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Bibliometric Analysis of the Growth and Challenges of Digital Entrepreneurship

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ABSTRACT

This paper presents a bibliometric analysis of the growth and challenges in digital entrepreneurship, synthesizing key findings from influential research in the field. The analysis identifies major trends such as the integration of digital technologies in entrepreneurship education, the critical role of big data, and the transformation of innovation processes. It highlights how entrepreneurial ecosystems and financial innovations, such as microfinance and crowdfunding, have enabled broader access to resources for digital entrepreneurs, particularly small and medium enterprises (SMEs). Emerging themes, including social entrepreneurship, gender inclusivity, and the use of digital platforms by women entrepreneurs, reveal the shifting focus toward more inclusive and socially responsible business models. The study concludes by discussing the dynamic nature of digital entrepreneurship and the importance of developing supportive ecosystems to address the ongoing challenges of digital transformation and global competition.

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1. INTRODUCTION

Digital entrepreneurship, defined as the pursuit of creating new ventures and transforming existing businesses through novel digital technologies, has significantly reshaped the economic landscape across the globe. The rapid advancement in technologies such as the Internet of Things (IoT), artificial intelligence (AI), and blockchain has facilitated a surge in the number of digital enterprises, disrupting traditional industries and creating new market opportunities [1]. This evolution has been instrumental in driving economic growth, enhancing scalability, and improving service delivery within various sectors [2]. The unique characteristics of digital entrepreneurship, including minimal entry barriers and the leverage of digital platforms, enable a broader range of individuals to participate in entrepreneurial activities, thereby democratizing the process of new venture creation [3].

The digital entrepreneurship ecosystem is nurtured by several factors, including technological advancements, regulatory frameworks, and socio-economic trends. Governments and private sectors across different regions have been pivotal in fostering this environment by providing the necessary infrastructure, funding, and policy support [4]. Moreover, digital entrepreneurs have been adept at capitalizing on digital technologies to innovate, scale up quickly, and penetrate international markets with relatively low physical presence requirements, which is particularly advantageous in the digital age [5].

However, the rapid growth of digital entrepreneurship has also introduced new challenges. The pace of technological change often outstrips the ability of individuals and organizations to adapt, leading to significant disparities in digital capabilities [6]. Furthermore, the concentration of digital markets leads to monopolistic or oligopolistic conditions, which can stifle innovation and disadvantage new entrants [7]. These dynamics suggest that while digital entrepreneurship offers vast potential for economic development and innovation, it also requires careful management and regulation to ensure that it benefits a broad spectrum of society.

Another dimension of digital entrepreneurship that has garnered increasing attention is its socio-economic impact, particularly in terms of job creation and the transformation of traditional employment paradigms. The gig economy, fueled by digital platforms, has redefined what it means to be employed, with more people engaging in freelance, part-time, and contractual work, facilitated by digital platforms like Uber, Freelancer, and others [8]. This shift has prompted a debate about the stability and security of such jobs and the rights of workers who are not classified as traditional employees [9].

Despite the optimistic prospects of digital entrepreneurship, there remain substantial gaps in the literature, particularly concerning the integrated impact of digital transformation on entrepreneurship globally. Current studies often focus on isolated aspects of digital entrepreneurship, such as technological impacts or specific geographic areas, without a comprehensive understanding of the global challenges and growth trajectories [10]. Additionally, there is a lack of systematic consolidation and analysis of research outputs in this field, which hampers the ability to develop a coherent picture of its evolution, trends, and future directions. This research aims to address these gaps by employing bibliometric analysis to synthesize existing knowledge and uncover patterns in the global discourse on digital entrepreneurship.

Generally, the objective of this research is to conduct a bibliometric analysis on the existing body of literature concerning digital entrepreneurship from 2000 to the present, to map out the intellectual structure and evolution of this field. Specifically, the study seeks to identify the most influential theories, contributors, and publications that have shaped the understanding of digital entrepreneurship. Additionally, it aims to pinpoint the emerging trends and potential gaps in the literature that could inform future research directions and policy-making. This analysis will not only contribute to the academic field by providing a structured overview of digital entrepreneurship but also offer valuable insights for practitioners, policymakers, and entrepreneurs navigating this dynamic landscape.

2. LITERATURE REVIEW

2.1 Evolution and Theoretical Underpinnings of Digital Entrepreneurship

Digital entrepreneurship is seen as a stage in the field of entrepreneurship that is influenced by digital technologies and affects how new businesses are started and managed [11]. This idea is based on the connection between technological advancement and

entrepreneurial activities, resulting in a unique field of study within entrepreneurship. Davidson and Vaast (2010) [2] highlight the significant impact of digital platforms, which not only facilitate but also need new business models and tactics that are fundamentally distinct from previous methods. The fundamental theoretical framework of digital entrepreneurship combines components from innovation, technology management, and entrepreneurship theory, suggesting a multidisciplinary approach to comprehending and examining this phenomena [3].

The influential study conducted by Sussan and Acs (2017) [4] emphasises the significance of digital ecosystems in enabling entrepreneurship. They contend that digital ecosystems, consisting of digital technologies, regulatory regulations, and economic systems, foster a favourable climate for digital enterprises. These ecosystems facilitate the rapid expansion of new enterprises and allow entrepreneurs to utilise resources more effectively than in conventional environments. Nambisan, Zahra, and Luo (2019) [5] have extended the notion of digital ecosystems by examining the dynamic interactions within these ecosystems and their influence on entrepreneurial results.

2.2 Challenges and Opportunities in Digital Entrepreneurship

The literature on digital entrepreneurship frequently addresses the dual nature of opportunities and challenges presented by this new paradigm. Kenney, Bearson, and Zysman (2020) [7] discuss the market dynamics in digital entrepreneurship, noting the propensity for market concentration in digital domains. This concentration can create barriers to entry for new firms and potentially inhibit innovation. Conversely, the democratization of access to technology has lowered the entry barriers for start-ups, fostering a more inclusive entrepreneurial landscape [6].

A significant strand of the literature focuses on the socio-economic impacts of digital entrepreneurship, particularly in the context of the gig economy. De Stefano (2015) [8] provides a critical examination of the gig economy, driven by digital platforms, which has redefined traditional employment relationships and raised questions about labor rights and job security. [9] further this discussion by exploring the policy implications of these new forms of employment, stressing the need for regulations that protect gig workers while supporting innovation and flexibility in the labor market.

2.3 Technological Impacts on Digital Entrepreneurship

Technology is a central element in the study of digital entrepreneurship, with significant attention devoted to how specific technologies such as AI, blockchain, and IoT influence entrepreneurial activities. Research by Davidson and Vaast (2010) [2] illustrates how AI and machine learning technologies are being harnessed

to enhance decision-making processes and create new business opportunities in various industries. Blockchain technology, discussed by Wright and De Filippi (2015) [12], is shown to provide new ways to secure transactions and enable trustless agreements, which are particularly beneficial in environments characterized by weak institutional frameworks.

IoT technology also plays a crucial role in shaping digital entrepreneurship by enabling the integration of physical and digital assets, thereby creating new business models and improving operational efficiencies [13]. This integration is particularly evident in sectors like manufacturing and logistics, where IoT applications have led to significant enhancements in supply chain management and product tracking.

2.4 Bibliometric Insights into Digital Entrepreneurship Research

A recent trend in the literature is the use of bibliometric methods to analyze the growth and trajectory of digital entrepreneurship research. These studies employ systematic techniques to map out the intellectual landscape of the field, identifying key authors, publications, and thematic clusters. For instance, Von Briel, Davidsson, and Recker (2018) [14] utilized bibliometric analysis to demonstrate how research on digital entrepreneurship has evolved over time, highlighting the increasing focus on technology and innovation. Their findings suggest that the field is moving towards a more nuanced understanding of how digital technologies intersect with entrepreneurial activities, influencing both the opportunities available and the challenges faced by entrepreneurs.

3. METHODS

This research employs a bibliometric analysis to systematically review and synthesize the literature on digital entrepreneurship published from 2000 to the present. The primary data for this study were extracted from Google Scholar, leveraging its extensive repository of academic literature to ensure comprehensive coverage of relevant scholarly articles. Utilizing VOSviewer, a specialized software tool for bibliometric visualization, the data were analyzed to identify key publications, influential authors, and dominant themes within the field. The analysis focused on co-citation and keyword co-occurrence networks to map the intellectual structure and thematic trajectories of digital entrepreneurship research.

4. RESULTS AND DISCUSSION

4.1 Bibliometric Overview

Table 1. Data Citation Metrics

Publication years	2000-2024
Citation years	24 (2000-2024)
Paper	980
Citations	75707
Cites/year	3154.46
Cites/paper	77.25

Cites/author	39649.70
Papers/author	486.46
Author/paper	2.60
h-index	127
g-index	263
hI,norm	88
hI,annual	3.67
hA-index	68
Papers with ACC	: 1,2,5,10,20:754,637,474,358,242

Source: Publish or Perish Output, 2024

Table 1 displays bibliometric data obtained from an extensive examination of literature on digital entrepreneurship, covering the period from 2000 to 2024. The analysis includes a total of 980 papers, which have received a combined total of 75,707 citations. On average, each manuscript has received 3,154.46 citations per year and 77.25 citations in total. The substantial number of citations per author, totalling 39,649.70, highlights the substantial influence and cooperative aspect of this study subject, as demonstrated by the average of 2.60 authors per publication and 486.46 papers per author. The table presents strong bibliometric indicators, such as an h-index of 127 and a g-index of 263, which demonstrate a significant level of research influence and output. The normalised individual h-index (hI,norm) is 88, indicating a high level of scholarly impact. The annualised version (hI,annual) is 3.67, demonstrating a steady and sustained contribution to the field over time. The hA-index, which stands at 68, provides additional evidence of the writers' enduring academic impact. Furthermore, the allocation of papers among citation accumulation categories (1, 2, 5, 10, 20) with corresponding values (754, 637, 474, 358, 242 respectively) indicates a substantial number of publications attaining noteworthy citation counts, which highlights the field's substantial advancement and enduring significance.

4.2 Literature Distribution

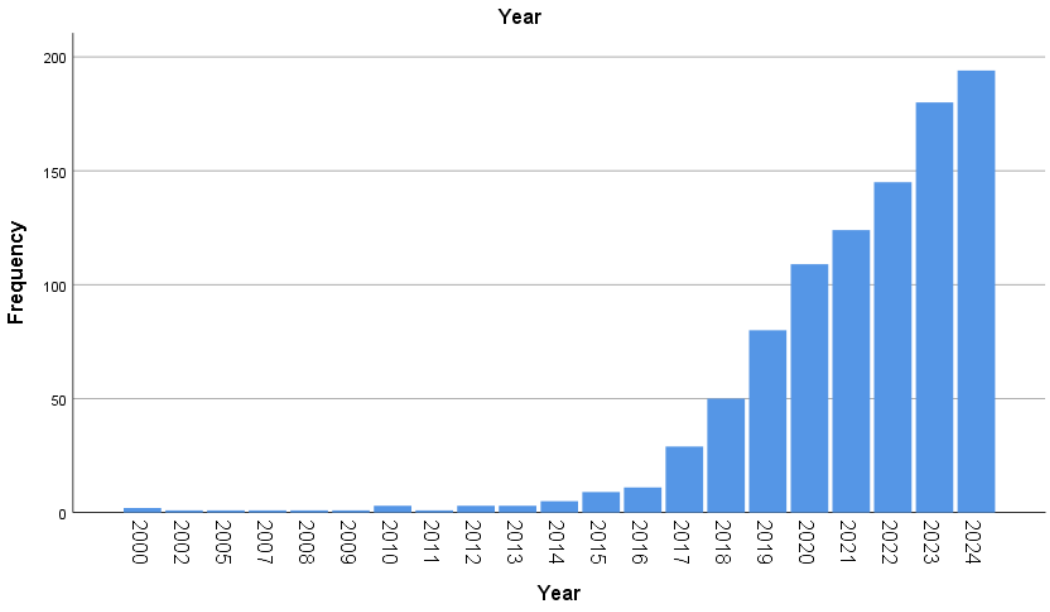

Figure 1. Yearly Publication

Source: Data Analysis, 2024

The first figure above shows the frequency of publications on digital entrepreneurship over the years from 2000 to 2024. The trend suggests a significant increase in research interest over the past decade, particularly from 2018 onwards. Between 2000 and 2015, the number of publications remained relatively low, indicating that digital entrepreneurship was either not a widely researched topic or was in its early stages of development. However, from 2016 onwards, the graph shows a steep rise, especially noticeable from 2020, where the frequency of publications dramatically increased, reflecting the growing importance of digital entrepreneurship, likely driven by global digitalization trends and the COVID-19 pandemic's impact on business transformation. By 2023 and 2024, the number of publications has peaked, with over 200 publications in 2024 alone, indicating that this topic is currently receiving a lot of scholarly attention and may continue to grow. This increase highlights both the academic community's recognition of the importance of digital entrepreneurship and the challenges faced by businesses in adapting to the digital economy.

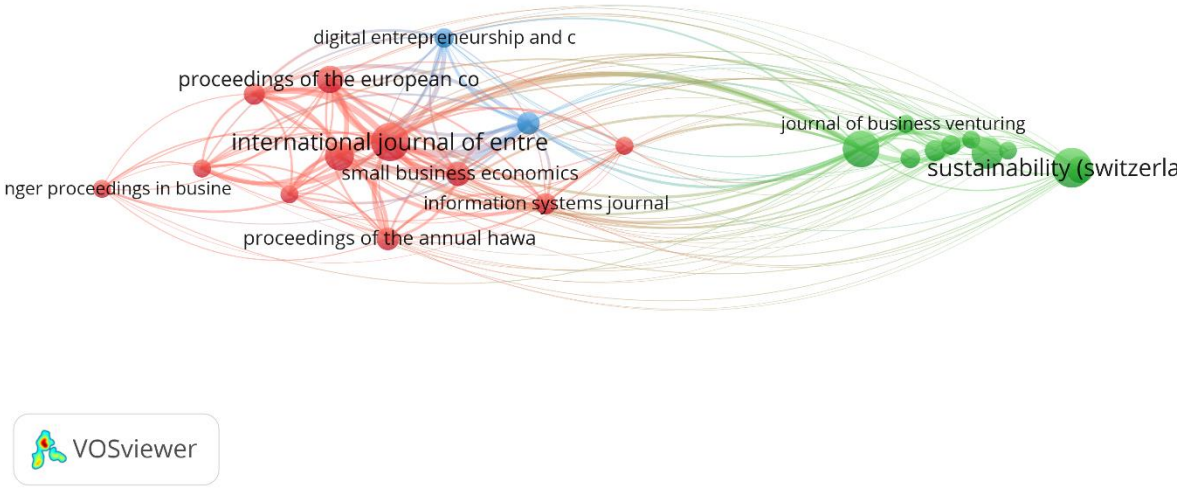

Figure 2. Journal Visualization
Source: Data Analysis, 2024

The map shows two prominent clusters. The red cluster, which includes journals like International Journal of Entrepreneurship and Small Business Economics, seems to focus more on core business, entrepreneurship, and small business research, which are directly related to digital entrepreneurship. The green cluster, featuring journals like Sustainability (Switzerland) and Journal of Business Venturing, suggests a link between digital entrepreneurship and sustainability or business ventures. This implies that research on digital entrepreneurship is not only focusing on business aspects but also expanding to encompass sustainability issues. The interconnection between these clusters highlights the multidisciplinary nature of digital entrepreneurship, where business, information systems, and sustainability intersect.

4.3 Author Collaboration

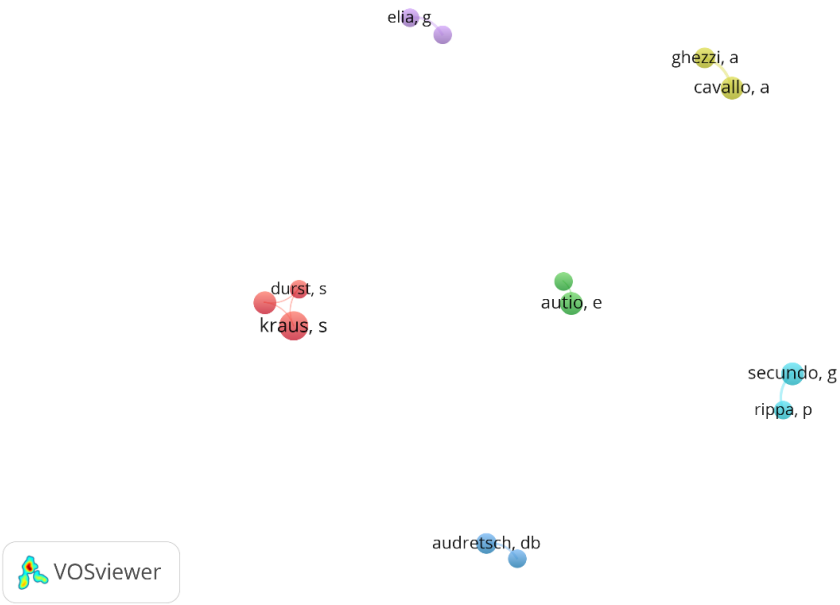

Figure 3. Author Collaboration
Source: Data Analysis, 2024

This figure represents a co-authorship network, where each node corresponds to an author involved in research related to digital entrepreneurship. The size of each node reflects the number of publications or citations attributed to that author, while the connections (lines) between them indicate co-authorship or collaboration on research papers. Authors such as Kraus, S., Audretsch, DB., Autio, E., and others form distinct clusters, suggesting that they work within their own networks or research groups. The fact that there are several isolated clusters indicates that research in digital entrepreneurship has several prominent but somewhat independent research groups or thought leaders. Additionally, the lack of strong interconnections between clusters suggests that collaboration across different research groups is relatively limited. Each cluster likely represents a distinct focus or approach to studying digital entrepreneurship, which could range from theoretical exploration to empirical case studies.

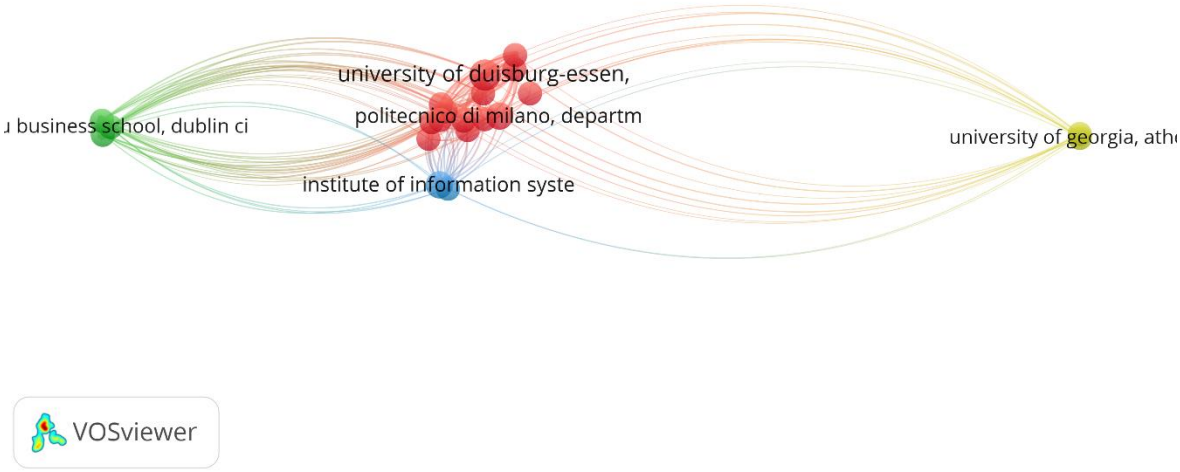

Figure 4. Institution Collaboration
Source: Data Analysis, 2024

This VOSviewer map appears to represent a co-authorship network between academic institutions that are contributing to research on digital entrepreneurship. Each node represents a university or institution, and the lines between them indicate collaborative relationships, such as co-authored papers. The size of each node reflects the number of publications or citations linked to that institution, while the color clusters suggest groups of institutions that are more interconnected or collaborate more frequently. The red cluster is dominated by institutions like *University of Duisburg-Essen* and *Politecnico di Milano*, indicating that these institutions are key players in research collaborations in digital entrepreneurship. The green cluster features *Dublin City University Business School*, suggesting a prominent research network with other institutions. On the far right, *University of Georgia* stands somewhat independently, indicating a smaller network or fewer direct collaborations with other institutions. Overall, this figure demonstrates that research on digital entrepreneurship is geographically distributed, with some strong hubs of collaboration but also isolated research efforts. The connections show that while there is a degree of global collaboration, certain research groups are more tightly connected within regional or institutional clusters.

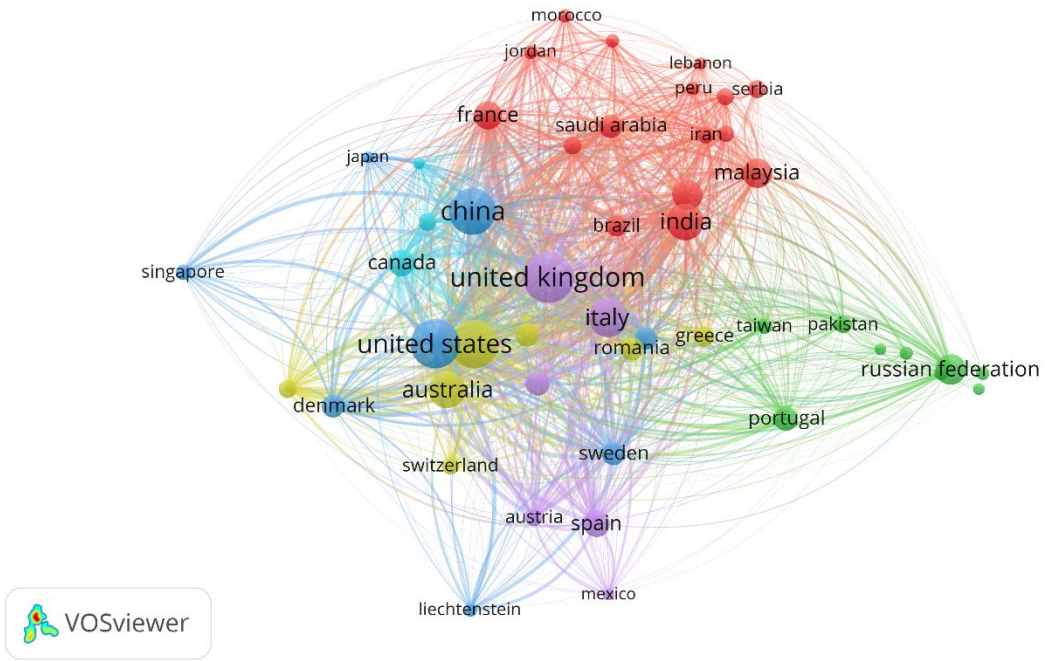

Figure 5. Country Collaboration

Source: Data Analysis, 2024

The central and largest nodes, such as the *United Kingdom*, *United States*, *China*, and *Australia*, indicate these countries are the most active in digital entrepreneurship research and have the highest levels of international collaboration. The map also highlights strong regional clusters: for example, the red cluster includes countries such as *India*, *Malaysia*, and *Saudi Arabia*, indicating close collaboration between researchers in these regions. Similarly, the green cluster highlights collaborations with countries like *Russia* and *Portugal*, while the blue cluster connects *China*, *Japan*, and *Canada*. The dense interconnections among the countries show a highly globalized research environment, where knowledge exchange is happening across continents. However, the fact that there are distinct clusters suggests that collaborations tend to be stronger within certain regions, such as between European countries or between Middle Eastern and South Asian nations

4.4 Keyword Network Visualization

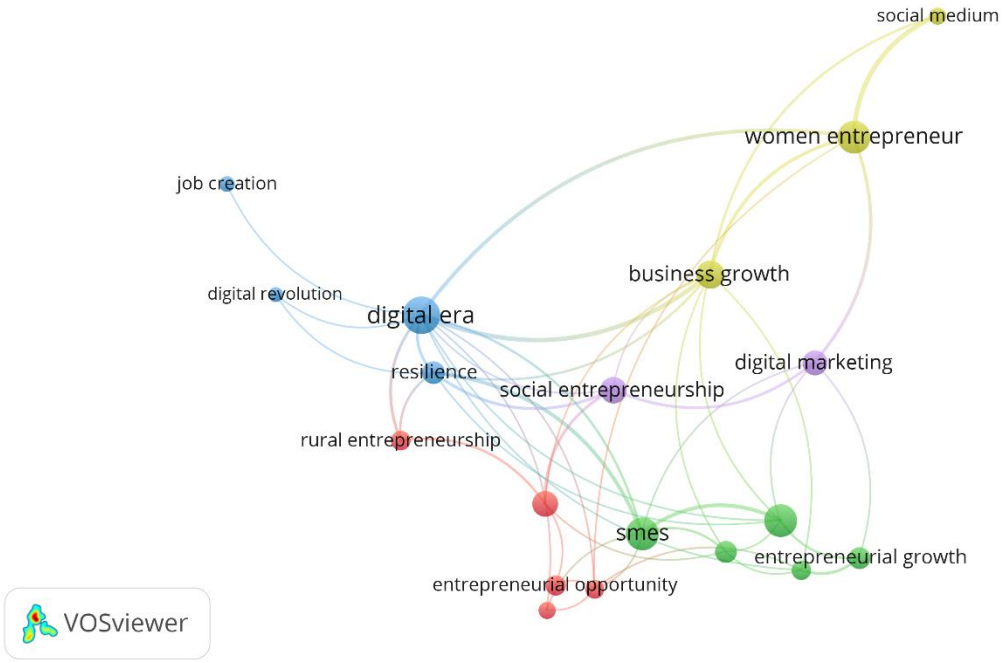

Figure 6. Network Visualization
Source: Data Analysis, 2024

This VOSviewer network visualization highlights the key themes and keyword associations in the field of digital entrepreneurship, showing how different research areas and topics are interrelated. The size of the nodes represents the frequency of a particular keyword's appearance in the research, while the proximity and links between nodes represent how often these keywords co-occur in the same publications. The colors indicate thematic clusters, where related concepts are grouped together, forming distinct areas of focus within the overall field.

The blue cluster, centered around *digital era* and *digital revolution*, suggests a focus on how the digital transformation is influencing entrepreneurship. Keywords like *job creation* and *resilience* are strongly linked, indicating that research in this cluster explores how the digital age is affecting employment opportunities and the ability of businesses to adapt and thrive in changing conditions. This cluster represents foundational discussions on how digitalization is reshaping the business environment, driving innovation, and creating new entrepreneurial opportunities.

The yellow cluster, led by *women entrepreneur* and *social medium*, highlights research on gender and social media within digital entrepreneurship. This cluster suggests a growing focus on how social media platforms provide new opportunities for women entrepreneurs, empowering them to reach broader markets, build brands, and foster business growth. This theme is important in understanding the role of digital tools in overcoming traditional barriers to entrepreneurship, particularly for women and underrepresented groups.

The red and green clusters are centered around *SMEs*, *social entrepreneurship*, and *entrepreneurial opportunity*. These themes focus on the intersection of entrepreneurship with small and medium enterprises (SMEs), rural entrepreneurship, and the search for entrepreneurial opportunities in both urban and rural contexts. The connection between these themes suggests that researchers are particularly interested in how SMEs and social entrepreneurs leverage digital technologies to foster business growth, access

new markets, and achieve sustainability. The green cluster, with terms like *entrepreneurial growth*, indicates an interest in exploring how digital entrepreneurship drives business expansion and overall economic development, particularly for small businesses.

The visualization depicts a complex, interconnected landscape of research within digital entrepreneurship. Each thematic cluster offers insights into how different aspects of entrepreneurship—be it gender, resilience, SMEs, or the digital revolution—are shaping the future of business. The emphasis on digital tools and social media highlights the central role of technology in enabling entrepreneurs to innovate, grow, and compete in a digital economy. Additionally, the growing research interest in women entrepreneurs and social entrepreneurship suggests that inclusivity and social impact are becoming increasingly important themes in the digital entrepreneurship discourse.

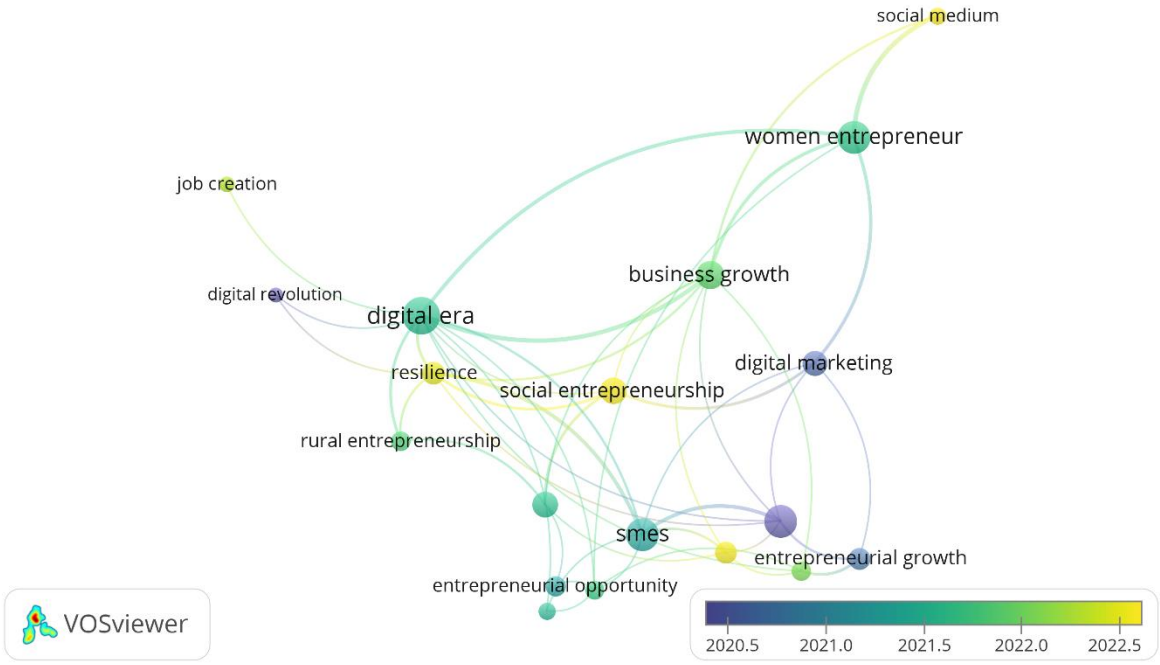

Figure 7. Overlay Visualization
Source: Data Analysis, 2024

This VOSviewer overlay visualization presents a timeline of keyword occurrences related to digital entrepreneurship from 2020 to 2022. The color gradient represents the timeline, with yellow indicating more recent topics (closer to 2022.5) and darker blue showing earlier topics (closer to 2020.5). This map helps track how research themes have evolved over time, highlighting which areas of digital entrepreneurship have gained more attention in recent years.

The central keyword *digital era* appears green, indicating a topic that has been consistently studied between 2021 and 2022. Related terms like *job creation*, *digital revolution*, and *resilience* are slightly darker, showing earlier peaks of interest, around 2020.5 to 2021. This suggests that early research on digital entrepreneurship focused on the broader impacts of digital transformation on job creation and resilience, reflecting a response to global shifts like the COVID-19 pandemic, which accelerated digitalization and pushed the need for resilient business models. In contrast, more recent topics, shown in lighter yellow-green, include *social entrepreneurship*, *women entrepreneur*, *business growth*, and *social*

medium. The prominence of these keywords indicates a growing interest in the intersection of social impact, gender, and entrepreneurship, particularly the role of social media platforms in supporting women entrepreneurs and business growth. This shift toward more niche, socially focused areas of digital entrepreneurship reflects the growing awareness of inclusivity, social responsibility, and the importance of digital tools in enabling entrepreneurs from diverse backgrounds to succeed. The emphasis on these newer topics suggests that future research in digital entrepreneurship may increasingly focus on social entrepreneurship and digital marketing strategies.

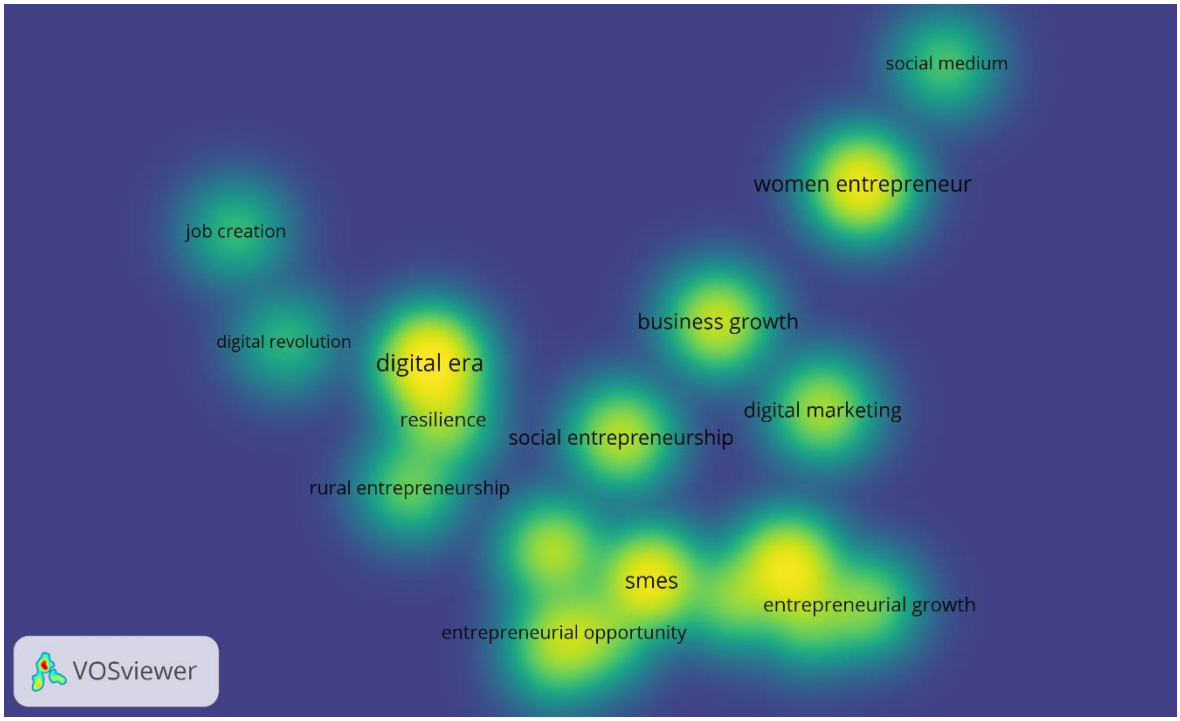

Figure 8. Density Visualization
Source: Data Analysis, 2024

This heatmap visualization generated by VOSviewer represents the intensity of research focus on various keywords within the field of digital entrepreneurship. The bright yellow areas indicate the highest concentration of research activity, while the green areas represent moderate activity, and the dark blue background signifies less attention. Keywords like *digital era*, *SMEs*, *women entrepreneur*, and *business growth* stand out in bright yellow, indicating they have been central topics of research and have generated considerable scholarly interest in digital entrepreneurship. The heatmap reveals several key areas of focus. The central emphasis on *digital era* reflects the strong connection between entrepreneurship and the ongoing digital transformation, showing that much of the research centers around how the digital age shapes business models. Similarly, terms like *SMEs* and *social entrepreneurship* have garnered significant attention, indicating a strong interest in understanding how small businesses and socially driven enterprises adapt to or leverage digital tools for growth and resilience. The bright spot around *women entrepreneur* highlights a recent surge in research on gender-related aspects in digital entrepreneurship, particularly how women use digital platforms to overcome traditional business barriers.

4.5 Citation Analysis

Table 2. Top Cited Research

Citations	Authors and year	Title	Findings
4307	[15]	The emergence of entrepreneurship education: Development, trends, and challenges	The study examines the development of entrepreneurship education, highlighting key trends and challenges faced by educators in fostering entrepreneurial thinking and skills.
2777	[11]	Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship	This paper redefines digital entrepreneurship through the lens of digital technology, proposing a conceptual framework to understand how digital technologies shape entrepreneurial processes.
2277	[16]	The digital universe in 2020: Big data, bigger digital shadows, and biggest growth in the far east	The paper discusses the exponential growth of digital data, focusing on the challenges and opportunities in managing big data and its implications for businesses globally, particularly in the Far East.
2119	[17]	Entrepreneurial ecosystems and growth oriented entrepreneurship	The study introduces the concept of entrepreneurial ecosystems and their role in supporting growth-oriented entrepreneurship, emphasizing the need for a supportive infrastructure.
2043	[18]	The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes	The paper explores the impact of digital transformation on innovation and entrepreneurship, outlining progress, challenges, and emerging key themes in the digital era.
1782	[19]	Entrepreneurship and small business	This book offers a comprehensive guide on entrepreneurship and small businesses, discussing strategies for growth, innovation, and the challenges faced by small entrepreneurs.
1486	[3]	Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems	The research highlights the role of digital and spatial affordances in the creation and functioning of entrepreneurial ecosystems, focusing on how these elements foster innovation.
1436	[20]	Digital transformation by SME entrepreneurs: A capability perspective	The paper focuses on how SME entrepreneurs develop capabilities for digital transformation, emphasizing the role of resources, technology adoption, and innovation in driving business success.
1215	[21]	New financial alternatives in seeding entrepreneurship: Microfinance, crowdfunding, and peer–to–peer innovations	This paper reviews emerging financial alternatives such as microfinance, crowdfunding, and peer-to-peer lending, examining how these innovations support entrepreneurship.
1192	[22]	The lineages of the entrepreneurial ecosystem approach	The study traces the historical development of the entrepreneurial ecosystem approach, analyzing its theoretical foundations and practical implications for entrepreneurial growth.

Source: Publish or Perish Output, 2024

1. Emergence and Development of Digital Entrepreneurship Education

[15] seminal work on the emergence of entrepreneurship education underscores the foundational importance of education in fostering entrepreneurial thinking and skills. As digital technologies began to reshape industries and businesses, educators faced the challenge of integrating these new tools into traditional entrepreneurship curricula. [15] identifies several trends, including the growing demand for entrepreneurship programs and the need to adapt educational models to reflect the digital economy's realities. By focusing on the development of such programs, [15] laid the groundwork for integrating digital skills into entrepreneurship education, which has become increasingly relevant in the digital age.

In parallel, [11] work on digital entrepreneurship provided a crucial framework for understanding how digital technologies transform the entrepreneurial landscape. His research emphasized the shift from traditional entrepreneurship to a digital technology perspective, where business models, processes, and strategies are largely shaped by digital tools and platforms. This perspective has been critical in reshaping how scholars and practitioners view entrepreneurship, no longer confined to physical spaces but as activities that thrive in a virtual, technology-driven environment. [11] framework opened new research avenues, focusing on digital affordances and the unique challenges that entrepreneurs face in a highly interconnected and rapidly evolving digital world.

2. The Role of Big Data and Digital Transformation

The growing importance of big data is a recurring theme in digital entrepreneurship, as illustrated by [16] study on the digital universe in 2020. Their work highlighted the massive increase in data generation, driven largely by digital platforms, cloud computing, and mobile technologies. The authors argued that the ability to manage and analyze this data would become a critical differentiator for businesses, with significant implications for digital entrepreneurs. This foresight is especially relevant today as entrepreneurs leverage big data to gain insights into customer behavior, optimize operations, and make informed business decisions. The exponential growth of data also presents challenges, particularly in terms of privacy, security, and the need for advanced analytical capabilities.

[18] research on the digital transformation of innovation and entrepreneurship further delves into the broader impact of digital technologies on entrepreneurial activities. Their study identifies key themes, such as the democratization of innovation, where digital tools lower the barriers to entry for new ventures, and the rise of platform-based businesses. The authors also discuss the challenges associated with this transformation, including the need for new business models that can keep pace with technological advancements and the increasing complexity of managing digital ecosystems. This work highlights the dual nature of digital transformation, offering significant opportunities for innovation while also presenting new obstacles that entrepreneurs must navigate.

3. Entrepreneurial Ecosystems and Small Business Growth

The concept of entrepreneurial ecosystems has gained prominence in recent years, with [19] study on growth-oriented entrepreneurship playing a pivotal role in shaping this discourse. Their research emphasizes the importance of supportive ecosystems that foster entrepreneurship by providing access to resources, talent, and networks. In the context of digital entrepreneurship, these ecosystems have expanded beyond geographical boundaries, as digital technologies enable entrepreneurs to access global markets and resources. [19] underscores the critical role of policy frameworks, educational institutions, and

financial systems in nurturing entrepreneurial activity, particularly in digital environments where innovation occurs at a rapid pace.

[19] book on entrepreneurship and small business provides a comprehensive overview of the challenges and opportunities that small businesses face in the digital age. Small and medium enterprises (SMEs) have become key drivers of economic growth, particularly in developing economies, and their ability to adapt to digital transformation is crucial for their survival and growth. [19] discusses how SMEs can leverage digital technologies to enhance their operational efficiency, reach new markets, and compete with larger corporations. However, he also highlights the barriers that SMEs face, such as limited access to capital, technology, and skilled labor, which can impede their ability to fully capitalize on digital opportunities.

4. Digital Affordances and Entrepreneurial Opportunities

[3] exploration of digital affordances and the genesis of entrepreneurial ecosystems builds on the concept of entrepreneurial ecosystems by examining how digital and spatial affordances enable new forms of entrepreneurship. Their research suggests that digital technologies not only facilitate entrepreneurship but also shape the nature of entrepreneurial activities. For instance, digital platforms allow entrepreneurs to create value in novel ways, such as through the sharing economy, crowdfunding, and peer-to-peer platforms. The authors argue that understanding these digital affordances is essential for policymakers and educators looking to foster entrepreneurial ecosystems that are adaptable to the digital age. [20] study on digital transformation by SME entrepreneurs provides a more focused look at how small business owners navigate the challenges of digitalization. Their research emphasizes the importance of building digital capabilities, which enable SMEs to effectively adopt new technologies and integrate them into their business strategies. [20] highlight the need for continuous learning and adaptation, as the rapid pace of technological change can quickly render existing skills and business models obsolete. This study is particularly relevant in the context of developing economies, where SMEs play a crucial role in economic development but often lack the resources needed to fully embrace digital transformation.

5. Financial Innovations in Entrepreneurship

[21] research on new financial alternatives in seeding entrepreneurship examines the rise of microfinance, crowdfunding, and peer-to-peer lending as alternatives to traditional financing models. These innovations have been particularly impactful in the digital entrepreneurship space, where access to funding is often a major barrier for new ventures. The study highlights how digital platforms have democratized access to capital, allowing entrepreneurs to raise funds directly from consumers or investors, bypassing traditional financial institutions. This shift has enabled a wider range of entrepreneurs to launch and scale businesses, particularly in developing regions where access to traditional finance is limited.

[22] further contribute to the discussion on entrepreneurial ecosystems with their study on the lineages of the entrepreneurial ecosystem approach. Their research traces the historical development of this approach, identifying key theoretical foundations and practical applications. [22] argue that entrepreneurial ecosystems are dynamic and evolving, shaped by technological, economic, and social changes. In the context of digital entrepreneurship, the ecosystem approach is particularly relevant, as digital technologies have transformed the way ecosystems function, enabling greater collaboration, innovation, and resource sharing across borders.

5. CONCLUSION

In conclusion, the bibliometric analysis of digital entrepreneurship reveals a dynamic and rapidly evolving field, shaped by technological advancements, new financial

models, and the growing importance of entrepreneurial ecosystems. Influential works by scholars such as Kuratko, Nambisan, and Burns have laid the foundation for understanding how digital technologies impact entrepreneurship, while more recent studies have expanded the scope of research to include social entrepreneurship, SME digital transformation, and financial innovations. The field continues to evolve, with emerging trends focusing on inclusivity, gender, and the role of digital platforms in enabling entrepreneurial growth. As digital entrepreneurship becomes increasingly central to economic development, future research will need to address the ongoing challenges of digital transformation, access to capital, and the need for supportive ecosystems that can foster sustainable innovation.

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