West Science Social and Humanities Studies
Vol. 03, No. 05, May 2025, pp. 692-703

A Bibliometric Study on the Impact of Social Tech Hubs on Social Innovation and Local Economic Development

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Article Info

Article history:

Received May, 2025
Revised May, 2025
Accepted May, 2025

Keywords:

Social Innovation
Social Tech Hubs
Local Economic Development
Bibliometric Analysis
VOSviewer

ABSTRACT

This study presents a comprehensive bibliometric analysis of the scholarly literature on the impact of social tech hubs on social innovation and local economic development. Using data from the Scopus database and analytical tools such as VOSviewer, the study explores co-authorship networks, keyword co-occurrences, citation patterns, and thematic clusters. Results indicate that "social innovation" is the central concept in this domain, frequently associated with themes such as sustainable development, social entrepreneurship, and digital transformation. The field demonstrates a shift from earlier emphasis on open innovation and corporate responsibility to more recent interests in digital social innovation and sustainability goals. Leading contributors are concentrated in Europe, North America, and Australia, though there is growing representation from Asia, Latin America, and Africa. The findings highlight both the growing complexity and interdisciplinarity of the field, as well as its structural gaps—particularly in rural development, governance, and Global South collaboration. This study provides valuable insights for researchers, policymakers, and practitioners seeking to understand the evolving role of social tech hubs in advancing inclusive and sustainable innovation ecosystems.

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1. INTRODUCTION

Over the past decade, the intersection between technology and social innovation has become increasingly significant, particularly in the context of local economic development. Social tech hubs—physical or virtual platforms that foster digital innovation, entrepreneurship, and community engagement—have emerged as key drivers in this transformation. These hubs often combine co-working spaces, incubation programs, digital literacy training, and collaborative projects aimed at solving social challenges [1]. By fostering an environment conducive to experimentation and collaboration, social tech hubs serve as catalysts for inclusive innovation and grassroots development.

The rise of social tech hubs is especially prominent in urban areas of developing countries, where limited access to infrastructure and capital has traditionally hindered innovation. These hubs provide affordable resources, mentorship, and networks, empowering local entrepreneurs and civic actors to prototype and scale social solutions [2], [3]. For instance, in sub-Saharan Africa, the proliferation of innovation labs and co-creation spaces has not only nurtured startup ecosystems but also addressed pressing issues such as unemployment, education gaps, and healthcare access [4]. These developments signify a paradigmatic shift in how technological resources are mobilized to create social and economic value at the community level.

Simultaneously, the academic and policy communities have shown increasing interest in understanding the dynamics and impacts of social tech hubs. While early studies focused on their role in promoting entrepreneurship and innovation, recent literature has extended the scope to encompass broader socio-economic impacts, such as community empowerment, public-private partnerships, and systemic transformation [5], [6]. However, the field remains fragmented, with diverse terminologies—such as "innovation spaces," "civic tech hubs," and "digital social labs"—being used interchangeably, which complicates cross-comparison and synthesis of findings.

Moreover, social tech hubs often function as nodes in larger innovation ecosystems that include governments, universities, NGOs, and the private sector. This multi-stakeholder model allows for a more holistic approach to innovation that goes beyond market-driven objectives to address structural inequalities and local needs [7]. In this sense, social tech hubs exemplify a hybrid model that merges technological advancement with social value creation, aligning with the Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure).

Despite the growing prominence of social tech hubs, there has yet to be a comprehensive bibliometric analysis that maps the evolution, themes, and collaborative networks within this research domain. Given the interdisciplinary nature of the topic—spanning fields such as innovation studies, development economics, information systems, and social entrepreneurship—such an analysis is crucial for identifying influential works, emerging trends, and knowledge gaps. A systematic bibliometric review would help scholars, policymakers, and practitioners understand the intellectual landscape and guide future research and practice.

Although social tech hubs have garnered attention as instruments for fostering social innovation and local economic development, there is a lack of systematic understanding of how this concept has been explored and developed within the academic literature. The interdisciplinary and evolving nature of this domain has led to a dispersed body of knowledge, with limited integration between technological, social, and economic perspectives. This fragmentation impedes the ability of researchers and practitioners to build on prior work, assess impact, and design evidence-based policies and interventions. The objective of this study is to conduct a bibliometric analysis of the scholarly literature on the impact of social tech hubs on social innovation and local economic development.

2. METHODS

This study adopts a bibliometric approach to systematically analyze the academic literature on the impact of social tech hubs on social innovation and local economic development. Bibliometric analysis enables the quantitative mapping of research trends, thematic structures, and scholarly collaborations by extracting patterns from scientific publications. The method is particularly suitable for emerging interdisciplinary topics like social tech hubs,

where conceptual boundaries are fluid, and literature is scattered across diverse domains.

2.1 Data Source and Search Strategy

The bibliometric data for this study were extracted exclusively from the Scopus database, due to its broad coverage of peer-reviewed journals and its advanced tools for bibliometric export and citation analysis. A comprehensive search was conducted using a combination of keywords such as: "social tech hub" OR "technology hub" OR "innovation space" OR "digital innovation lab" The search was limited to articles, conference papers, and reviews published between 2010 and 2024 to capture the evolution of the field over the past 15 years. Only English-language publications were included to ensure consistency in data analysis and interpretation.

2.2 Data Cleaning and Preprocessing

After retrieving the initial dataset, duplicates and irrelevant publications were manually screened and excluded based on title and abstract review. Bibliographic data—such as author names, publication titles, keywords, abstracts, institutional affiliations, source titles, and citation counts—were exported in CSV format for compatibility with analysis software. Inconsistent keyword variations (e.g., "tech hub" vs. "technology hub") were standardized during preprocessing to ensure coherence in the co-occurrence analysis.

2.3 Analytical Tools and Techniques

The cleaned dataset was analyzed using VOSviewer, a widely adopted tool for constructing and visualizing bibliometric networks [8]. Several analytical techniques were employed to uncover structural and thematic patterns within the literature. First, co-authorship analysis was used to map collaboration networks among authors, institutions, and countries, highlighting the most influential contributors and the extent of interdisciplinary or cross-regional partnerships. Second, citation analysis was conducted to identify the most cited articles, authors, and journals, thereby revealing the foundational works that have shaped the discourse. Third, keyword co-occurrence analysis (co-word analysis) examined the frequency and co-appearance of author-supplied keywords, with a minimum threshold of five occurrences, to detect dominant and emerging themes. Finally, thematic clustering and visualization were performed through VOSviewer's algorithms, generating network maps such as cluster and density views. These maps enabled the interpretation of conceptual structures, the identification of research frontiers, and the detection of gaps in the field, with clusters labeled qualitatively based on the strength of keyword associations.

3. RESULTS AND DISCUSSION

3.1 Keyword Co-Occurrence Network

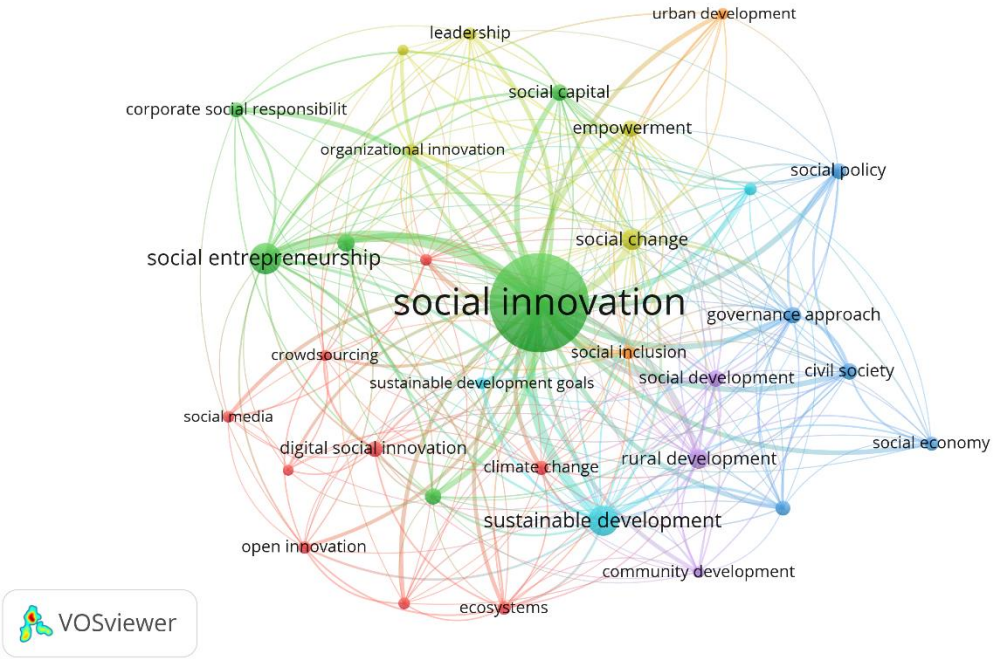

Figure 1. Network Visualization
Source: Data Analysis Result, 2025

The network visualization illustrates the keyword co-occurrence map in the research domain of social innovation, emphasizing its interconnectedness with various themes related to local economic development and social technology. The central node, "social innovation," appears as the most prominent keyword, indicating its dominant role and centrality in the literature. This central position suggests that it serves as the conceptual anchor for numerous related terms, and most other keywords are directly or indirectly linked to it. The thick lines connecting "social innovation" to terms like "sustainable development," "social entrepreneurship," and "social inclusion" highlight frequent co-occurrence, signifying that these topics are often explored in tandem within academic discussions.

The green cluster on the left of the visualization prominently features terms such as "social entrepreneurship," "organizational innovation," and "corporate social responsibility." This cluster represents a business and enterprise-oriented perspective of social innovation, where entrepreneurial efforts are positioned as vehicles for addressing social challenges. The frequent appearance of "crowdsourcing" and "social media" within this cluster indicates the increasing relevance of digital platforms in mobilizing communities and fostering innovation from the bottom up. The presence of "digital social innovation" and "open innovation" suggests a focus on collaborative, tech-enabled solutions, which aligns closely with the concept of social tech hubs.

On the right side, the blue cluster is composed of terms such as "social policy," "civil society," "governance approach," and "social economy." This cluster reflects a governance and policy-oriented view of social innovation. It underscores the role of institutional frameworks and civic engagement in fostering inclusive development. Keywords like "community development," "rural development," and "urban development" indicate spatial diversity in how social innovation is applied—spanning both rural and urban contexts. This dimension is crucial in understanding the localized impacts of social tech hubs, which often act as intermediaries

between formal policy structures and grassroots innovation.

The red and purple clusters surrounding the central theme highlight cross-cutting concerns. Terms like "climate change," "ecosystems," and "sustainable development goals" connect environmental sustainability with social innovation, underscoring the multidimensional nature of the field. The co-occurrence of "empowerment," "leadership," and "social capital" within the yellow cluster points to the importance of human and relational factors in innovation processes.

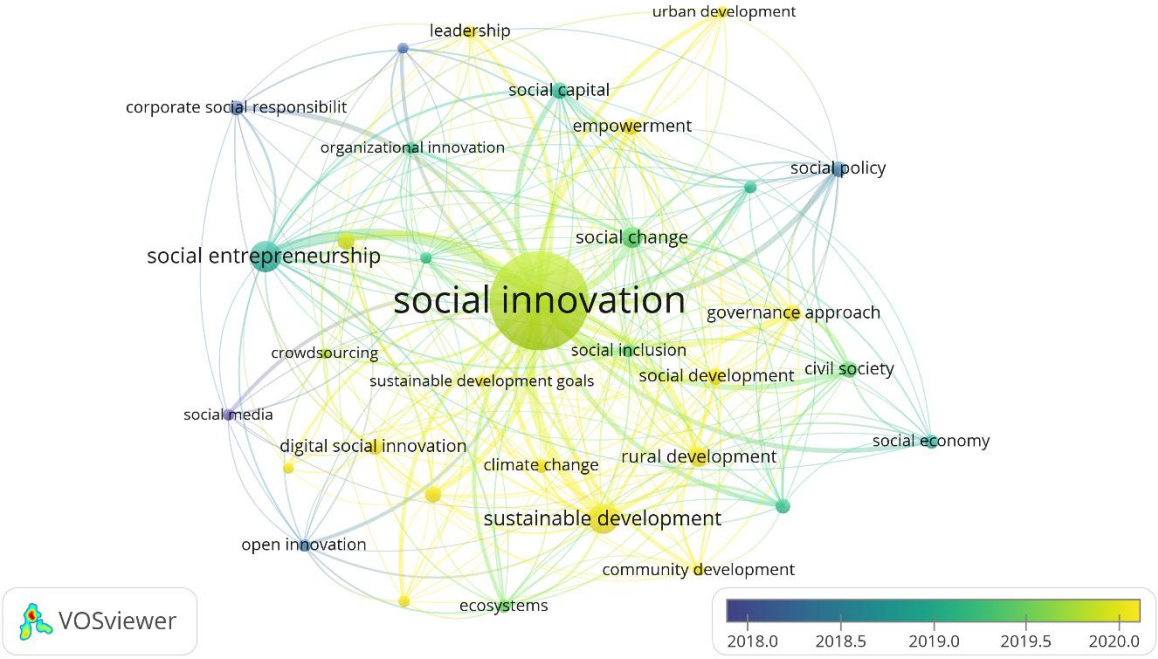

Figure 2. Overlay Visualization
Source: Data Analysis Result, 2025

The overlay visualization map depicts the temporal evolution of keywords in the field of social innovation, with colors representing the average publication year. Central to the map is the term "social innovation", shown in bright green, indicating it is a consistently used and relatively recent focus (circa 2019). Closely associated terms like "sustainable development," "climate change," and "digital social innovation" also appear in yellow-green hues, suggesting that these themes have gained prominence in more recent literature. This highlights a growing convergence between sustainability agendas, digital transformation, and innovation-driven development. In contrast, keywords shown in darker green to blue tones—such as "social media," "corporate social responsibility," "open innovation," and "social entrepreneurship"—reflect earlier peaks in research activity, predominantly between 2018 and early 2019. These terms likely laid the foundational discourse that recent studies have built upon. For example, early explorations of open and digital innovation have evolved into current discussions about digital social innovation, indicating a shift toward more targeted, tech-enabled solutions for social impact. This temporal progression underscores how the field has matured from broad innovation concepts toward more specialized and integrated approaches. Moreover, terms related to governance and local development—including "community development," "civil society," and "governance approach"—tend to cluster toward the periphery with mixed color

gradients, suggesting a steady but less intensively growing interest. Their presence, however, signifies the expanding recognition of institutional and participatory dimensions in driving social innovation.

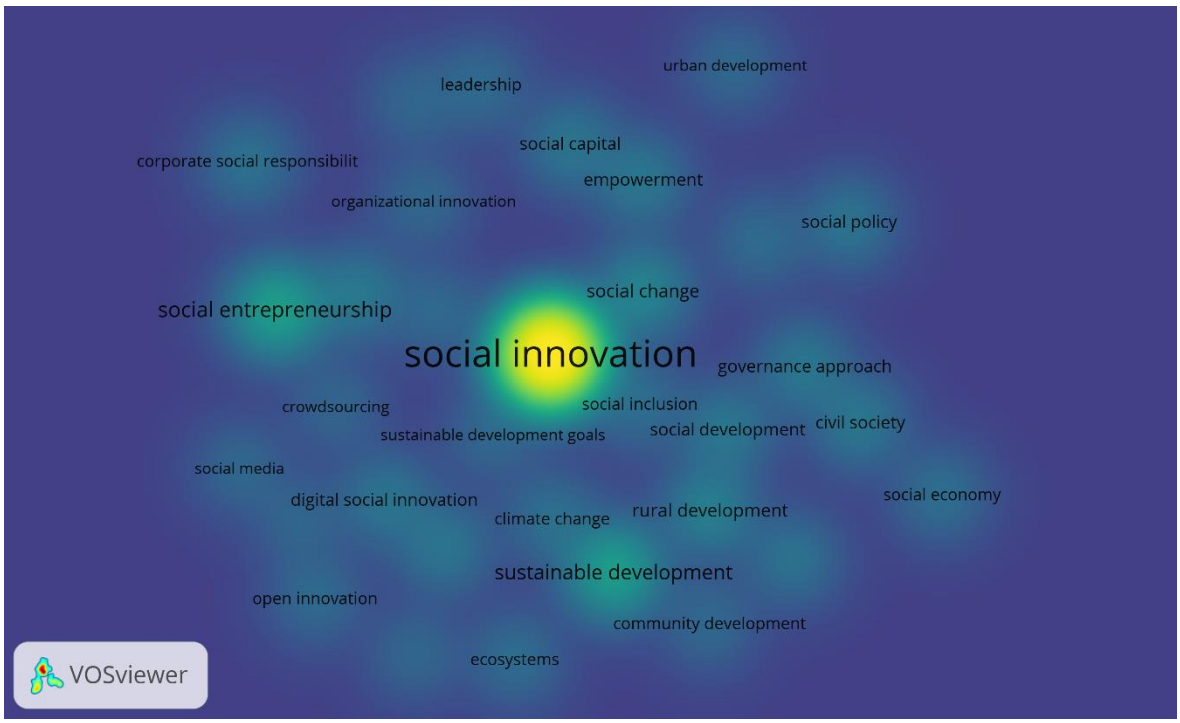

Figure 3. Density Visualization
Source: Data Analysis, 2025

The density visualization provides insights into the intensity and frequency of keyword occurrences within the literature on social innovation. The most prominent area is centered around "social innovation", which appears in bright yellow—indicating a high density of related publications and co-occurrence frequency. Closely surrounding this central term are key concepts such as "sustainable development," "social inclusion," "social entrepreneurship," and "social change," which also display greenish hues, reflecting moderate to high density. These terms are frequently studied together with social innovation, highlighting their centrality to the discourse. As we move outward from the core, the color intensity decreases to blue and violet hues, denoting lower frequency and peripheral relevance. Terms like "leadership," "urban development," "community development," and "social economy" appear farther from the center with lower density, suggesting they are less frequently addressed or form niche subtopics within the broader literature. The heatmap thus reveals that research on social innovation is heavily concentrated on themes related to development, entrepreneurship, inclusion, and sustainability, while institutional, environmental, and spatial dimensions—though present—remain underexplored and could represent areas for future research expansion.

3.2 Co-Authorship Network

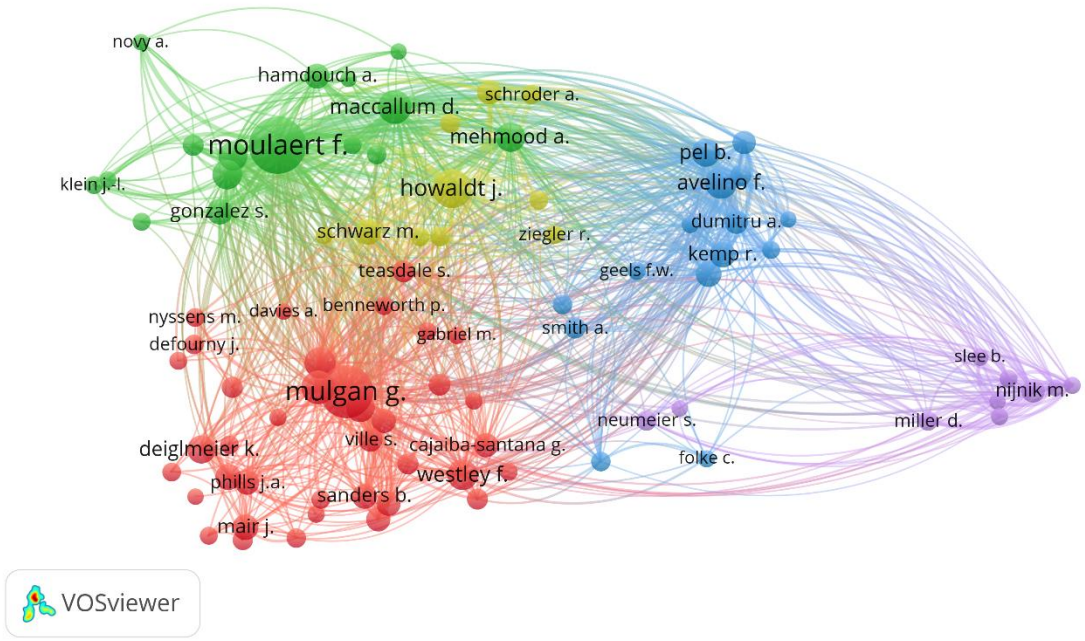

Figure 4. Author Collaboration Visualization

Source: Data Analysis, 2025

The co-authorship network visualization illustrates clusters of researchers who are actively publishing on social innovation and related fields, revealing distinct communities of scholarly collaboration. At the center of the network is Moulaert F., a key figure in the green cluster, closely linked with authors like MacCallum D. and Hamdouch A., indicating a strong European research collaboration focused on urban and spatial dimensions of social innovation. In contrast, Mulgan G. dominates the red cluster, associated with scholars such as Westley F., Phills J.A., and Deiglmeier K., reflecting a more practice-oriented and Anglo-American stream of literature tied to social entrepreneurship and systems change. The blue cluster, featuring Pel B., Avelino F., and Dumitru A., represents scholars engaged in sustainability transitions and governance frameworks. The presence of peripheral clusters, such as the purple one led by Nijnik M. and Slee B., suggests more niche contributions, potentially from environmental or rural innovation perspectives.

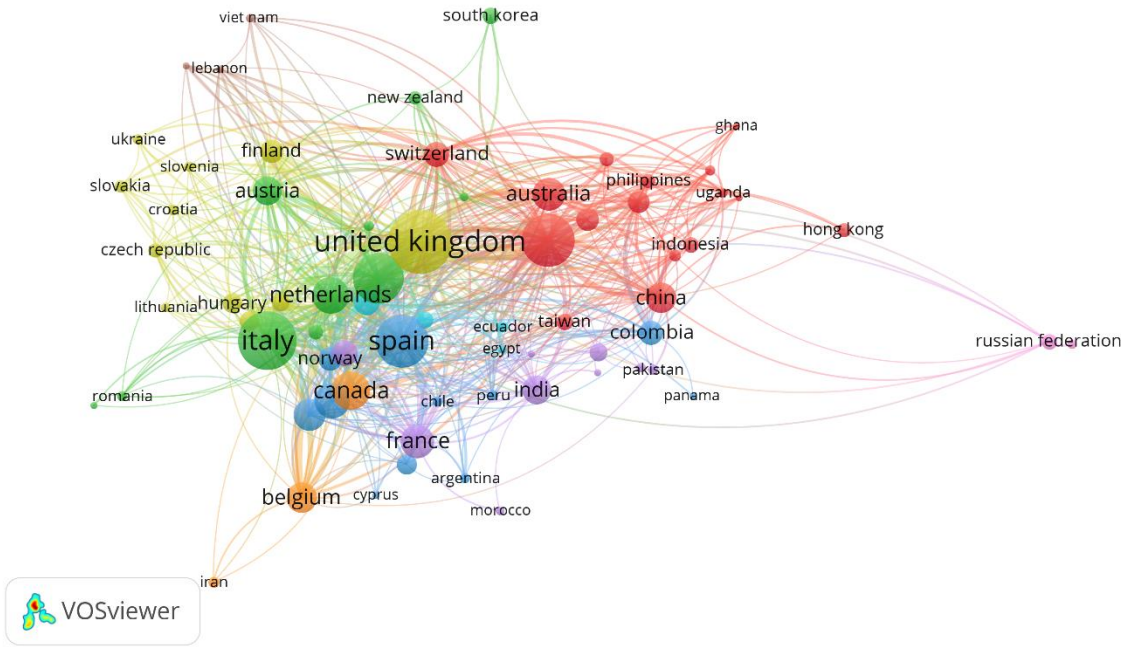

Figure 5. Country Collaboration Visualization
Source: Data Analysis, 2025

The country co-authorship network map illustrates the global collaboration landscape in research on social innovation, showing clusters based on geographical and collaborative proximity. The United Kingdom stands out as the central node with the highest frequency and strongest international links, especially with countries like Spain, Netherlands, Italy, and Australia, suggesting its leading role in shaping global discourse. The red cluster anchored by Australia, China, Indonesia, and the Philippines reflects robust regional and cross-continental collaborations across the Asia-Pacific. Meanwhile, the blue and purple clusters featuring France, Canada, India, and Colombia highlight emerging South-North academic partnerships. Smaller yet visible nodes from Eastern Europe, Latin America, and Africa (e.g., Ghana, Uganda, Romania) indicate a growing but less central participation. The map underscores a concentration of research output in Europe and Anglophone countries, while also revealing expanding global engagement, particularly through partnerships between developed and developing nations in addressing social innovation and local development challenges.

3.3 Citation Analysis

Table 1. Top Cited Research

Citations	Authors and year	Title
1701	[9]	Smart cities of the future
296	[10]	Natural resources utilization efficiency under the influence of green technological innovation
280	[11]	The role of venture capital firms in Silicon Valley's complex innovation network
259	[12]	Innovative design of microencapsulated phase change materials for thermal energy storage and versatile applications: A review
243	[13]	How should we understand the digital economy in Asia? Critical assessment and research agenda

Citations	Authors and year	Title
162	[14]	Digitalization in economy and innovation: The effect on social and economic processes | Digitalizacja w gospodarce i innowacjach: Wpływ na procesy społeczne i ekonomiczne
133	[15]	FinTech in Germany
218	[16]	Stimulating new industries from emerging technologies: Challenges for the public sector
113	[17]	Technology transfer and innovation performance: Evidence from Chinese firms
82	[18]	Preferential tax policy and R&D personnel flow for technological innovation efficiency of China's high-tech industry in an emerging economy

Source: Scopus, 2025

Discussion

1) Centrality of Social Innovation in the Literature

The co-word network analysis confirmed that "social innovation" remains the most central and dominant theme in this body of literature. Its co-occurrence with terms like “sustainable development,” “social entrepreneurship,” and “digital social innovation” underscores its multifaceted nature. The clustering of these keywords suggests that social innovation is conceptualized not merely as an end but as a dynamic process involving entrepreneurial, technological, and policy-driven dimensions [19]. Social tech hubs, in this context, appear as enabling environments that nurture innovation capacity, especially in resource-constrained or underserved settings.Thematic clustering further reveals an integration of social innovation with global development agendas, especially the Sustainable Development Goals (SDGs). The frequent appearance of terms such as “social inclusion,” “empowerment,” and “climate change” reflects a paradigm in which technological innovation is not isolated but socially embedded and contextually grounded. Social tech hubs facilitate this integration by acting as intermediaries that bridge the gap between technological capabilities and grassroots needs, supporting inclusive and equitable innovation outcomes [20].

2) Temporal Trends and Emerging Concepts

Overlay visualizations show a chronological evolution of the field. Early research focused on foundational themes such as “open innovation,” “corporate social responsibility,” and “social entrepreneurship,” as seen in darker blue hues indicating publication around 2018. However, more recent studies, represented by yellow and green hues, have pivoted toward “digital social innovation,” “sustainable development goals,” and “climate change.” This transition reflects a shift in scholarly attention from corporate-led or organizational innovation models toward community-driven and sustainability-oriented frameworks—where social tech hubs play a critical role. This evolution is also evident in the growing use of digital technologies and platforms in supporting social missions. The rise of keywords like “crowdsourcing,” “social media,” and “ecosystems” in proximity to digital innovation reflects how social tech hubs leverage connectivity, data, and participatory tools to democratize innovation processes. These developments are especially pertinent in the post-COVID era, where hybrid and remote modalities have become central to both economic resilience and social service delivery [21].

3) Structural Gaps and Underexplored Themes

Despite the richness of the field, the density visualization suggests that several important themes—such as “community

development," "rural development," and "social economy"—remain on the periphery of academic focus. This indicates a structural bias in the literature toward urban-centric innovation narratives and suggests that rural and marginalized geographies are underrepresented. Social tech hubs in non-urban settings may face unique barriers (e.g., digital infrastructure, local governance), which are not yet adequately explored in mainstream research. Future studies must pay closer attention to how innovation ecosystems can be decentralized to serve rural or peri-urban populations more effectively. Moreover, concepts such as "leadership," "governance approach," and "policy" are not as densely connected, implying that institutional enablers of social innovation have received less systematic scrutiny. As governments and development agencies increasingly support tech hubs through funding and policy frameworks, understanding their role as co-creators—not just regulators—is essential for designing more impactful and inclusive interventions [22].

4) Author and Institutional Collaboration Patterns

The co-authorship network highlights several influential scholars and research communities in the field. Frank Moulaert, Geoff Mulgan, and Jürgen Howaldt emerge as intellectual leaders across different paradigms of social innovation—ranging from urban development to systems change and social entrepreneurship. Their work, along with that of collaborators like Avelino, Pel, and Westley, forms the backbone of theoretical and empirical contributions to this area. Interestingly, the presence of distinct author clusters also indicates disciplinary silos. For example, while one group focuses on theoretical underpinnings and urban policy, another is more practice-oriented, exploring metrics and models of impact. Despite some cross-linkages, the limited interdisciplinary fusion suggests an opportunity for convergence. As social tech hubs inherently involve technology, policy, sociology, and economics, a more integrative scholarly approach is necessary. Interdisciplinary co-authorship and joint funding initiatives could bridge these silos, fostering a more comprehensive understanding of innovation ecosystems.

5) Geographical Distribution and Global Collaboration

The country co-authorship map provides further evidence of regional dominance in social innovation research. The United Kingdom, Netherlands, Spain, and Australia form core hubs of scholarly activity, likely due to their early adoption of social policy experimentation and strong academic infrastructure in innovation studies. The prominent positioning of Canada, France, and Italy suggests a robust European and Anglophone footprint, consistent with policy frameworks like the European Union's Social Innovation Europe Initiative. However, emerging contributions from China, India, Colombia, and Indonesia reveal a shifting landscape in global research collaboration. These countries are increasingly recognized for their innovation in digital public goods, civic tech, and grassroots entrepreneurship—often enabled by local tech hubs and policy accelerators. Yet, their integration into global academic discourse remains limited, as reflected in the peripheral positioning of these nations in the co-authorship network. This disparity highlights the need for inclusive publication avenues and knowledge-sharing platforms that amplify voices from the Global South.

6) Implications for Research and Practice

The findings from this study carry several implications. For researchers, there is a clear need to broaden the scope of inquiry to include less-explored regions and governance mechanisms. Future work could adopt mixed-methods approaches, combining bibliometric trends with in-depth case studies of specific tech hubs, particularly in underserved contexts. For practitioners and policymakers, the results highlight the importance of

designing support systems that recognize the multifaceted value of tech hubs—not only as startup incubators but also as community anchors, public service innovators, and platforms for democratic participation. Furthermore, the growing link between digital transformation and sustainability underscores the importance of aligning social tech hub interventions with global development goals. Doing so requires a collaborative ecosystem that spans academia, government, civil society, and the private sector—a principle that should guide both research funding and capacity-building initiatives.

4. CONCLUSION

This bibliometric analysis has mapped the intellectual and collaborative landscape of research on social tech hubs, social innovation, and local economic development. It has shown that the field is anchored by core concepts like social entrepreneurship, sustainable development, and digital social innovation, with emerging interest in participatory technologies and policy-driven interventions. Influential scholars and institutions—mainly from Europe, North America, and Australia—dominate the academic conversation, while emerging economies are increasingly contributing to the discourse. Despite the thematic richness and growing interdisciplinarity, gaps remain, especially in rural contexts, institutional governance, and Global South representation. Moving forward, fostering inclusive, cross-regional collaboration and integrating qualitative insights with bibliometric trends will be critical for capturing the complex, evolving role of social tech hubs in shaping inclusive and sustainable local economies.

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