making

Kirkley (2016) suggests that the decision-making process occurs in an uncertain and risky environment. Even with a promising idea, there is

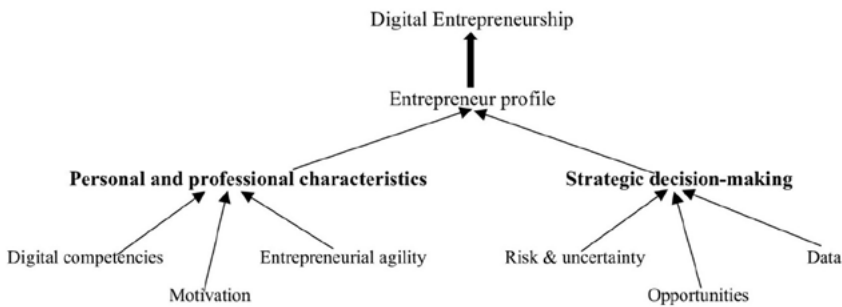
inherent risk in implementing a solution and uncertainty about the most effective strategic approach. In the realm of digital entrepreneurship, while there are numerous opportunities for innovation and new product creation, it also requires a willingness to take risks (Samara, Terzian, 2021).

Ammirato *et al.* (2020) highlight that financial opportunities significantly drive entrepreneurial activity. Shepherd *et al.* (2015) emphasize that risk-taking is fundamental to entrepreneurship, while Palanivelu and Manikandan (2015) stress that successful entrepreneurs take calculated risks. They rely on reliable information, knowledge, and experience when making business decisions and employ causal reasoning for high-stakes choices (Vershina *et al.*, 2017). Seeking advice from trusted sources before and after decisions is a common practice (Sadler-Smith, 2016).

Digital entrepreneurs make prudent decisions by carefully considering market analysis, resource allocation, technology adoption, and business strategy to navigate the complexities of the digital business world. They assess data, market trends, and risks, which are essential for identifying opportunities and overcoming challenges. Using a systematic, data-driven approach, they create sustainable, innovative digital enterprises. De Winnaar and Scholtz (2020) affirm that a digital entrepreneur’s needs, desires, perceived risk, uncertainty about available options, time allocated for decision-making, and the decision frame they adopt, all influence this process. The decision frame shapes the digital entrepreneur’s perspective on the situation, affecting how they perceive the decision and the available alternatives. Therefore, the second proposition is proposed, and Figure 2 schematically illustrates the factors related to the entrepreneurial profile.

*Proposition 2:* Strategic decision-making impacts the emergence of digital entrepreneurship.

**Figure 2 - Entrepreneur profile map**



## Entrepreneurial Process

Numerous studies have explored the intricate entrepreneurial process, which encompasses various stages, from idea generation to the ultimate rewards of sustained effort (Kraus *et al.*, 2019). Our literature review identifies several key factors relevant to digital entrepreneurship.

## Digitalization and Digital Transformation

Digitalization fosters digital entrepreneurship (Hull *et al.*, 2007; Sahut *et al.*, 2021; Galindo-Martín *et al.*, 2023). It offers growth opportunities by transforming analog processes into digital ones (Cenamor *et al.*, 2019). This transformation facilitates entrepreneurial activities through various digital forms, including digital products, services, platforms, tools, infrastructure, and Internet-enabled innovations, contributing to the entrepreneurial landscape (Elia *et al.*, 2020). Digital transformation is essential in shaping these opportunities, spanning various organizational levels, and involving resources, activities (Heavin, Power, 2018; Dy, 2019), individual entrepreneurial characteristics, company missions, and external factors—all of which influence entrepreneurial activity (Zaheer *et al.*, 2018).

Digitalization empowers digital entrepreneurs to explore new digital markets and uncover opportunities (Wang, Bai, 2021). It lowers entry barriers, enhances transparency, and fosters competition for market access and growth (Chege *et al.*, 2020). This transformation strengthens international competitiveness, benefits global customers, and supports digital logistics service providers (Zhai *et al.*, 2022; Gingerich, Maoh, 2019). Additionally, digitalization fosters innovation and drives the creation of new digital markets, exemplified by collaborative models such as Uber and Airbnb. Ojala (2016) highlights the significant impact of digitalization on the temporal aspects of entrepreneurial processes, accelerating product development stages and blurring the distinctions between the start and end points of each stage (Kraus *et al.*, 2019). Therefore, the third proposition is proposed.

*Proposition 3:* Digitalization and digital transformation impact digital entrepreneurship emergence.

## Business Model Innovation

The growing interest in digitalization has created new opportunities for business model innovation, necessitating companies to adapt their strategies to leverage the transformative potential of digital technologies (Ciasullo, Lim, 2022). Soluk *et al.* (2021) conceptualize business model innovation as

a novel approach to generating and securing business value, facilitated or embedded within digital technologies. Emerging technologies such as artificial intelligence, big data, cloud computing, and the Internet of Things (IoT) are pivotal in reshaping value chains and customer interfaces, driving innovation in business models, and fostering the growth of digital entrepreneurship. These technologies empower entrepreneurs to adapt, create new approaches to value creation, and respond effectively to evolving market demands, thereby facilitating the development and success of digital entrepreneurship in today's rapidly changing digital landscape.

Digital business model innovation is a powerful tool for entrepreneurs, enabling them to create unique value propositions and revenue streams that traditional models cannot achieve (Trischler, Ying, 2022). It helps digital entrepreneurs identify opportunities, gain a competitive edge, scale their businesses, and disrupt markets. By leveraging innovative digital business models, entrepreneurs strategically navigate the complexities of the digital landscape, thereby facilitating the establishment of successful enterprises within the digital economy. As emphasized by Schoemaker *et al.* (2018), to thrive in the challenging and fast-evolving digital business environment, companies must conceptualize, refine, and implement innovative digital business models (Berman, 2012; Veit *et al.*, 2014). Vendrell-Herrero *et al.* (2018) note that digital business models offer advantages such as lower entry costs, more efficient decision-making, lean global strategies, and enhanced communication and marketing tools. Therefore, the fourth proposition is proposed.

*Proposition 4:* Business model innovation is a key component in the emergence of digital entrepreneurship.

## Digital Business Affordances

The rapid advancement of digital technologies and infrastructure has generated new opportunities that significantly influence entrepreneurial ventures (Nambisan, 2017). By leveraging digital capabilities, entrepreneurs can enhance regional entrepreneurial dynamics by reducing asset specificity and optimizing manufacturing value chains. Digital affordances empower entrepreneurs to navigate challenges and identify opportunities through digital platforms (Autio *et al.*, 2018). These affordances offer advantages such as cost risk sharing and facilitating collaborative research and development (Belitski *et al.*, 2023).

Blichfeldt and Faullant (2021) note that entrepreneurs with advanced digital skills and the capacity to create digital affordances are better positioned to face market challenges like financial crises, demand shocks, and

unexpected events such as the COVID-19 pandemic, compared to those relying on traditional technologies. Digital technologies necessitate tacit knowledge, while industry-specific technologies rely more on codified knowledge. This suggests that as innovative digital capabilities become more widespread, many companies and individuals can adopt digital tools for their business operations. Conversely, industry-specific technologies require specialized skills that take longer to learn and implement (Teece, 1986). Digital entrepreneurs leverage these affordances to build innovative businesses that meet consumer needs. For instance, E-commerce platforms like Amazon provide features such as product search, customer reviews, expedited delivery, and personalization, enabling entrepreneurs to create online businesses that respond to consumer requirements.

Digital affordances are indispensable for fostering digital entrepreneurship, as they offer functionalities that meet consumer needs and simplify access to resources like funding and expertise. Therefore, the fifth proposition is proposed.

*Proposition 5:* Digital business affordances influence the emergence of digital entrepreneurship.

## Digital Consumer Behavior

Rangaswamy *et al.* (2022) suggest that the behaviors of digital consumers play a crucial role in shaping the development of digital entrepreneurship. The term “digital consumer” encompasses individuals using mobile devices or, more broadly, e-consumers making online purchases and simplifying decision-making (Tkaczyk, 2016).

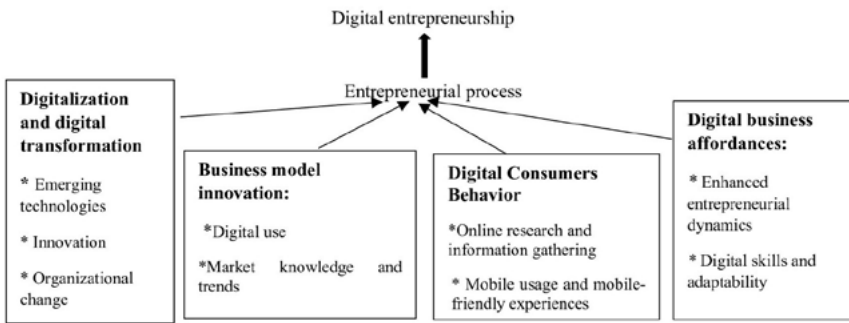
In a landscape characterized by rapid and frequent shifts in consumer preferences, entrepreneurs must remain vigilant to these changes. This awareness enables them to identify emerging opportunities and develop innovative digital products or services that align with evolving consumer preferences. Hoyer *et al.* (2020) highlighted the profound influence of digital technologies, such as the IoT, virtual and augmented reality (VR and AR), mixed reality (MR), virtual assistants, chatbots, and robots, on the customer experience. These emerging technologies have revolutionized how consumers perceive and interact with brands, products, and services. Traditionally, the local market has long held the notion that a physical presence was indispensable alongside an online presence. However, in recent years, consumers have begun to reassess the importance of physical shopping experiences, placing greater emphasis on brand value and product perception within the retail landscape. How consumers engage with online platforms directly impacts the demand

for digital products and services. Entrepreneurs need to adapt to these behaviors, including the shift towards online shopping and mobile app usage.

Consumers today express their identities not just through material possessions and purchasing habits, but increasingly through their social media presence and engagement in digital networks (Rogova, Matta, 2023). Feedback and interactions on social media and online reviews, play a pivotal role in shaping a business’s reputation, either enhancing its image or creating challenges (Saura *et al.*, 2020). Entrepreneurial success hinges on actively engaging with consumers and leveraging their insights to refine products and services. Additionally, consumer demand drives the adoption of new digital technologies. Entrepreneurs who recognize and respond to these trends gain a competitive advantage by offering innovative solutions integrating emerging technologies like IoT and augmented reality. Digital entrepreneurs must adapt to these evolving consumer preferences while incorporating new technologies into their strategies. Thus, the sixth proposition is proposed, and Figure 3 illustrates these developments.

*Proposition 6:* Digital consumer behavior influences the emergence of digital entrepreneurship.

**Figure 3 - Entrepreneurial process map**



### Entrepreneurial Ecosystem

Elia *et al.* (2020) define an entrepreneurial ecosystem as a digital environment that leverages technology to connect a diverse and geographically dispersed group of stakeholders. This ecosystem provides comprehensive support for launching digital ventures, offering platforms that empower entrepreneurs to start small businesses. More broadly, it consists of a dynamic community of interconnected participants—entrepreneurs, suppliers, buyers, and government entities—operating within a framework of institutional,

informational, and socioeconomic factors (Volkman *et al.*, 2021). In such environments, digital entrepreneurship thrives and evolves.

## Competitive Digital Environment

The World Bank report (2016) underscores the importance of a competitive digital ecosystem in addressing challenges and fostering the development of online services and applications. This involves removing barriers to market entry and exit, improving access to financing, refining bankruptcy regulations, and enforcing data privacy and security laws while mitigating market fragmentation and avoiding perceived favoritism toward larger corporations (Clayton, Van Welsum, 2014). A competitive digital environment drives innovation, compelling entrepreneurs to develop unique and creative solutions to differentiate themselves in a highly competitive landscape. This pursuit of innovation benefits entrepreneurs and leads to the creation of cutting-edge digital n digital environment influences the emergence of digital entrepreneurship.

## Digital infrastructure

Nzembayie *et al.* (2019) define digital infrastructures as the tools and systems that facilitate communication, collaboration, and computing, supporting digital entrepreneurship. Rodrigues and Franco (2021) emphasize that digital infrastructure encompasses cost-effective and competitive communication tools such as affordable internet access, ICT tools, broadband services, cloud computing, and digital payment systems. These elements are crucial for digital entrepreneurs to create value (Steininger *et al.*, 2022). According to Leimstoll *et al.* (2018), e-business fosters open communication, transparency, and a deeper understanding of various business aspects and projects, positioning digital infrastructure as the foundation that enables connected businesses to operate, grow, innovate, and respond to customer needs. This ultimately provides a competitive edge through differentiation. A well-developed digital infrastructure—including high-speed internet access, cloud services, digital payment systems, and cybersecurity—is essential for fostering digital entrepreneurship by reducing barriers to entry, ensuring data security, and promoting operational efficiency. Therefore, the following proposition is proposed:

*Proposition 8:* Digital infrastructure influences the emergence of digital entrepreneurship.

## Social Networks and Digital Interactions

Smith *et al.* (2016) suggest that the online environment enhances the scope and depth of social networks, facilitates valuable connections, and provides access to social capital that benefits entrepreneurial activities. Collaborative networks are essential for problem-solving, establishing operational standards, promoting cooperation and trust, and playing a crucial role in helping digital entrepreneurs access resources and mentorship (Zhao *et al.*, 2021; Sarate, Macke, 2015). Trust within these networks is vital for building partnerships and creating a supportive environment, allowing entrepreneurs to leverage collective social capital to greater success.

Zhang and Li (2017) demonstrate a direct link between ICT access and entrepreneurial performance, transcending resource and institutional barriers (McAdam *et al.*, 2018). The success of digital entrepreneurship depends on favorable conditions. Braune and Dana (2021) highlight the pivotal role of digital social interactions in enhancing competitiveness, facilitating expansion, and promoting organizational adaptability (Yoo *et al.*, 2010). These interactions are essential for ensuring efficient access to financing (Mollick, 2014), market-entry, and accelerating innovation. They also encourage the exchange of resources and knowledge while conveying cultural norms that influence behavior (Wurth *et al.*, 2022).

Personal relationships and networks, including support from family and friends, significantly affect entrepreneurial decisions regarding business establishment and expansion (*ibid.*). Social values profoundly influence the entrepreneur's role and the entrepreneurial process within an ecosystem. Entrepreneurs shape these ecosystem values through their characteristics, actions, and collaborations, fostering creativity, innovation, and cooperation. Their interaction with other ecosystem actors, such as investors and support organizations, further impact the prevailing values. A supportive ecosystem accelerates the entrepreneurial process, with successful entrepreneurs serving as role models and advocates for entrepreneurship. Therefore, the following proposition is proposed:

*Proposition 9:* Social networks and digital interactions influence the emergence of digital entrepreneurship.

## Government policies

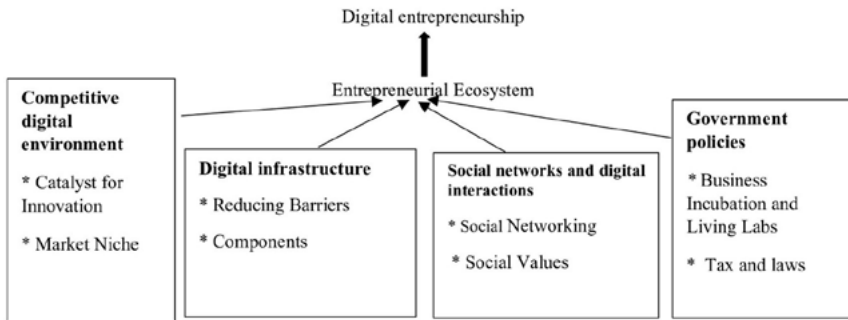
Rodrigues and Franco (2021) emphasize the connection between digital evolution and innovation, urging governments to implement governance strategies that prioritize digitalization, transformation, commitment, and global integration. Effective government policies and support can stimulate

digital entrepreneurship while reducing obstacles. Stable, well-aligned policies significantly influence entrepreneurial activities, with the government fulfilling supportive, cognitive, and policymaking roles (Yaghoubi *et al.*, 2012). Supportive measures such as tax incentives and training programs are crucial for fostering digital entrepreneurship.

Many governments offer various forms of assistance, including funding, incubators, accelerators, and regulatory assistance (Mankevich *et al.*, 2016). Business incubation within the ecosystem can enhance digital entrepreneurship by providing valuable information to new ventures. Living Labs also facilitate the digital entrepreneurship process from idea generation to business management (Le Dinh *et al.*, 2018). Jiang *et al.* (2021) note that government regulations on digital technology significantly impact the sustainability of digital entrepreneurship. Well-designed regulations can promote innovation and business growth, while poorly crafted policies can hinder sector progress. A collaborative framework involving the private sector, government, and various stakeholders is essential for nurturing digital entrepreneurship and ensuring its sustainability. Therefore, we propose our latest proposition. Figure 4 illustrates the factors within the entrepreneurial ecosystem.

*Proposition 10:* Government policies influence the emergence of digital entrepreneurship.

**Figure 4 - Entrepreneurial Ecosystem map**



## Discussion

This study proposes a conceptual model of digital entrepreneurship that integrates various factors rarely examined together. Based on a comprehensive literature review, this model enhances our understanding of this emerging field by promoting clarity in terminology, encouraging critical analysis, and offering practical insights for policy and innovation. It highlights both intrinsic factors,

such as entrepreneurs' education, and extrinsic ones like dynamic entrepreneurial ecosystems and access to funding, which are traditionally linked to entrepreneurship and equally relevant in the digital space. Additionally, the model identifies digital economy-specific factors including digitalization, social media, and platform-based business models. Our multi-level model offers a comprehensive view of digital entrepreneurship, encompassing individual characteristics, organizational processes, and environmental influences.

This deeper understanding of digital entrepreneurship dynamics contributes to the field's evolution and its role in economic growth (Zaheer *et al.*, 2019; Sussan, Acs, 2017). Academic literature emphasizes the value of data in digital environments, with digital platforms providing rich insights that give digital entrepreneurs a competitive edge over non-digital entrepreneurs (Hair *et al.*, 2012). Big data and algorithms enable businesses to anticipate and meet customer needs, making data management essential for success. Additionally, building a large user base on digital platforms generates network effects that enhance entrepreneurial opportunities (Srinivasan, Venkatraman, 2018).

This research also provides practical guidance for businesses transitioning from traditional business models to digital ones. Strengthening entrepreneurial education and digital skills training is key to leveraging digital technologies, as Fu *et al.* (2021) suggest. Educational institutions play a vital role in nurturing entrepreneurial traits, creating a supportive learning environment, and fostering digital ventures. Broader digital competency training enhances both hard and soft digital skills, such as problem-solving and knowledge networking. Promoting and integrating digital literacy and competence is essential for societal progress. Governments should prioritize national skills development strategies like the Digital Skills Toolkit, to promote innovation, and foster a strong entrepreneurial culture. Policies and regulations should support the growth of the digital economy by incentivizing innovative entrepreneurship and promoting job creation on digital platforms. These measures must reach a balance between encouraging innovation and addressing challenges like tax evasion and platform monopolies. Furthermore, improving digital infrastructure is critical to ensuring affordable and efficient entrepreneurial activities, especially for small businesses with limited resources.

Finally, ongoing research is needed to further explore digital entrepreneurship. Policymakers must maintain efforts to create supportive environments, as previous initiatives have had mixed success. The concept of entrepreneurial ecosystems must avoid becoming tautological, where success is viewed merely as evidence of a strong ecosystem (Stam, 2015).

## Conclusion

In this special issue, we significantly contribute to entrepreneurship research in several ways: (1) contextualizing digital entrepreneurship within the broader digital economy, (2) clarifying key concepts, (3) highlighting the central role of digital entrepreneurs, and (4) comparing digital and traditional entrepreneurship. The innovative conceptual model provides valuable insights for policymaking, especially regarding the governance of digital infrastructure and its interaction with entrepreneurs, users, and markets. Future research should empirically test the model through comparative, cross-disciplinary studies, that incorporate perspectives from economics, political science, marketing, and information systems. Approaches such as longitudinal studies, multi-case analyses, quantitative research, and mixed methods can provide a deeper understanding of digital entrepreneurship across diverse contexts and disciplines.

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