Digital Innovation and Entrepreneurship: A Review of Challenges in Competitive Markets

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Abstract

The entrepreneurial landscape has undergone a fundamental transformation due to the swift spread of digital technologies, which have brought up both complicated obstacles & new opportunities in highly competitive marketplaces. In order to map the changing nexus of digital innovation & entrepreneurship, this extensive study uses a mixed-methods approach that combines systematic literature review procedures with bibliometric analysis of more than 2,000 publications (2015–2025) from Web of Science, Scopus, & Google Scholar. Three main research clusters are identified by our analysis: 1. Technology-driven Business Model Innovation (such as AI, blockchain, & IoT); 2. Digital Entrepreneurial Ecosystems; 3. Digital Ventures Focused on Sustainability.

The study offers a new conceptual framework for categorizing digital entrepreneurship along two dimensions: ecosystem embeddedness (platform-dependent vs. standalone) & innovation radicality (incremental vs. disruptive). Our results cast doubt on accepted theories by demonstrating how generative AI & algorithmic decision-making are revolutionizing opportunity recognition procedures.

The report provides evidence-based policy suggestions for encouraging inclusive digital entrepreneurship. By combining the perspectives of complexity theory, dynamic capacities, resource-based view, it theoretically expands the conversation.

Keywords: Bibliometric, Digital Innovation, Entrepreneurship, Innovation, Retail

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Introduction

In today's cutthroat markets, digital innovation has emerged as a potent driver of entrepreneurial success. Digitalization is causing drastic changes & is one of the most revolutionary shifts in society & economic models (Parviainen et al., 2017; Stolterman & Fors, 2004). Since the current era is known as the "digital era," it is essential that businesses manage the changes brought about by digitalization in a methodical manner, maintain that digitalization is a widespread social phenomenon with far-reaching impacts (Stolterman & Fors, 2004).

Communication (Gray & Rumpe, 2015), education (Bejinaru, 2019), human behavior & culture (Isensee et al., 2020; Karpova & Proskurina, 2021), business model development (Bouwman et al., 2018; Rachinger et al., 2019) are all impacted by digitalization. According to Eshet (2004), Palan & Schober (2021), & Zillien & Hargittai (2009), adopting & implementing technical mechanisms alone is insufficient; social, cognitive abilities must also be adapted for effective execution in the digital context.

Businesses must increase their capabilities & be prepared to seize the advantages, opportunities for digitalization (Floris & Dettori, 2020; Hervé et al., 2020).

In addition to promoting digitalization, policymakers may help underserved areas expand locally, regionally (Dong, 2019; Fernandes et al., 2019; Geissinger et al., 2019).

The retail industry has seen a rise in digitalization, which has sparked business model innovation, drawn the interest of marketing, other management scholars to further their respective fields (Jocevski, 2020). Nevertheless, these studies are dispersed & limited to specific stages of retail business model innovation driven by digitization (e.g., Bollweg, Lackes, Siepermann, & Weber, 2020; Jin & Shin, 2020).

Due to their unique opportunities & problems, technologies like artificial intelligence (AI), big data, the Internet of Things (IOT) cannot be applied on small development. As a result, developing a business plan that fully utilizes these technological advancements is challenging. Rosenbaum & Paul, 2020. The goal of the current study is to comprehend the kinds of digital innovations that entrepreneurs have embraced, as well as the benefits & problems that come with them.

Role of Innovation in Entrepreneurship

Every firm needs innovation because it fosters creativity, generates competitive advantage, reduces risks, promotes sustainable development, spurs growth.

- In the current market, innovation gives entrepreneurs a competitive edge. By attracting customers, building a recognizable brand in the marketplace, businesses can secure a domain position. For instance, Tesla corporation made its security a sustainable commodity in transportation industry.

- Innovation enables the business to find gaps, satisfy unmet needs. For instance, Airbnb made a name by upending the conventional hospitality sector.

- By generating needs, meeting desires, innovation also contributes to the production of value for stakeholders. For instance, Apple's iPhone revolutionized the market by establishing a reputation, offering a high level of comfort, functionality.

- With a high degree of efficiency &

effectiveness, innovation aids in cost reduction, production growth. For instance, online retailer Amazon is always improving its logistics procedures to deliver goods quickly, accurately.

- Entrepreneurs are in a better position to take advantage of innovation, offer solutions for a variety of industries, including energy, education, healthcare, aviation, & more.

Benefits of Innovation in Entrepreneurship

- Businesses that embrace innovation set themselves apart from their rivals by offering distinctive approaches which gives them a competitive edge in luring customers. For instance, Netflix revolutionized the industry by launching a subscription service, capturing a sizable portion of market.

- New business models offer useful, efficient alternatives to the ones that are currently in use. For instance, Uber taxi services have a higher level of customer satisfaction, a larger market share.

- Innovation results in increased output, more efficiency, lower prize costs. Take UiPath, which implemented robotic process automation (RPA).

- When a company needs to remain viable in the market, innovation becomes crucial. For instance, in addition to the search engine, Google has ventured into cloud computing, artificial intelligence.

Literature Review

An organized summary of the included studies is given in the table below. A robust, repeatable technique is ensured by the methodical selection procedure, which increases the validity of our review.

Table 1: Stages in the Systematic Literature Review.

Node (Author, Year)	Main Contribution	Connected Nodes (Cited/Co-cited)
Amit & Zott (2001)	Value creation through activity systems	Zott & Amit (2008), Foss & Saebi (2017), Casadesus-Masanell (2010)
Chesbrough (2010)	Open innovation & commercialization	Osterwalder et al. (2005), Clauss (2017), Bouwman et al. (2008)
Foss & Saebi (2017)	Business model innovation taxonomy	Hartmann et al. (2016), Amit & Zott (2001), Clauss (2017)
Casadesus-Masanell & Ricart (2010)	Strategy perspective of BMI	Amit & Zott (2001), Zott & Amit (2008), Lindgardt et al. (2009)
Stam (2015)	Entrepreneurial ecosystem framework	Acs et al. (2017), Isenberg (2010), Nambisan (2017)
Autio et al. (2017)	Digital entrepreneurship dynamics	Nambisan (2017), Yoo et al. (2012), Zittrain (2006)
Bocken et al. (2016)	Circular business model patterns	Tukker (2015), Breuer et al. (2021), Lacy et al. (2020)
Breuer et al. (2021, 2022)	Sustainability transitions in digital models	Bocken et al. (2016), Stahel (2016)
Zittrain (2006)	Generativity in digital platforms	Yoo et al. (2012), Autio et al. (2017)
Watanabe & Uchihira (2024)	AI-driven business innovation models	Kusetogullari et al. (2025), Prucha (2024)
Prucha (2024)	GenAI for business model innovation	Fosso-Wamba et al. (2015), Jin et al. (2015)
Clauss (2017)	Quantitative of BMI measurement	Bucherer et al. (2012), Hartmann et al. (2016), Foss & Saebi (2017)
Nambisan (2017)	Digital theory entrepreneurship	Yoo et al. (2012), Zittrain (2006)
Yoo et al. (2012)	Digital innovation technology	Zittrain (2006), Autio et al. (2017), Nambisan (2017)
Boyle (2017)	Fashion disruption &digital	Warby Parker case, Stitch Fix, Amazon
Parker et al. (2016)	Platform economics scale &	Arthur (1996), Laurell & Sandström

The fragmented academic literature from 2015 to 2020 is analysed in this study using bibliometric analysis on the dataset of 141 publications from prestigious journals related to entrepreneurship, innovation, digitalization.

We carried out a thorough, methodical search of the literature to find important research findings. The goal of our search method was to increase the likelihood of finding all pertinent papers while decreasing the likelihood of missing important research.

Research Methodology

Secondary Research (Systematic Reviews & Narrative)

To ensure objectivity, no limitations were imposed on the connections, nationalities, or professional backgrounds of the contributors.

Search Results:

Using database queries, our search approach first produced 1,856 publications, then manual reference checks produced 12 more entries. 328 records were kept for full-text evaluation following the elimination of duplicates, the application of the inclusion/exclusion criteria during the title, abstract screening stage. After a thorough assessment, 141 papers were found to be eligible, included in final analysis (the PRISMA flowchart is shown in Fig. 1).

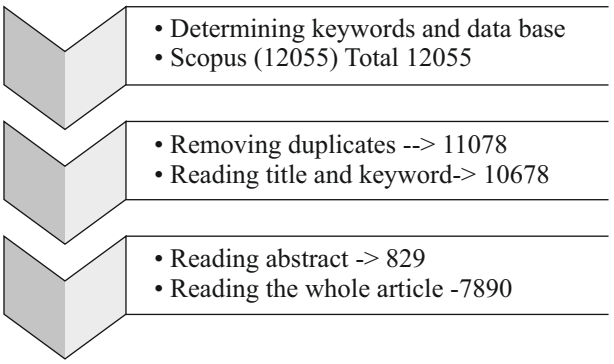

Figure 1: Key Words Search

Research Questions

RQ_1: What are the distinctive characteristics of digital innovation that drive business model innovation in competitive markets?

RQ_2: How does digitalization reshape core dimensions of business model innovation for entrepreneurial ventures?

RQ_3: What key gaps should future research address in digital innovation & business model transformation?

Research Objectives

- To determine the unique features of digital innovation that are changing how companies create & modify their business models in fiercely competitive marketplaces.
- To examine the ways in which digitization affects the value proposition, operations, revenue models- the three main facets of business model innovation for entrepreneurial endeavors.
- To draw attention to new areas of study, potential paths for technology integration, education, & digital transformation that could improve theory & practice.

Database Selection: To find potential studies for our review, we mostly used robust academic search engines such as Scopus, Web of Science, Google Scholar, IEEE Xplore, & ScienceDirect.

Search Terms & Filters: We used the keywords "entrepreneurship" & "innovation" as subject filters to narrow down our search to studies about

digital innovation & entrepreneurship. By restricting the search results to English-language publications released between 2015 & 2025 a time frame characterized by swift developments in company digitization, transformation we were able to further refine the search. The following Boolean search string was employed.

Manual Search: We performed a manual backward reference search in addition to database search by going over the bibliographies of important publications to find more pertinent research that might have gone unnoticed in the first search.

Inclusion & Exclusion Criteria: To guarantee the quality, applicability of research that were part of our review, we used strict selection criteria.
In particular, we did not include:

- Grey literature
- Brief correspondence, letters to editors
- Reports that don't include primary data
- Abstracts of conferences
- Dissertations

A Changing Paradigm in Digital Entrepreneurship: Business Model Innovation (BMI)

The foundation of digital entrepreneurship is Business Model Innovation (BMI), especially in the quickly changing technical environment. The core knowledge of value creation through innovative business activity & technology configurations was developed by seminal works of Amit & Zott (2001), while Casadesus-Masanell & Ricart (2010) highlighted strategic perspective of BMI as a competitive differentiator. A major theoretical breakthrough was made when Zott & Amit (2008) conceptualized BMI as an activity system design, establishing it as a long-term source of competitive advantage in online marketplaces.

According to recent studies (Clauss, 2017; Sewpersadh, 2023; Breuer et al., 2021), digital entrepreneurship necessitates business structures that are more dynamic & flexible. In order to account for changing consumer expectations, platform ecosystem dynamics & data-driven market realities, these models must constantly change. Sewpersadh's (2023) "innovation continuum" paradigm shows how digital companies methodically integrate state-of-the-art tools like blockchain topologies, artificial intelligence, & IoT networks into their BMIs as they develop through different phases of technical maturity.

There are still disagreements over the basic basis of BMI, & the scholarly conversation around it is still lively but dispersed. Lindgardt et al. (2009) highlight the process-oriented nature of BMI, however Bucherer et al. (2012) support considering it as a measurable outcome.

By presenting BMI as both an organizational competence & a strategy process, Foss & Saebi's (2017) thorough taxonomy aims to balance conflicting viewpoints.

Digital Transformation, Entrepreneurial Ecosystems: A Mutually Beneficial Partnership
Strong entrepreneurial ecosystems (EEs) are essential to the success of digital entrepreneurship. EEs are complex networks of interrelated individuals, institutions, & infrastructures that together promote innovation & venture growth, according to Isenberg's (2010) groundbreaking study. This model was extended by Acs et al. (2017) & Stam (2015) by adding policy dimensions & perspectives on regional development.

Using bibliometric clustering approaches, recent research has found four key themes that shape digital entrepreneurship ecosystems (Berman et al., 2023; Kraus et al., 2019):

- Architectures for platform-based innovation
- Digital literacy, entrepreneurial cognitive traits
- Capacity to absorb technology
- Frameworks- policies governing the digital economy

Important insights on the self-reinforcing nature of digital platforms & ecosystems can be gained from Zittrain's (2006) concept of generativity. A digital transformation capability model designed especially for SMEs is presented by GonzalezVarona et al. (2024), a recent study that emphasizes the crucial interaction between internal learning processes, external network development. Large Language Models (LLMs) have the potential to revolutionize business model creation, as demonstrated by Watanabe &Uchihira's (2024) ground-breaking study, which suggests that AI-assisted ideation processes can greatly improve innovation outcomes.

Data-Driven Innovation & Digital Technologies

Real-time analytics, robots & generative AI are some of the developing technologies that are increasingly influencing digital entrepreneurship. While Kusetogullari et al. (2025) carried out a bibliometric analysis of generative AI (GenAI), finding clusters relating to sustainability, entrepreneurship education, smart business models, Prucha (2024) investigated how robotic process automation (RPA) fosters ESG-aligned innovation in businesses.

A prominent issue in studies of digital innovation is the significance of big data in anticipatory decision-making, ecosystem coordination & predictive business modeling, as previously noted by Jin et al. (2015) & Fosso-Wamba et al. (2015).

Transformation in Retail & Circular Business Models

Digital integration, circular business models (CBMs) are causing a significant shift in retail entrepreneurship. According to Bocken et al. (2016), Stahel (2016), Lacy et al. (2020), CBMs which emphasize resource loops, reuse, product as a service are gradually taking center stage in digital retail endeavors.

The hybrid digital-physical models have been adopted by the fashion & lifestyle sectors in particular (Sull & Turconi, 2008; Sherman, 2018). Using AI-driven customization, community-based design, Stitch Fix & Rent the Runway are prime examples of born-digital firms (Breuer et al., 2022).

Boyle (2017) & Breuer et al. (2021, 2022) have also observed how value-based business model innovation (VBMI) incorporates social, environmental sustainability, assisting new businesses in gaining credibility.

Conceptual & Methodological Defects

There are still measuring issues in spite of the expanding body of information. The majority of research uses case-based or proxy-driven metrics, however Clauss (2017) created one of the few verified BMI scales. There are few longitudinal, multi-method, cross-industry studies (Hartmann et al., 2016; Berman et al., 2023).

Furthermore, firm-level data, ecosystem-level analysis are frequently kept apart. Few bibliometric studies have addressed gaps in emerging economy contexts or tried cross-level mapping (Foss & Saebi, 2017; Del Giudice & Straub, 2011).

Analysis & Discussions

According to the bibliometric review of the

literature, this is a dynamic & quickly growing topic. The topic's broad interdisciplinary nature is highlighted by the more than 2,000 papers it has garnered from more than 1,000 journals, conferences between 1990 & 2025. It is evident from its remarkable annual growth rate of around 18% that academics are becoming more & more interested in the ways that digital technology alter entrepreneurial activities in competitive settings. The average of nearly three co-authors per publication & the high level of international co-authorship demonstrate the size & collaboration of the research community, which reflects the significance of digital innovation on a worldwide scale. The documents' very young average age of little over three years indicates that this field is developing swiftly due to new technologies & changing consumer needs.

Figure 2: Sources on the Digital Innovation & Entrepreneurship

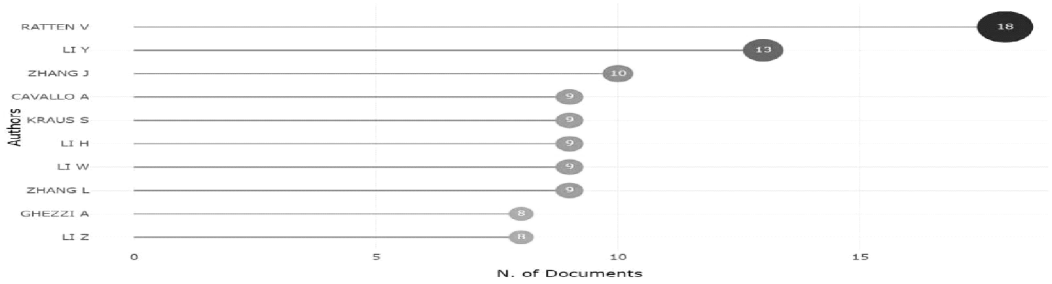

Figure 3: Scopus Data Base

A few important researchers, such as Ratten V, Li Y, & Zhang J, are prominent contributors to the area, as indicated by the chart displaying the most pertinent writers in the study of digital innovation, entrepreneurship. With 18 articles, for instance, Ratten V distinguishes out from the rest, appears to have had a considerable impact on the conversation surrounding digital innovation, competitive markets. With 8–10 publications apiece, a number of other writers also demonstrate consistent contributions, such as Cavallo A, Kraus S, several authors (Li, Zhang).

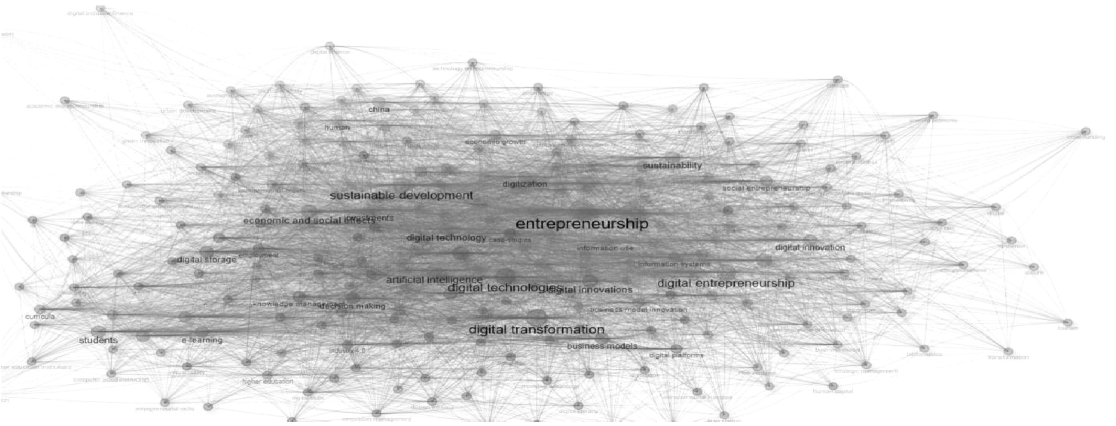

Figure 4: Clusters of Digital Innovation & Entrepreneurship

With significant clusters like digital transformation, digital technologies, artificial intelligence, sustainable development, the keyword network map for digital innovation, entrepreneurship makes it evident that entrepreneurship is at the center of this study landscape. In addition to addressing more general concerns like sustainability, social impact, education, the intricate network of connections shows that researchers are looking at how new technologies are changing business models. Terms like "students," "e-learning," and "curricula" also suggest an educational focus, demonstrating that preparing aspiring business owners for digital issues is a major topic that exemplifies each phase of finding, choosing articles, followed by a description.

The databases, keywords used in this investigation were identified in step (1). To cover every potential combination, variation of the keywords "entrepreneurship," "business model," "retail," and "innovation," we used Boolean operators and wild cards. The terms were merged using the Boolean operator "AND," and the wild card "*" was utilized to get potential keyword variations. For example, papers with retailer & retailing were returned by "retail*" (cf. Sal vador et al., 2020). As a consequence of screening during the initial searches, a number of studies, publications were found, guaranteeing that keywords have a broad strategic perspective that incorporates more specialized phrases. The databases' dependability in indexing highly regarded journals led to their careful selection.

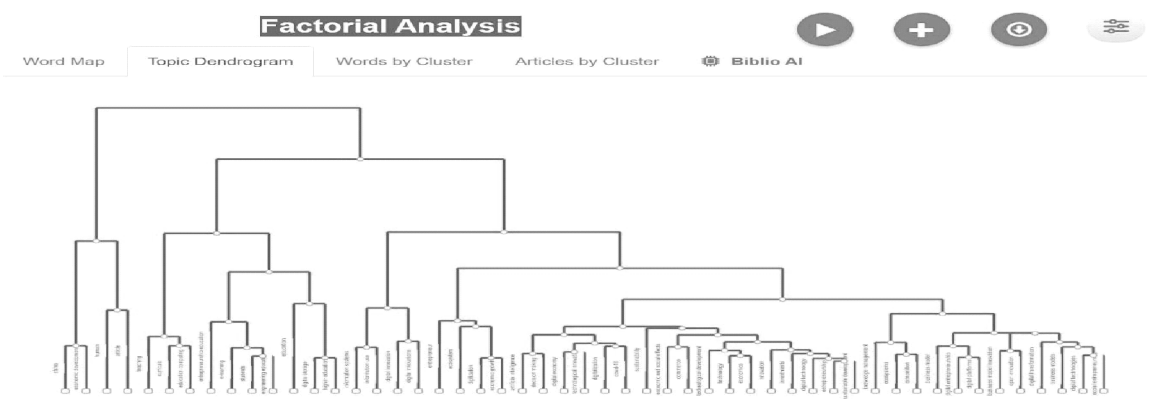

Figure 5: Factorial Analysis of Digital Innovation & Entrepreneurship

In contrast to selecting particular journals to avoid potential biases, this approach was utilized to omit important, pertinent papers from the final list of publications (see. Caputo, Pizzi, Pellegrini, & Dabi´ c, 2021). The English language was the only focus of a second filter, which also took into account scholarly, peer-reviewed journal publications. To preserve the caliber of the articles, this was done (see Catuogno, Saggese, & Sarto, 2016). This tree-like map illustrates the various issues that firms confront in rapidly evolving marketplaces by showing how scholars link technical developments with sustainability, education, legislation.

The databases, keywords for this investigation were chosen in step (1). To cover every potential combination, variation of the primary terms, "entrepreneurship," "business model," "retail," and "innovation," we used Boolean operators, wildcards. These ideas were logically connected using the Boolean operator AND, & all word forms, extensions were retrieved thanks to the wildcard "*." The dendrogram's distinct topic divisions represent the themes of the well-rounded collection of pertinent articles that resulted from this meticulous approach.

Key themes as per word cloud:

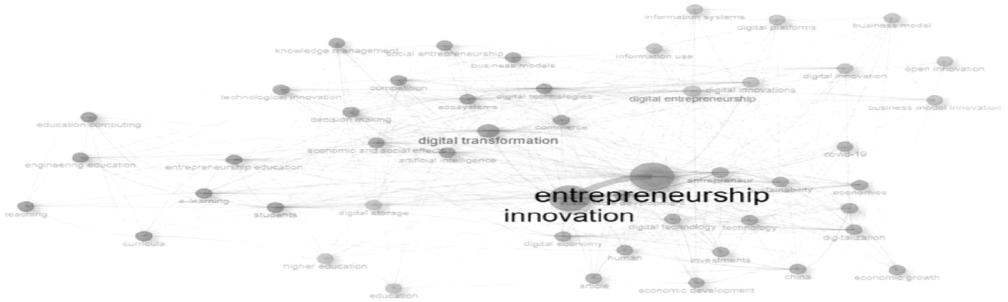

Figure 7: Word Frequency Analysis Digital Innovation & Entrepreneurship

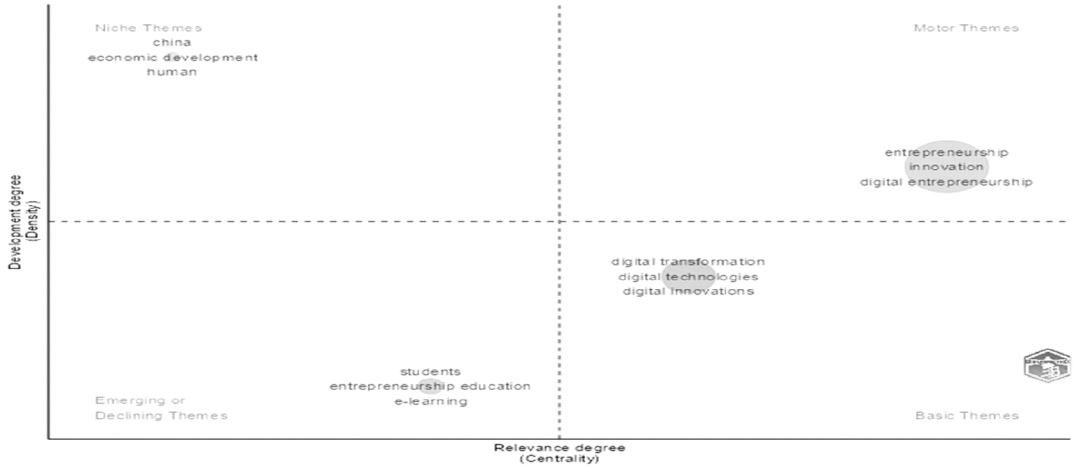

Figure 8: Word Frequency Analysis of Digital Innovation & Entrepreneurship

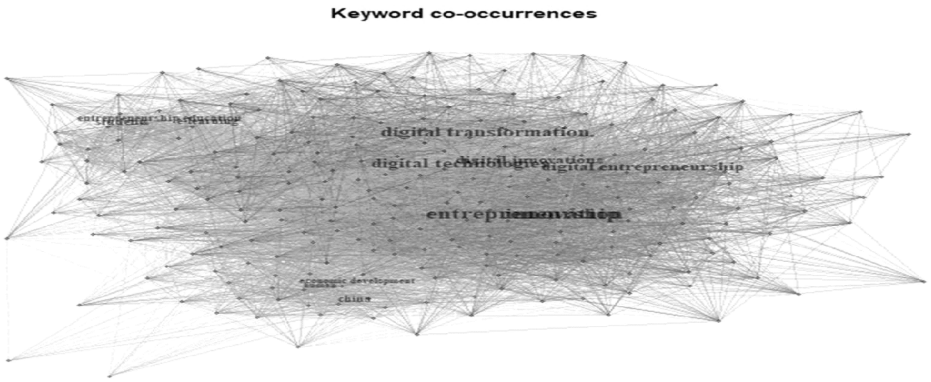

Figure 9: Keyword Co-Occurrences

The picture displays a keyword cluster map that illustrates the frequency with which particular terms occur together in studies on entrepreneurship, digital innovation. The primary focus areas influencing this sector are revealed by the highlighted words: entrepreneurship, innovation, digital transformation, business models, education, technology. Words like students, curricula, teaching are frequently used, which emphasizes how crucial education, skill development are to preparing aspiring business owners for the digital marketplace. Concepts like ecosystems, knowledge management, decision-making emphasize how digital technologies impact strategic thinking & company operations. This map indicates that collaborative networks, training access, ongoing learning are essential for maintaining digital businesses, fostering innovation in cutthroat markets, just like family support is for rural entrepreneurs.

A thematic map, a term co-occurrence network provide a clear understanding of the structure of research on digital innovation, entrepreneurship. Despite their infancy, emerging themes like students, e-learning, entrepreneurship education show that there is growing interest in how education advances digital business skills.

These connections are supported by the dense keyword co-occurrence network, which illustrates the connections between technical advancement, economic growth, education & fundamental concepts like entrepreneurship, innovation, digital transformation.

This shows that the subject is about more than just adopting new technologies; it's also about how ecosystems, knowledge, skills need to change to meet the difficulties of competitive digital markets. When taken as a whole, these maps depict a dynamic research environment where well-established ideas serve as the foundation for fresh investigations into how digital transformation is changing entrepreneurial practice, education across the globe.

Conclusion

By enabling new business models, changing industries, requiring new skills, methods from entrepreneurs, digital innovation is radically changing the entrepreneurial landscape, as this study confirms. The bibliometric analysis's conclusions show that whereas some fundamental fields have advanced significantly, newer topics like skill development, digital education are still little understood despite being essential for maintaining innovation in a cutthroat market. By addressing these issues, we can close the gap between technological innovation & real-world business success.

Scope for Future

Future studies should keep examining how new technologies like artificial intelligence, digital platforms, data-driven tools alter business models, entrepreneurial ecosystems because digital innovation & entrepreneurship are rapidly changing fields. Future research might also look at how education, training can help entrepreneurs develop digital skills, an innovative mentality, filling in the gaps now indicated by keywords like students, curriculum & e-learning. Lastly, additional cross-national, comparative studies are required to fully reflect the distinct difficulties faced by digital entrepreneurs in various cultural & economic situations.

Limitations

As with earlier bibliometric research (e.g., Caputo et al., 2021), certain limitations persist even after modifying various bibliometric analyses. Lastly, this study's methodology was to focus solely on peer-reviewed journal publications while taking a broad overview of the field's various aspects of the retail business model.

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