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Bibliometric Analysis of the Development of Entrepreneurial Ecosystem Research in Global Publications

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ABSTRACT

This study conducts a comprehensive bibliometric analysis of the field of entrepreneurial ecosystems, mapping the evolving landscape of research from 1995 to 2024. Utilizing VOSviewer for visual network analysis, the research identifies central themes, examines co-authorship and institutional collaboration networks, and highlights the temporal progression of key topics. The findings reveal "entrepreneurial ecosystem" as a nexus connecting diverse research themes such as innovation, economic growth, and sustainability. Significant emphasis is placed on the integration of digital technologies and sustainability within entrepreneurial practices, reflecting shifting academic and practical priorities. The analysis of co-authorship networks shows robust collaboration among leading scholars and institutions, predominantly from Western regions, with increasing contributions from a global cohort. The study underscores the importance of incorporating diverse perspectives to fully understand the multifaceted nature of entrepreneurial ecosystems and suggests future research directions focusing on digital transformation and sustainability in entrepreneurship.

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1. INTRODUCTION

The concept of the entrepreneurial ecosystem has gained significant traction in the scholarly community, reflecting its crucial role in fostering regional economic growth and innovation. The term "entrepreneurial ecosystem" refers to the social and economic environment that affects local or regional entrepreneurship [1]. This environment includes a variety of interdependent actors and factors, ranging from government policy and institutional support to access to capital and markets, which collectively support the journey of entrepreneurs [2]. The growing body of literature on entrepreneurial ecosystems has focused on understanding how these ecosystems function, their components, and the way they influence entrepreneurial activities [3].

As globalization and digital transformation continue to reshape economies, the dynamics within entrepreneurial ecosystems have become increasingly complex [4]. This complexity is driven by the rapid pace of technological change, evolving market conditions, and shifting regulatory landscapes, all of which

pose new challenges and opportunities for entrepreneurs [5]. Moreover, the rise of digital platforms and the gig economy has introduced new dimensions to the ecosystems, necessitating updated frameworks and analytical tools to better understand their impacts on entrepreneurship [6].

Despite the critical importance of entrepreneurial ecosystems, there is a discernible gap in the comprehensive understanding of the evolutionary trends and thematic structures within this field of study. While individual studies have contributed pieces of the ecosystem puzzle, a holistic view of how these studies interconnect and evolve over time is less understood. Bibliometric analysis provides a powerful tool to map out the intellectual structure and developmental trajectory of research fields [7], allowing scholars to identify key trends, seminal works, and emerging themes in entrepreneurial ecosystem research.

The significance of entrepreneurial ecosystems in driving innovation and economic growth warrants a deeper examination of the literature to discern patterns, gaps, and future directions. This is particularly pertinent as stakeholders, including policymakers, academics, and practitioners, seek to leverage these insights to design more effective support mechanisms for entrepreneurs [8]. By examining the body of knowledge through a bibliometric lens, researchers can offer valuable insights into the maturity of the research, predominant themes, and potential areas for further investigation.

Despite the burgeoning interest and increasing scholarly attention on entrepreneurial ecosystems, there remains a lack of comprehensive analysis that synthesizes the diverse research streams within this field. Many studies are siloed, focusing on specific components or effects of ecosystems without integrating findings across different contexts or scales. This fragmentation makes it challenging to build a cohesive understanding of how entrepreneurial ecosystems evolve and what factors most significantly drive their success or failure. Furthermore, the rapid pace of economic and technological changes demands continual updates to the literature to reflect new realities, which existing reviews may not adequately capture. Therefore, there is a critical need for a systematic bibliometric analysis to consolidate existing research, highlight the most influential studies, and outline the intellectual structure of the field.

The objective of this research is to conduct a comprehensive bibliometric analysis of global publications on entrepreneurial ecosystems. This analysis aims to map the development of the field, identify key research clusters, and highlight the most impactful authors, articles, and journals. By doing so, the study seeks to provide a structured overview of the research landscape, offering insights into how the concept of entrepreneurial ecosystems has evolved over time and suggesting directions for future research endeavors. This will enable stakeholders to better understand the foundational elements of effective ecosystems and drive targeted initiatives that support entrepreneurial success in various contexts.

2. LITERATURE REVIEW

2.1 Entrepreneurial Ecosystems Conceptual Framework

The concept of an entrepreneurial ecosystem encompasses a dynamic set of interconnected entrepreneurial entities that collectively contribute to enhanced innovative activity and economic performance within a particular geographical region [1]. An entrepreneurial ecosystem is defined not only by the presence of entrepreneurs but also by the relationships among its various components, such as government agencies, financial institutions, universities, investors, and supportive services that facilitate the inception, growth, and success of entrepreneurial ventures [9]. The framework for studying entrepreneurial ecosystems often draws upon the analogy of natural ecosystems, emphasizing the importance of a balanced and interactive environment

conducive to entrepreneurial activity. [10] first introduced the term "business ecosystem" to describe the complex networks of suppliers, distributors, and competitors that interact within an economic community. The idea has since been adapted and expanded to include a wider range of factors that influence entrepreneurship, including non-economic elements such as culture, social norms, and networking practices (Cohen, 2006).

2.2 Components of Entrepreneurial Ecosystems

According to [5], the entrepreneurial ecosystem framework includes several key domains:

1) Policy, government policies and regulations that encourage or inhibit entrepreneurial activities.
2) Finance, accessibility to financial resources, including venture capital, angel investments, and crowdfunding platforms.
3) Culture, societal attitudes toward entrepreneurship, including tolerance for risk and failure, as well as the valorization of entrepreneurial success.
4) Support, advisory support services such as mentoring networks, incubators, and accelerators that aid in the development of new ventures.
5) Human capital, availability of skilled labor and the presence of educational institutions that foster entrepreneurial skills.
6) Market, the existence of open and accessible markets for products and services offered by new enterprises.

These components interact in complex ways, and their alignment and synergy are critical for the health and productivity of the ecosystem [11].

2.3 Theoretical Perspective

Several theoretical perspectives provide insights into how entrepreneurial ecosystems function and evolve:

1) Resource-based view (RBV), this perspective focuses on the resources within an ecosystem, arguing that the availability and accessibility of diverse resources can significantly enhance the capacity of firms to innovate and compete [12]. In the context of entrepreneurial ecosystems, the RBV underscores the importance of unique local assets and capabilities that can be harnessed to support entrepreneurial activity.
2) Institutional theory, this theory emphasizes the role of formal and informal rules, norms, and behaviors that influence entrepreneurial outcomes [13]. It provides a framework for understanding how regulatory environments, cultural norms, and educational systems impact the efficiency and behavior of entrepreneurs within the ecosystem.
3) Network theory, this approach highlights the importance of networks and relationships among actors within the ecosystem. The theory posits that dense and robust networks can facilitate information flow, enhance trust, and provide support, thereby increasing the likelihood of entrepreneurial success [14].

2.4 Interactions and Dynamics

The dynamics within entrepreneurial ecosystems are influenced by the interactions between various actors and components. The concept of "co-evolution" is often used to describe how different parts of the ecosystem adapt and evolve in response to each other's changes [15]. For instance, as new technologies emerge, educational institutions may adjust curricula to better prepare students with relevant skills, thereby enhancing the human capital available to the ecosystem. Furthermore, the flow of information and resources is crucial for the vitality of an entrepreneurial ecosystem. [2] emphasize the role of "knowledge spillovers," where ideas and innovations generated within one part of the ecosystem can be leveraged by other parts, leading to a cumulative enhancement of entrepreneurial capacity and output.

2.5 Contribution to Economic Growth

Entrepreneurial ecosystems play a pivotal role in promoting economic growth through the facilitation of new business ventures, job creation, and fostering innovation. High-growth startups, particularly in the technology sector, are instrumental in driving these outcomes. They not only contribute to the economic landscape by enhancing competitiveness but also boost productivity, creating a ripple effect of benefits across the economy [16]. The growth of these enterprises often leads to increased employment opportunities and accelerates the development of new products and services that can meet changing consumer demands and global market trends. The success of these ecosystems in sustaining economic growth is largely dependent on the systemic interactions among various components such as government policies, financial support, educational institutions, and cultural attitudes towards entrepreneurship. These components need to be continuously aligned and dynamically adapted to the evolving economic conditions both locally and globally. This adaptability ensures that the ecosystems not only survive but thrive, adjusting to new technological advancements and shifting economic policies. Therefore, the robustness of an entrepreneurial ecosystem significantly influences its ability to maintain economic growth and respond effectively to the challenges and opportunities presented by the global economic environment.

3. METHODS

The methodological approach for this study involves a comprehensive bibliometric analysis of the global literature on entrepreneurial ecosystems. This analysis utilizes data extracted from Google Scholar databases, spanning publications from 1995 to 2023. The selection of articles for analysis is based on the presence of keywords such as "entrepreneurial ecosystem" and related terms in their titles, abstracts, or keywords. Using VOSviewer, a software tool for constructing and visualizing bibliometric networks, the study identifies key trends, authors, and thematic clusters within the field [17]. The analysis focuses on quantifying patterns of publication over time, citation networks, co-authorship patterns, and keyword co-occurrence.

4. RESULTS AND DISCUSSION

4.1 Bibliometric Overview

Table 1. Citation Metrics

Publication years:	1995-2024
Citation years:	29 (1995-2024)
Papers:	980
Citation:	73300
Cities/year:	2527.59
Cities/paper:	74.80
Cities/author:	38308.55
Papers/author:	470.92
Authors/papers:	2.65
h-index:	120
g-index:	243
hI,norm:	81
hI,annual:	2.79
hA-index:	59
Papert with ACC >= 1,2,3,10,20: 951,849,600,373,202	

Source: Publish or Perish, 2024

Table 1 provides a bibliometric summary of research related to a specific field over a 29-year period, from 1995 to 2024. This analysis covers 980 papers, which have collectively garnered 73,300 citations, reflecting an average of 2,527.59 citations per year and 74.80 citations per paper. The data reveals that each author, on average, is associated with a substantial citation count of 38,308.55 and has contributed to about 470.92 papers, indicating significant collaborative research with an average of 2.65 authors per paper. The h-index for the dataset is 120, suggesting that at least 120 papers have been cited at least 120 times, indicating a strong impact within the field. The g-index is even higher at 243, pointing to a substantial number of papers that have received a significant number of citations. Adjusted indices such as hI,norm and hI,annual are 81 and 2.79, respectively, which adjust the h-index for co-authorship, showing robust individual contributions. The hA-index stands at 59, reflecting the depth of highly cited articles. Furthermore, a high number of papers (951) have at least one citation, with many papers achieving higher citation thresholds, illustrating the influence and relevance of the research in this domain over nearly three decades.

4.2 Yearly Publication

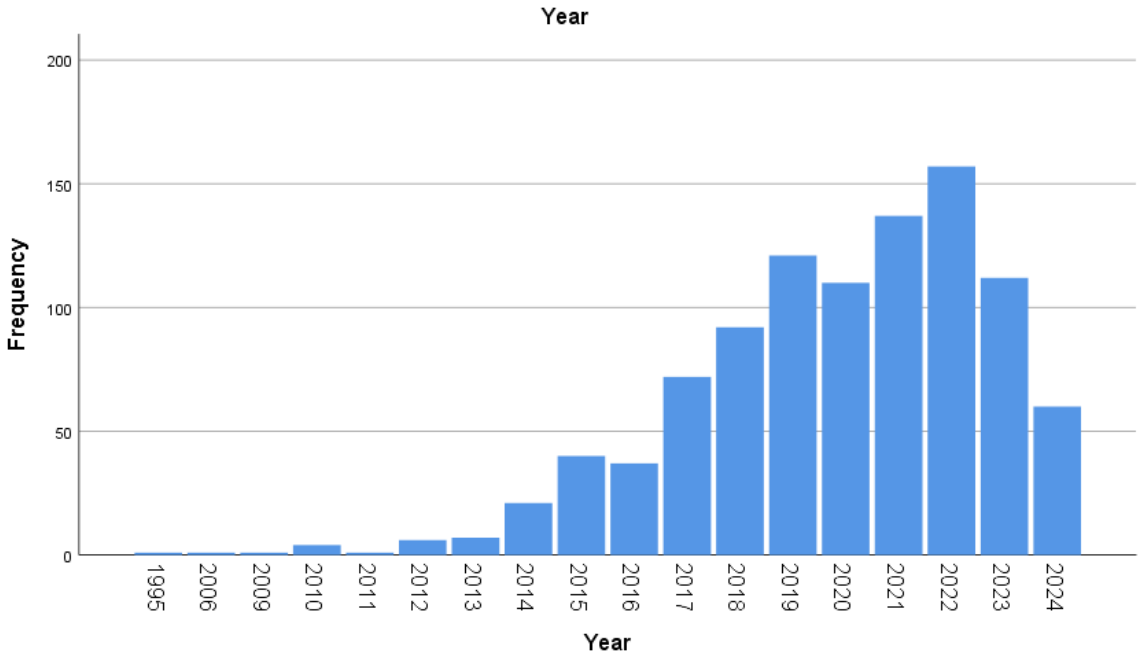

Figure 1. Yearly Publication

Source: Data Analysis, 2024

The bar graph illustrates the yearly publication frequency related to entrepreneurial ecosystems from 1995 to 2024. The data shows a gradual increase in the number of publications over time, with a more pronounced rise beginning around 2015. This trend suggests growing academic and practical interest in entrepreneurial ecosystems, possibly influenced by increased recognition of their importance to economic development and innovation. The peak in publications occurred in 2021, indicating a significant focus on the topic during that year, possibly driven by factors such as digital transformation and sustainability becoming more integrated into entrepreneurial practices. Following 2021, there is a slight decline in publications, which could be indicative of research saturation or shifts in focus within the field. The overall trend, however, underscores the escalating relevance and exploration of entrepreneurial ecosystems in recent years.

4.3 Journal Distribution

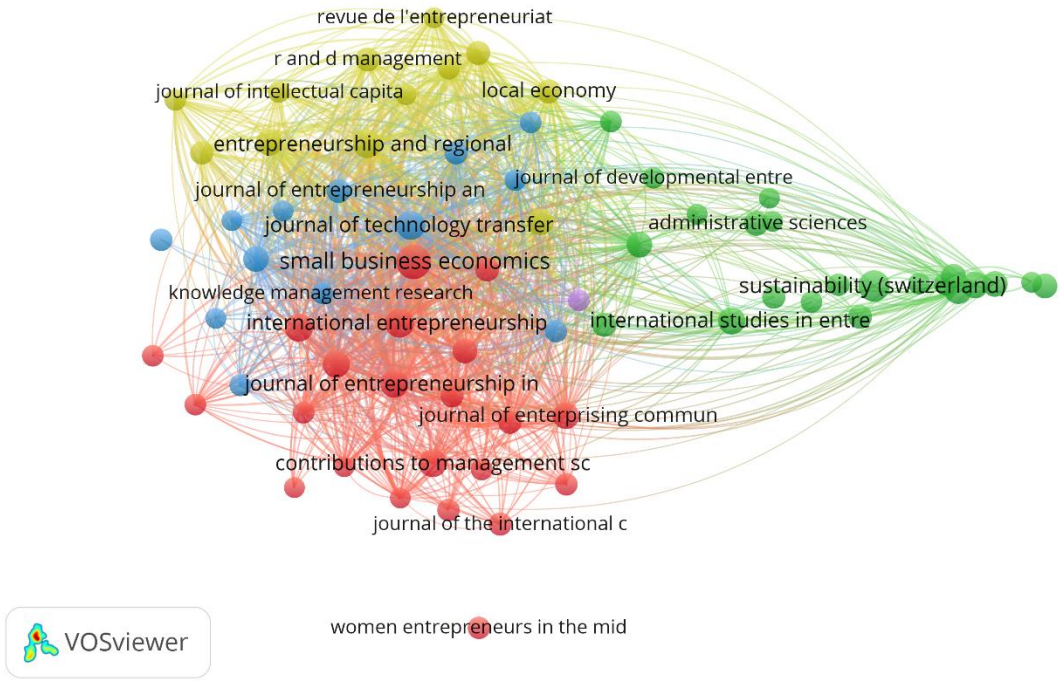

Figure 2. Journal Network Visualization

Source: Data Analysis, 2024

The VOSviewer network visualization displays a bibliometric analysis of journals in the field of entrepreneurial ecosystems, highlighting interconnections based on citation relationships across various thematic clusters. The green cluster, featuring journals like "Sustainability (Switzerland)," suggests a focus on sustainable entrepreneurship practices. The red cluster includes journals such as "Journal of Entrepreneurship in Emerging Economies," indicating an emphasis on entrepreneurial dynamics in emerging markets and innovative management strategies. The blue cluster, with journals like "Journal of Intellectual Capital," points to research on intellectual capital and knowledge management's role in entrepreneurship. The size of each node reflects the journal's influence, and the links between clusters illustrate interdisciplinary interactions, showcasing how different areas of entrepreneurship research are interlinked and evolving.

4.4 Citation Analysis

Table 2. Top Ten Literature

Cites	Author	Title	Findings
2571	[8]	The relational organization of entrepreneurial ecosystems	Explores how relational dynamics within ecosystems contribute to entrepreneurial success, emphasizing the role of social, cultural, and economic relationships.
2561	[1]	Entrepreneurial ecosystems and regional policy: a sympathetic critique	Critically assesses how regional policies affect entrepreneurial ecosystems, proposing refinements to better support regional entrepreneurial activities.
2119	[9]	Entrepreneurial ecosystems and growth-oriented entrepreneurship	Analyzes the characteristics of ecosystems that support high-growth entrepreneurship, focusing on the necessary conditions for scalable business ventures.

1486	[4]	Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems	Investigates the impact of digital and spatial affordances on the formation and development of entrepreneurial ecosystems, highlighting the digital transformation's role.
1423	[11]	Startup communities: Building an entrepreneurial ecosystem in your city	Provides a guide on cultivating a thriving startup community, detailing strategies for building supportive entrepreneurial environments in urban settings.
1240	[3]	Sustainable valley entrepreneurial ecosystems	Discusses the integration of sustainability into entrepreneurial ecosystems, outlining how green initiatives can be embedded into the core of entrepreneurial practices.
1192	[18]	The lineages of the entrepreneurial ecosystem approach	Traces the historical and theoretical development of the entrepreneurial ecosystem concept, examining its evolution and various interpretations.
1163	[19]	Toward a process theory of entrepreneurial ecosystems	Proposes a process-oriented theoretical framework for understanding the dynamics and phases of entrepreneurial ecosystems' evolution.
1118	[20]	Entrepreneurial ecosystems	Provides a comprehensive overview of the components and functioning of entrepreneurial ecosystems, identifying key elements that drive entrepreneurial activity.
1077	[6]	The digital entrepreneurial ecosystem	Explores the influence of digital technologies on entrepreneurial ecosystems, focusing on how digital tools and platforms enable new forms of entrepreneurial activity.

Source: Publish or Perish, 2024

4.5 Author Visualization

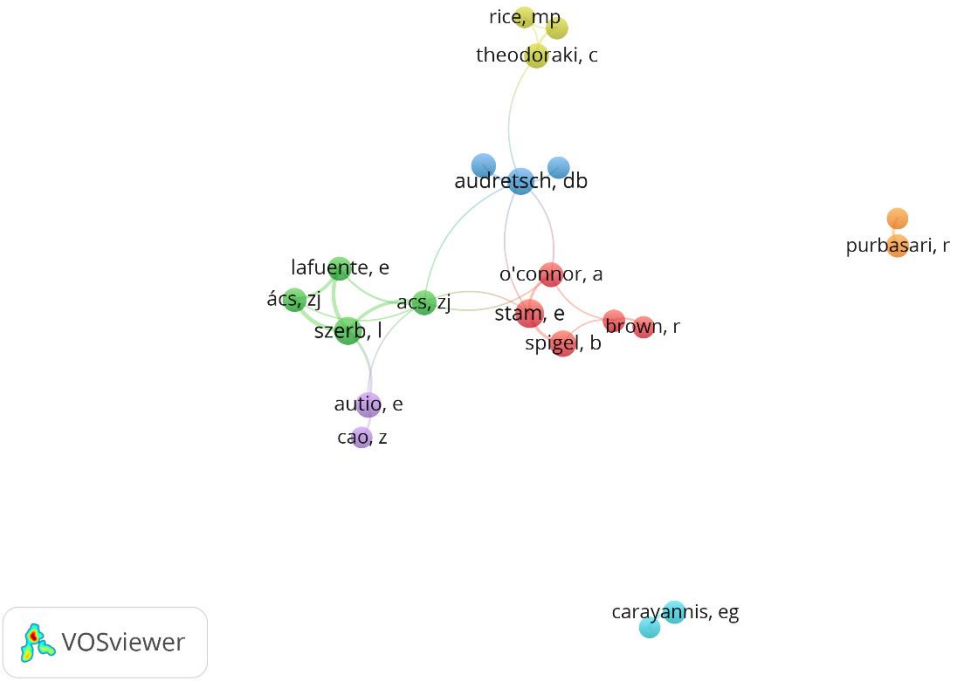

Figure 3. Author Collaboration

Source: Data Analysis, 2024

This VOSviewer visualization depicts a co-authorship network among scholars in the field of entrepreneurial ecosystems, illustrating the collaboration patterns and influence of various researchers. Nodes represent individual authors, with their size likely reflecting the volume of their publications or their centrality in the network. Connections between nodes signify co-authorship, with thicker lines indicating more frequent collaborations. Central figures like "Audretsch, DB", "Stam, E", and "Spigel, B" are heavily interconnected, highlighting a core group of prolific contributors who often collaborate. In contrast, authors like "Purbasari, R" and "Carayannis, EG" are more peripheral, suggesting they either have fewer collaborations within this network or work in niche areas of the field. This network mapping provides insight into the collaborative dynamics and key contributors driving research in entrepreneurial ecosystems, revealing both established partnerships and emerging scholars in the domain.

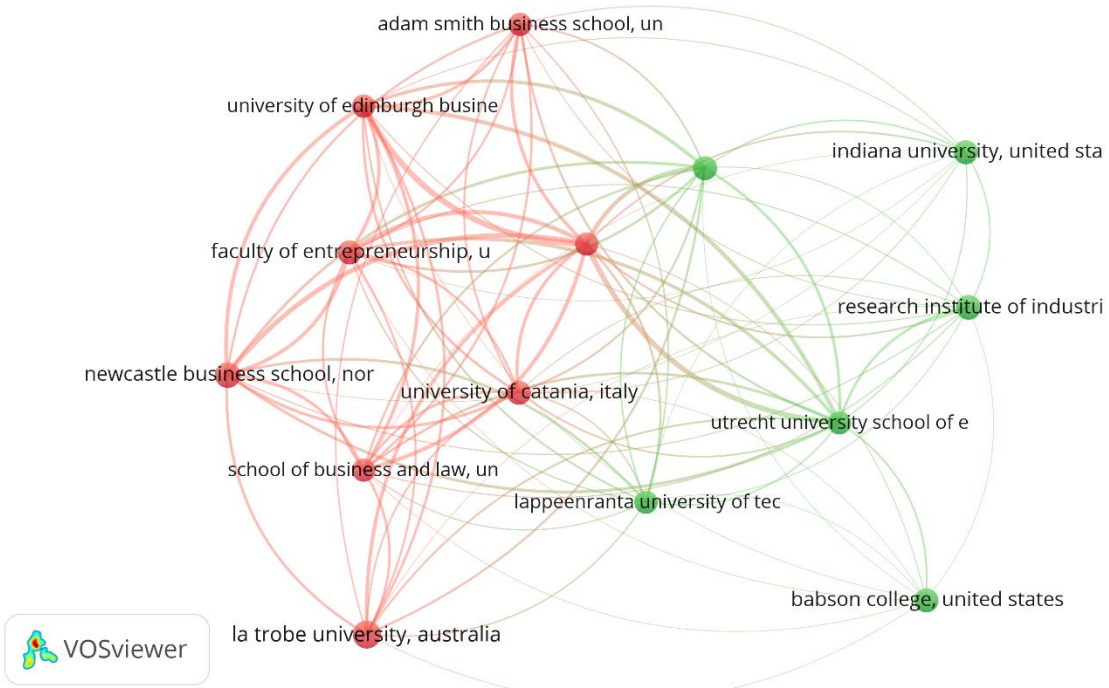

Figure 4. Organization Collaboration

Source: Data Analysis, 2024

This VOSviewer visualization illustrates a network of academic and research institutions engaged in entrepreneurial ecosystem studies. The network is segmented into two main clusters, each highlighted in a different color. The red cluster appears to include primarily European institutions, such as the University of Catania and the University of Edinburgh, which are heavily interconnected, suggesting robust collaboration and research exchanges within Europe. The green cluster, featuring institutions like Indiana University and Babson College from the United States, indicates a significant level of inter-institutional collaboration within the U.S. and possibly between U.S. institutions and others globally. Each node represents an institution, with the size of the node likely reflecting the volume of research output or centrality in the network. Lines connecting the nodes indicate collaborations, with thicker lines representing stronger or more frequent collaborations. This mapping helps to identify key players and collaborative networks within the field of entrepreneurial ecosystems, highlighting how institutions are interconnected both regionally and globally.

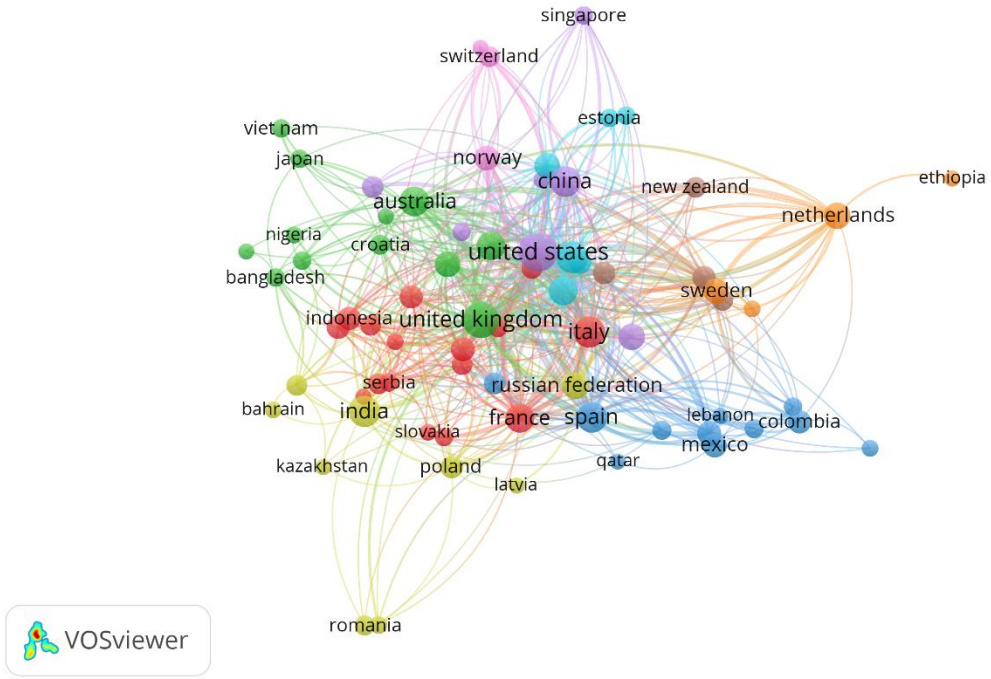

Figure 5. Country Collaboration

Source: Data Analysis, 2024

This VOSviewer visualization illustrates a global network of countries engaged in research related to entrepreneurial ecosystems or a similar academic domain, demonstrating the international collaborations and research interactions across the world. The nodes represent different countries, with node size likely indicative of the volume of research output or centrality in the global research network. The various colors may denote different regional clusters or thematic research groups, with dense connections within Europe (as seen with the United Kingdom, Italy, and France) and strong transatlantic links between Europe and the United States. Asian countries like China, Japan, and India also show significant connectivity, suggesting robust intra-regional and international research collaborations. The thickness of the lines between countries implies the strength or frequency of collaboration, with thicker lines indicating more substantial collaborative ties. This map highlights the interconnected nature of academic research in this field, reflecting both regional hubs of research activity and their global interactions.

4.6 Keyword Co-Occurrence Analysis

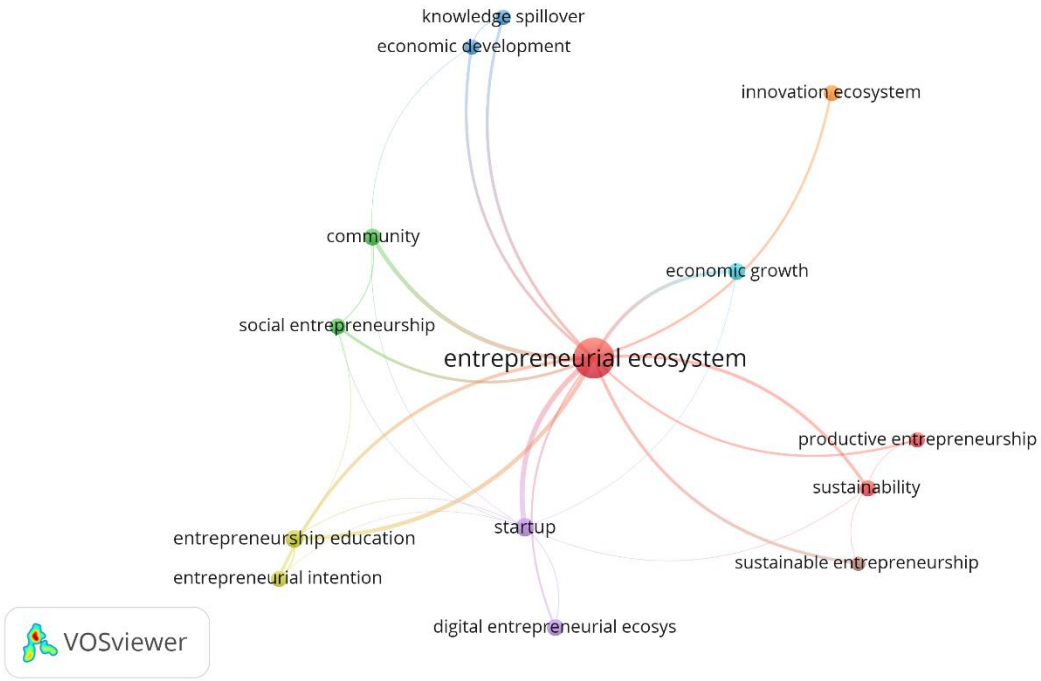

Figure 6. Network Visualization

Source: Data Analysis, 2024

This VOSviewer visualization presents a keyword co-occurrence analysis in the domain of entrepreneurial ecosystems, highlighting the most prevalent themes and concepts within the field. Central to the map is "entrepreneurial ecosystem," depicted as a node connected to several other key areas, indicating its role as a foundational concept linking various research topics. The connections to "startup," "sustainability," "productive entrepreneurship," and "digital entrepreneurial ecosystem" suggest that research in entrepreneurial ecosystems frequently intersects with discussions on startup cultures, sustainability practices, digital innovation, and business productivity.

The red cluster, indicating strong ties between "entrepreneurial ecosystem," "economic growth," and "sustainability," emphasizes the critical view that entrepreneurial ecosystems are not just catalysts for business creation but are also integral to driving sustainable economic development. This cluster underscores the importance of integrating sustainability into the core of entrepreneurial practices, suggesting a trend in research that aligns entrepreneurial activities with long-term environmental and social goals.

Adjacent to this, the orange links connecting "entrepreneurial ecosystem" with "innovation ecosystem" and "economic development" reveal a thematic overlap where ecosystems are seen both as venues for innovation and as mechanisms supporting broader economic advancement. This connection highlights the role of innovation as a driver within these ecosystems, contributing to overall economic resilience and growth. The proximity of these terms suggests that innovation ecosystems are often studied in conjunction with entrepreneurial ecosystems, possibly to explore how innovation can be effectively harnessed within these complex environments.

Lastly, the green cluster connects "entrepreneurial ecosystem" with "social entrepreneurship" and "community," pointing to a significant focus on the social dimensions of entrepreneurship. This reflects an academic interest in how entrepreneurial ecosystems can support social entrepreneurs and impact community development. It highlights the evolving understanding that entrepreneurial ecosystems are not only

economic constructs but also social frameworks that can contribute to community well-being and social change, linking personal entrepreneurial ambitions with broader societal benefits.

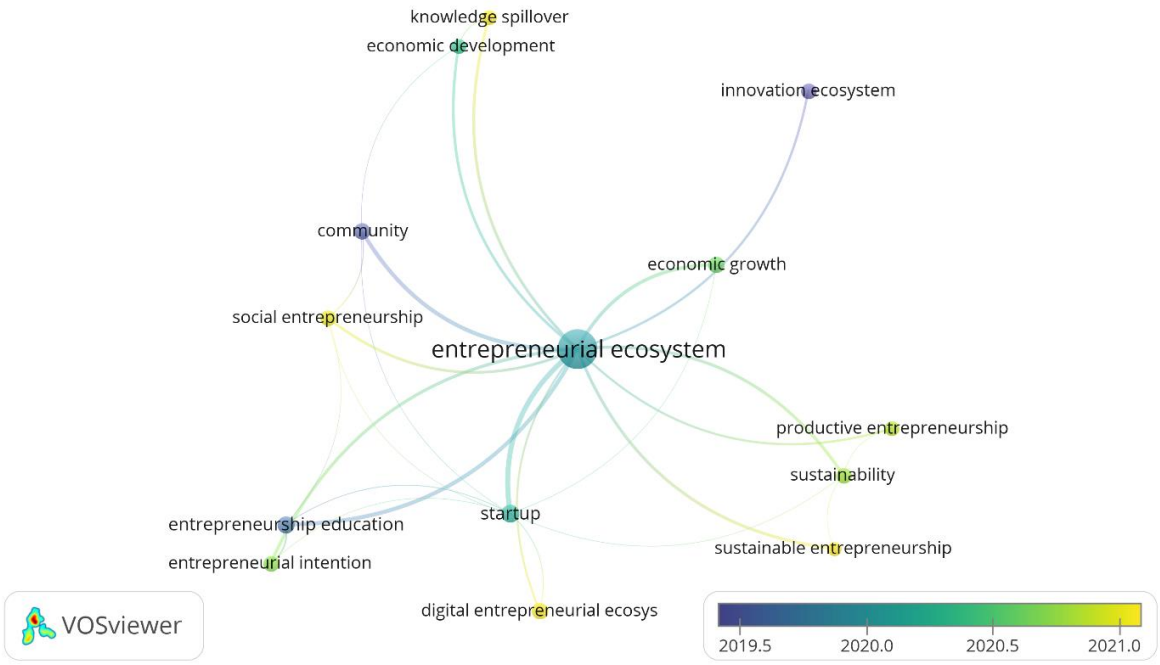

Figure 7. Overlay Visualization

Source: Data Analysis, 2024

This VOSviewer visualization represents a temporal analysis of keyword occurrences in the field of entrepreneurial ecosystems, mapped over a timeline from 2019.5 to 2021.0. The color gradient from blue to yellow illustrates the shift in focus or emergence of topics over time within the research community. Keywords in blue, closer to the 2019.5 mark, such as "entrepreneurial education" and "entrepreneurial intention," indicate earlier focal points in the study period. As the colors transition to yellow, keywords like "sustainable entrepreneurship" and "digital entrepreneurial ecosystem" suggest these themes gained traction more recently, highlighting a shift towards integrating digital tools and sustainability in entrepreneurial research.

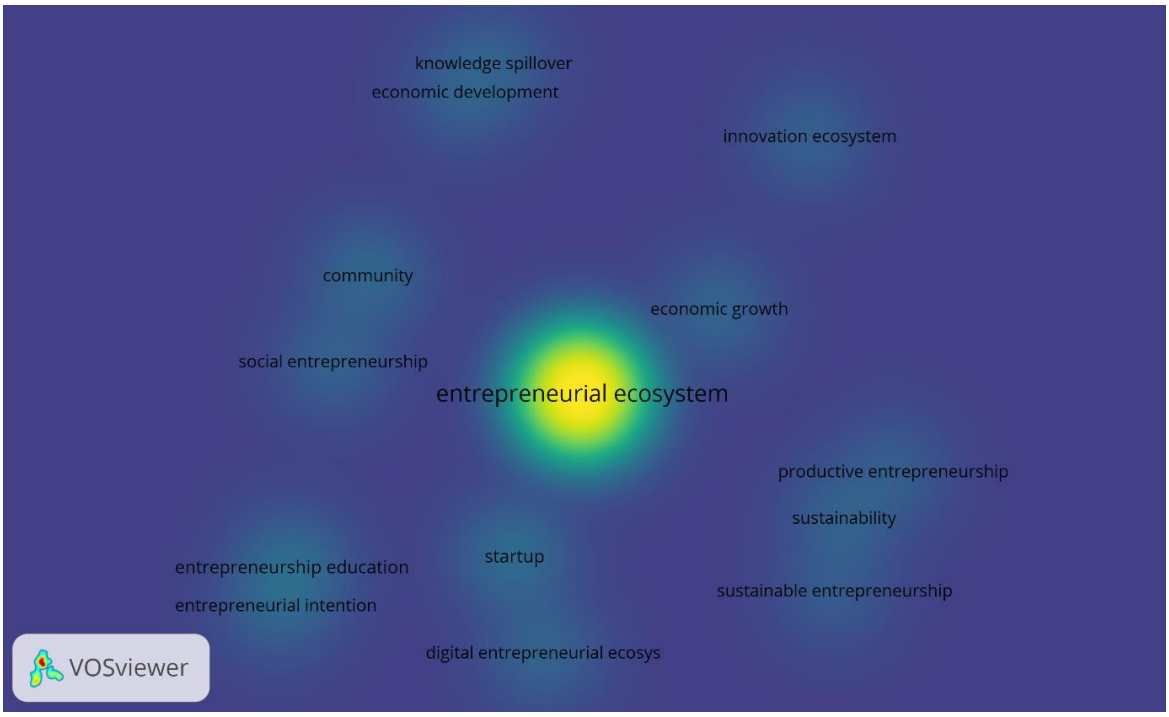

Figure 8. Density Visualization

Source: Data Analysis, 2024

This VOSviewer visualization employs a heat map approach to represent the intensity and centrality of various themes within the research on entrepreneurial ecosystems. At the core of this heat map, "entrepreneurial ecosystem" shines as a bright, intense spot, signifying its central importance and frequent citation or discussion in related research. Surrounding this central theme are key related concepts such as "economic growth," "startup," and "sustainability," which are also highlighted but with less intensity. This indicates their significant but comparatively lesser centrality. The color gradient from yellow to blue across the map indicates the density of research activity, with yellow representing areas of high research concentration and blue indicating lesser focus.

The distribution of keywords like "social entrepreneurship" and "community" towards the cooler, blue areas of the map suggests that while these topics are relevant, they are not as frequently interconnected with the core research themes within entrepreneurial ecosystems as the more centrally located topics. The layout and thermal intensity of the map visually encode the relative importance and interconnection of themes, illustrating how central concepts like economic growth and startups are tightly linked with the broader notion of entrepreneurial ecosystems, while social themes, though relevant, remain less integrated into the main body of research. This visualization aids in quickly identifying both the focal points of current research and areas that might be emerging or receiving less attention.

DISCUSSION

Overview of Entrepreneurial Ecosystem Research

The bibliometric analysis and visualizations presented in this study provide a comprehensive overview of the current landscape of research on entrepreneurial ecosystems. Through the examination of key terms, co-authorship networks, and institutional collaborations, it becomes evident that the field of entrepreneurial ecosystems is dynamic and multifaceted, encompassing a variety of themes from sustainability and innovation to education and community involvement.

Central Themes in Entrepreneurial Ecosystem Research

1) The term "entrepreneurial ecosystem" consistently appears as a central node

in our visualizations, indicating its pivotal role in connecting diverse research themes. This centrality suggests that the concept is foundational to discussions on entrepreneurship, serving as a lens through which various aspects of entrepreneurship are explored, including economic growth, sustainability, and innovation.

2) Economic growth and innovation are frequently linked with entrepreneurial ecosystems. These connections underscore the recognition of entrepreneurial ecosystems as engines of economic development and innovation. Studies highlighted in our keyword analysis, such as those by Stam and Audretsch, emphasize the impact of ecosystems on regional and national economies, arguing that well-structured ecosystems can enhance productivity and competitive advantage.
3) Sustainability emerges as a significant theme, reflecting a growing academic and practical interest in how entrepreneurial activities can be aligned with sustainable development goals. The prominence of this theme in recent research, particularly in connection with startups and digital transformation, points to a shift in the entrepreneurial landscape where environmental and social governance factors are increasingly considered crucial for long-term success.
4) The rise of digital technologies has evidently impacted the structure and function of entrepreneurial ecosystems. The term "digital entrepreneurial ecosystem" highlights the adaptation of traditional ecosystems to incorporate digital platforms, tools, and methodologies, which are essential for modern entrepreneurship. This adaptation not only facilitates broader participation in entrepreneurship but also enhances the scalability and efficiency of startup ventures.

Co-authorship and Institutional Networks

The co-authorship networks reveal robust collaboration among key researchers and institutions, indicating a healthy exchange of ideas and a strong academic community focused on entrepreneurial ecosystems. Notably, scholars like Audretsch and Stam are central figures, linking various research streams and contributing extensively to the literature. Institutions from Europe and the United States dominate the research landscape, as seen in the institutional collaboration network. This Western-centric focus suggests that while entrepreneurial ecosystems are a global phenomenon, the bulk of academic output and thought leadership currently originates from these regions. However, emerging contributions from institutions in Asia and other parts of the world highlight a diversifying research arena.

The analysis of countries involved in entrepreneurial ecosystem research points to significant regional dynamics. Western countries, particularly the United States and the United Kingdom, lead in terms of output and collaboration. However, the involvement of countries like China and India is noteworthy, reflecting the global relevance of entrepreneurial ecosystems and the potential for cross-cultural research that could enrich the understanding of how ecosystems function in different economic and cultural settings. The interconnections between countries and institutions underscore the importance of global networks in the dissemination and development of research on entrepreneurial ecosystems. Knowledge spillovers, as indicated by the term's prominence in the keyword analysis, play a critical role in these networks, allowing for the diffusion of innovative ideas and practices across borders.

Future Directions in Research

1) Integrating Diverse Perspectives

Future research should aim to integrate more diverse geographical and cultural perspectives to provide a more

comprehensive understanding of how entrepreneurial ecosystems operate in varied contexts. This could involve comparative studies that explore how different regulatory, economic, and cultural environments influence the effectiveness of ecosystems.

2) Addressing Emerging Challenges

The increasing importance of digital technologies and sustainability presents new challenges and opportunities for entrepreneurial ecosystems. Future studies could focus on how ecosystems can leverage digital tools to enhance sustainability and inclusivity in entrepreneurship.

3) Methodological Innovations

Employing advanced bibliometric and network analysis techniques can further enrich the understanding of the field's evolution and the complex interplay of themes within it. These methodologies could be used to track emerging trends and shifts in the focus of the research community over time.

5. CONCLUSION

This study provides a detailed bibliometric analysis of the entrepreneurial ecosystem literature, revealing the central themes and dynamic interactions within the field. The investigation highlights the pivotal role of the entrepreneurial ecosystem concept in bridging diverse research areas such as economic growth, innovation, sustainability, and digital transformation. Co-authorship and institutional networks underscore a robust academic community with strong collaborations, primarily dominated by Western institutions but increasingly global in participation. The findings advocate for the integration of diverse geographical and cultural insights to enhance the global applicability and relevance of research outcomes. Future research directions emphasize the need for addressing emerging challenges in digital and sustainable entrepreneurship, advocating for methodological innovations to better understand and predict evolving trends. Overall, the study confirms the significance of entrepreneurial ecosystems as fundamental drivers of economic and social value, suggesting that enhanced understanding and strategic development of these ecosystems can lead to substantial benefits worldwide.

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