

The Dynamics of Social Innovation Research in Entrepreneurship Based on Bibliometric and Co-Word Analysis of Publications from 2012 to 2024

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ABSTRACT

This study aims to examine the development and research dynamics of social innovation within the field of entrepreneurship through a bibliometric and co-word analysis of scientific publications. The data were obtained from the Scopus database covering the period from 2012 to 2024. Bibliometric techniques were applied to identify publication patterns, collaboration networks, and thematic structures within the literature. The analysis was conducted using VOSviewer to visualize co-authorship networks, institutional collaborations, country collaborations, keyword co-occurrences, overlay visualization, and density visualization. The results reveal that social innovation, sustainable development, and entrepreneurship constitute the central themes of the research landscape. The findings also show that sustainability-related topics and social enterprise concepts play a significant role in shaping the direction of scholarly discussions in this field. Furthermore, recent research trends indicate the growing importance of entrepreneurship education, digitalization, artificial intelligence, and innovation ecosystems in advancing social innovation practices. The collaboration network analysis demonstrates that research in this area involves extensive international partnerships, with several countries and institutions acting as major hubs in global knowledge production. The study highlights the interdisciplinary nature and increasing global relevance of social innovation research in entrepreneurship, while also identifying emerging themes that may guide future research and policy development.

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1. INTRODUCTION

Social innovation has increasingly gained attention in both academic and practical discussions as societies face complex social, economic, and environmental challenges. Traditional entrepreneurial models that prioritize profit maximization are gradually being complemented by approaches that emphasize social value

creation, inclusivity, and sustainable development [1]. Social innovation refers to the development and implementation of new ideas, practices, or organizational forms that aim to address social problems more effectively than existing solutions. Within the field of entrepreneurship, social innovation represents a transformative perspective where entrepreneurial activities are not only

directed toward economic outcomes but also toward improving social welfare and community resilience. This shift reflects broader global concerns regarding inequality, climate change, poverty, and social exclusion, which require innovative and collaborative solutions beyond conventional market mechanisms [2], [3].

The integration of social innovation into entrepreneurship research has generated a rapidly expanding body of scholarly literature. Researchers have explored various dimensions of this topic, including social entrepreneurship, collaborative governance, community-based innovation, hybrid organizations, and sustainable business models [3], [4]. In this context, entrepreneurs are increasingly viewed as agents of social change who combine market-oriented strategies with mission-driven objectives. Studies highlight that social innovation often emerges through cross-sector collaboration involving governments, non-profit organizations, communities, and private enterprises. These collaborative dynamics enable the mobilization of diverse resources, knowledge, and networks that facilitate innovative solutions to persistent social challenges [5].

Over the past decade, the academic interest in social innovation within entrepreneurship has grown substantially due to global policy agendas such as the United Nations Sustainable Development Goals (SDGs). These frameworks encourage the development of innovative entrepreneurial initiatives that address societal needs while maintaining economic viability [5], [6]. As a result, scholars from multiple disciplines including management, economics, public policy, and sociology have contributed to the growing literature on social innovation. This interdisciplinary nature has created a complex and evolving research landscape characterized by diverse theoretical frameworks, methodological approaches, and thematic clusters. Understanding how these

themes evolve and interact is essential for identifying emerging research trends and potential future directions.

Despite the increasing volume of publications, the knowledge structure of social innovation research in entrepreneurship remains fragmented. Different scholars emphasize distinct conceptual perspectives, such as institutional theory, stakeholder theory, sustainability transitions, and innovation ecosystems. Moreover, the terminology used across studies varies significantly, including concepts such as social entrepreneurship, inclusive innovation, grassroots innovation, and sustainable entrepreneurship. These variations make it challenging for researchers to obtain a comprehensive overview of the intellectual structure and thematic development of the field. Consequently, systematic mapping approaches are needed to identify the key themes, influential keywords, and conceptual relationships within the literature.

Bibliometric analysis provides a powerful methodological approach to analyze large volumes of scientific publications and to uncover patterns within research domains. By examining publication trends, keyword co-occurrences, collaboration networks, and citation structures, bibliometric methods allow researchers to visualize the intellectual landscape of a field. In particular, co-word analysis has been widely used to identify thematic clusters and conceptual relationships between research topics based on the co-occurrence of keywords within scientific articles. This approach enables scholars to track the evolution of research themes, identify dominant topics, and detect emerging areas of scholarly attention over time. Tools such as VOSviewer have become popular for conducting such analyses due to their ability to generate visual network maps that illustrate the relationships between keywords and research themes. Although several studies have explored social entrepreneurship

or social innovation individually, comprehensive bibliometric investigations that specifically examine the dynamics of social innovation research within the entrepreneurship domain remain limited. Many existing studies focus on citation patterns or thematic reviews without integrating keyword-based network analysis that reveals conceptual relationships across the literature. Furthermore, the rapid expansion of publications in recent years calls for updated analyses that capture the most recent developments and emerging trends in this field. Without such mapping efforts, it becomes difficult for researchers, policymakers, and practitioners to understand the trajectory of knowledge development and to identify research gaps. This study aims to analyze the dynamics of social innovation research within the field of entrepreneurship using bibliometric and co-word analysis techniques.

2. METHOD

This study employs a bibliometric analysis approach to examine the development and intellectual structure of research on social innovation in entrepreneurship. Bibliometric analysis is a quantitative method used to evaluate scientific publications and identify patterns, trends, and relationships within a particular research field. This method is particularly suitable for mapping large volumes of academic literature and understanding how knowledge evolves over time. Through bibliometric techniques, this study investigates publication trends, keyword relationships, and thematic structures that characterize the development of social innovation research in entrepreneurship. The analysis focuses on identifying dominant research themes and emerging topics through keyword-based mapping and network visualization.

The data used in this study were obtained from the Scopus database, which is

recognized as one of the largest and most comprehensive abstract and citation databases of peer-reviewed academic literature. Scopus was selected because it provides extensive coverage of international journals, conference proceedings, and scholarly publications across various disciplines. The data collection process involved searching for publications related to social innovation and entrepreneurship using relevant keywords such as “social innovation,” “social entrepreneurship,” and “entrepreneurship innovation.” The search was limited to publications published between 2012 and 2024 to capture the most recent developments and trends in the field. After applying inclusion criteria and removing duplicate or irrelevant records, the final dataset was exported in CSV format, which includes information such as title, authors, abstract, keywords, publication year, and citation data.

To analyze the bibliometric data, this study utilizes VOSviewer, a widely used software tool designed for constructing and visualizing bibliometric networks. VOSviewer allows researchers to generate visual maps that illustrate relationships among keywords, authors, and publications based on co-occurrence and similarity measures. In this study, VOSviewer is used specifically to perform co-word analysis, which examines the frequency and co-occurrence of keywords within the selected publications. By analyzing how keywords appear together in the literature, the software identifies clusters of related topics that represent major research themes within the field of social innovation and entrepreneurship. The results are presented in the form of network visualization, overlay visualization, and density visualization, enabling a clearer understanding of thematic relationships and the evolution of research trends.

3. RESULTS AND DISCUSSION

Co-Authorship Analysis

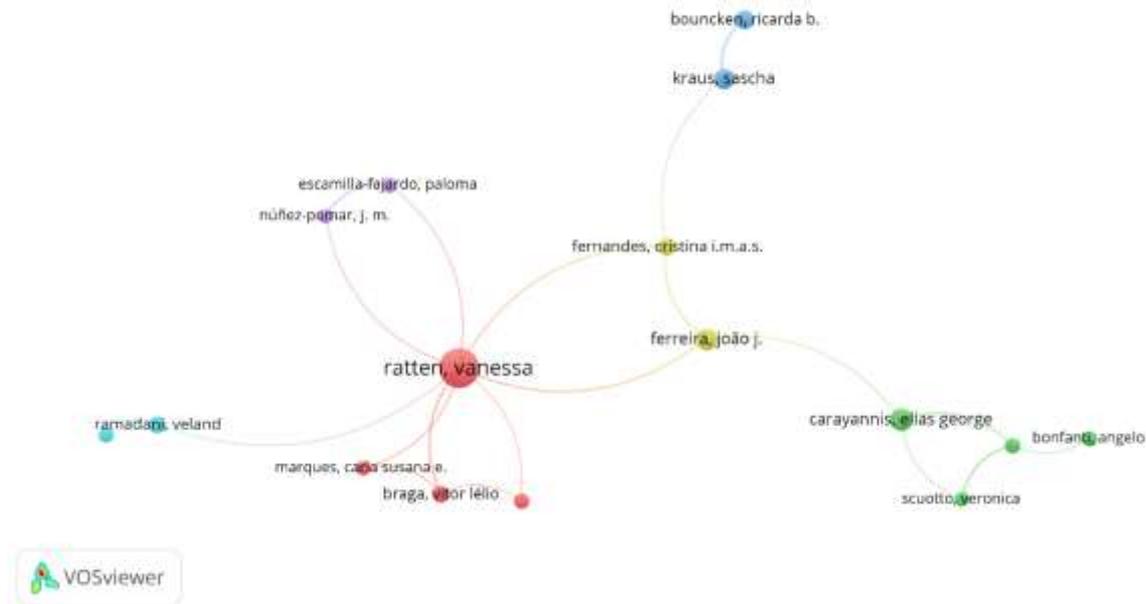


Figure 1. Author Visualization

Source: Data Analysis

Figure 1 illustrates the collaboration patterns among scholars in the field of social innovation and entrepreneurship research. The map shows several clusters of researchers connected through co-authored publications, indicating collaborative research relationships within the academic community. Among these scholars, Vanessa Ratten appears as the most central and influential author, positioned at the center of the network with multiple links to other researchers. This central position suggests that her work plays a significant role in connecting different research groups and contributing substantially to the development of social innovation and entrepreneurship studies. Her collaborations with scholars such as Vítor Lélío Braga, Carla Susana Marques, and

Cristina I.M.A.S. Fernandes indicate strong academic partnerships that help shape the intellectual discourse within this field. The visualization also reveals several smaller clusters that represent regional or thematic research collaborations. For instance, one cluster connects Elias G. Carayannis, Angelo Bonfanti, and Veronica Scuotto, suggesting a collaborative group focusing on innovation and entrepreneurship studies. Another cluster involves scholars such as Sascha Kraus and Ricarda B. Bouncken, who are well known for their contributions to entrepreneurship and innovation management research. The presence of multiple clusters indicates that while collaborations exist across the field, research networks are often organized around specific groups or institutional affiliations.



Figure 2. Institution Visualization

Source: Data Analysis

Figure 2 illustrates the relationships among universities and research institutions involved in social innovation and entrepreneurship studies. The map indicates that several institutions act as important hubs within the collaboration network. Among them, Universitat de València appears as one of the most central institutions, connecting with multiple universities such as Universidad Rey Juan Carlos and Universidad de Granada. This suggests that Spanish academic institutions play a significant role in advancing research on social innovation and entrepreneurship, forming a regional cluster characterized by strong inter-university collaboration. The network also shows international connections

linking European institutions with organizations from other regions. For example, La Trobe Business School forms a link between the European research cluster and institutions in other parts of the world, indicating cross-continental collaboration in this research field. Meanwhile, Universidade de São Paulo represents the presence of Latin American research institutions contributing to the development of this topic. Additional institutions such as Indiana University Bloomington and the Institute of Education also appear in the network, reflecting the global and interdisciplinary nature of social innovation research in entrepreneurship.

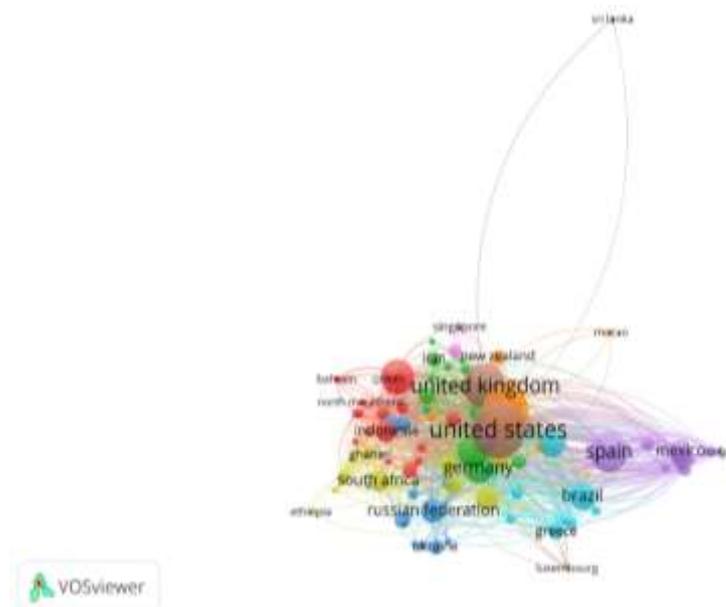


Figure 3. Country Visualization

Source: Data Analysis

orientation, and social impact are closely connected, suggesting that many studies focus on how entrepreneurial initiatives contribute to sustainable economic and social outcomes. This cluster reflects the growing academic interest in understanding how entrepreneurs create innovative solutions that generate both economic value and social benefits. The strong linkage between these keywords also indicates that entrepreneurship research increasingly integrates sustainability considerations into business strategy and innovation processes.

Another cluster emphasizes the role of education and knowledge systems in promoting social innovation. Keywords such as entrepreneurship education, higher education, education computing, ecosystems, and knowledge management form a distinct thematic group. This cluster suggests that universities and educational institutions play a critical role in fostering entrepreneurial mindsets and social innovation capabilities. Research in this area often examines how academic institutions support innovation ecosystems, develop entrepreneurial skills among students, and contribute to regional

and societal development through education-driven innovation. A third thematic group focuses on economic development and regional innovation systems. Keywords such as economic development, regional development, regional planning, human capital, and investments are strongly interconnected in this cluster. These terms indicate that social innovation is often analyzed within the context of broader development strategies that involve public policy, regional planning, and collaborative innovation networks. Scholars in this area explore how social innovation initiatives can strengthen local economies, enhance social capital, and promote inclusive development in various regions. The network also reveals emerging interdisciplinary topics that connect digital transformation with social innovation. Keywords such as digitalization, artificial intelligence, creativity, and competition appear linked with sustainable development and entrepreneurial activity. This suggests that technological advancement is increasingly influencing the evolution of social innovation practices.

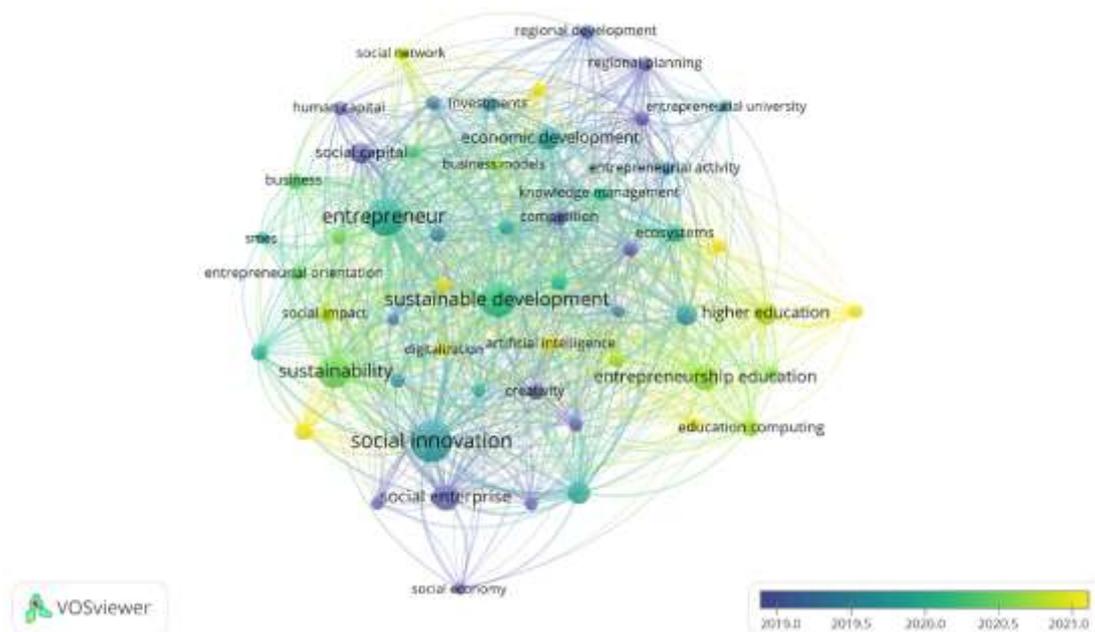


Figure 5. Overlay Visualization
Source: Data Analysis

connections with other topics in the literature. The visualization shows that social innovation, entrepreneur, and sustainable development are the most prominent themes, forming the core of the research landscape. Their high density suggests that many studies focus on how entrepreneurial activities contribute to innovative solutions that address social and environmental challenges while promoting sustainable development outcomes. Surrounding these core themes are several interconnected topics such as sustainability, entrepreneurship education,

higher education, economic development, and social enterprise. These keywords appear with moderate density, indicating that they represent important supporting areas within the broader research field. The presence of terms like digitalization, artificial intelligence, knowledge management, and ecosystems also suggests that recent studies increasingly integrate technological and institutional perspectives into discussions of social innovation.

Citation Analysis

Table 1. Top Cited Literature

Citations	Authors and Year	Title
1,952	[7]	The digital transformation of innovation and entrepreneurship: Progress, challenges and key themes
1,369	[8]	Three frames for innovation policy: R&D, systems of innovation and transformative change
1,108	[9]	Sustainability-oriented innovation of SMEs: A systematic review
885	[10]	Toward a process theory of entrepreneurial ecosystems
776	[11]	Social innovation: Moving the field forward. A conceptual framework
708	[12]	Innovation for Inclusive Growth: Towards a Theoretical Framework and a Research Agenda
704	[13]	Why some rural areas decline while some others not: An overview of rural evolution in the world
630	[1]	Social Innovation and Social Entrepreneurship: A Systematic Review
626	[14]	Social innovation research: An emerging area of innovation studies?
563	[15]	A theory of transformative agency in linked social-ecological systems

Source: Scopus

Discussion

The results of this bibliometric and co-word analysis provide a comprehensive overview of the intellectual structure and development of social innovation research within the field of entrepreneurship between 2012 and 2024. The findings reveal that research on social innovation has evolved into an interdisciplinary field that integrates perspectives from entrepreneurship, sustainability studies, economic development, and education. The keyword co-occurrence network demonstrates that social innovation, sustainable development, and entrepreneurship form the central

conceptual pillars of the literature. This indicates that scholars increasingly view entrepreneurship not only as an economic activity but also as a mechanism for addressing complex social and environmental challenges. The strong connections among these keywords highlight the growing recognition that entrepreneurial initiatives can play a critical role in advancing sustainable development goals and generating social impact.

Another important finding from the analysis is the significant role of sustainability-related concepts in shaping the research landscape. Keywords such as

sustainability, sustainable development, and social impact appear closely linked with entrepreneurship and innovation, suggesting that sustainability has become a core dimension of contemporary entrepreneurship research. This trend reflects the broader shift in academic and policy discourse toward responsible and inclusive forms of economic development. Many scholars emphasize that social innovation initiatives often emerge as responses to global challenges such as poverty, inequality, environmental degradation, and limited access to essential services. As a result, entrepreneurs are increasingly positioned as agents of change who can develop innovative business models that create both economic and social value.

The results also highlight the growing importance of education and knowledge systems in fostering social innovation. The presence of keywords such as entrepreneurship education, higher education, and entrepreneurial university suggests that universities and educational institutions play an important role in supporting innovation ecosystems. Academic institutions are not only responsible for generating knowledge but also for developing entrepreneurial competencies and social awareness among students. Through entrepreneurship education programs, incubators, and collaborative research initiatives, universities contribute to the development of social entrepreneurs who are capable of addressing societal problems through innovative solutions. This trend indicates that education has become an essential component in building sustainable and socially oriented entrepreneurial ecosystems.

In addition, the overlay visualization reveals the emergence of new research themes related to digital transformation and technological innovation. Recent keywords such as digitalization, artificial intelligence, and knowledge management demonstrate that technology is increasingly integrated into

discussions of social innovation. Digital technologies provide new opportunities for entrepreneurs to scale social solutions, enhance collaboration, and improve access to services for underserved communities. For example, digital platforms can facilitate crowdfunding, social networking, and knowledge sharing, which enable social enterprises to expand their impact. The integration of technological perspectives also reflects the broader transformation of entrepreneurship in the digital economy, where innovation processes are increasingly shaped by data-driven technologies and digital infrastructures.

The co-authorship and institutional collaboration analyses further reveal the global and collaborative nature of research on social innovation. Scholars from various regions contribute to the development of this field, with several countries and institutions acting as central hubs in international research networks. The presence of strong collaboration networks indicates that the study of social innovation benefits from interdisciplinary and cross-national knowledge exchange. Such collaborations enable researchers to examine social innovation from diverse cultural, economic, and institutional contexts, which enriches theoretical development and empirical understanding. Moreover, international research partnerships facilitate the diffusion of innovative ideas and best practices that can address social challenges across different regions.

4. CONCLUSION

This study provides a comprehensive overview of the development and intellectual structure of social innovation research within the entrepreneurship field through bibliometric and co-word analysis of publications indexed in the Scopus database from 2012 to 2024. The findings reveal that social innovation, sustainable development, and entrepreneurship constitute the central

themes that shape the research landscape, highlighting the increasing role of entrepreneurial initiatives in addressing social and environmental challenges. The analysis also demonstrates that the field has evolved into a highly interdisciplinary domain that integrates perspectives from sustainability studies, education, regional development, and digital transformation. Furthermore, emerging themes such as entrepreneurship education, innovation

ecosystems, digitalization, and artificial intelligence indicate a growing shift toward technology-driven and knowledge-based approaches to social innovation. The results suggest that research on social innovation in entrepreneurship continues to expand globally and plays a crucial role in supporting sustainable and inclusive development, while also offering promising directions for future research and policy development.

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