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ORIGINAL ARTICLE

Bibliometric analysis on organizational innovation research based on Scopus from 2012 to 2024

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ABSTRACT

Objective. This study systematically examined the evolving field of organizational innovation through a bibliometric analysis of 871 publications from the Scopus database (2012-2024).

Design/Methodology/Approach. Methodologically, the study employed co-occurrence mapping and citation ranking to identify influential authors, journals, and geographical hubs.

Results/Discussion. By analyzing citation patterns, keyword co-occurrences, and publication outputs, three dominant thematic clusters emerged: management and technology integration, organizational culture and leadership, and sustainability-driven innovation. The study's key findings underscored the inherently interdisciplinary nature of organizational innovation, with core themes such as "management innovation" and "sustainability" intersecting with emerging topics such as "artificial intelligence" and "digital transformation." The findings also highlighted the growing significance of global collaboration and specialized research platforms in propelling the field forward.

Conclusions. This analysis provided actionable insights for scholars and practitioners to navigate future challenges and opportunities in organizational innovation.

Keywords: organizational innovation; bibliometric analysis; management innovation; sustainability; digital transformation; artificial intelligence.

1. INTRODUCTION

Organizational innovation has emerged as a fundamental element of modern management and organizational studies, encompassing new processes, structures, and practices to foster efficiency, adaptability, and long-term competitiveness (Alkhatib & Valeri, 2024). In a globalized world marked by rapid technological change, increasing environmental challenges, and shifting workforce dynamics, the ability of organizations to innovate is more critical than ever. Innovation is not merely a reactive mechanism to external pressures but a proactive strategy to transform internal systems, ensure relevance, and achieve

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sustainable success. Given its complex and multifaceted nature, organizational innovation has become a focal point for researchers and practitioners alike (Afeltra *et al.,* 2023). A bibliometric review of organizational innovation is a valuable approach for understanding the development, trends, and future directions of this critical field. Bibliometric analysis employs quantitative methods to examine academic literature, providing distinctive insights into the structure and evolution of research on organizational innovation. Organizational innovation plays a pivotal role in driving growth, improving efficiency, and maintaining competitive advantage in a continually changing business environment. A review of organizational innovation is essential for synthesizing existing knowledge, identifying gaps, and guiding future research and practice. The study of organizational innovation can be explored through six interrelated dimensions that reflect its breadth and depth. These dimensions, which are crucial to understanding the field, are innovation management, process innovation, organizational culture and innovation, technological adoption, employee involvement and collaboration, and sustainability and green innovation.

However, organizational innovation is an essential driver of adaptability, sustainability, and competitiveness in the face of contemporary challenges, including technological disruptions, environmental crises, and shifting workforce dynamics. A substantial body of research has emerged in recent years, encompassing a wide range of topics within the domain of organizational innovation. This includes, but is not limited to, IT-enabled innovation (Afeltra *et al.,* 2023; Marion & Fixson, 2021), business model innovation (Perilla Maluche & Orozco Castro, 2024), and the application of machine learning (Balasubramanian *et al.,* 2022). Despite the significant advancements these studies have brought to the field, several critical gaps remain unaddressed. For instance, existing bibliometric reviews often fail to capture the interplay between sustainability and emerging technologies or lack a comprehensive analysis of global research collaboration patterns (Berndt *et al.,* 2024; Kim & Hur, 2024). Furthermore, while the importance of geographical diversity in organizational innovation is widely acknowledged, limited attention has been paid to the contributions of emerging economies to the field. These identified gaps underscore the necessity for a systematic investigation that not only identifies prevailing themes but also explores underrepresented domains, emerging trends, and the interdisciplinary character of organizational innovation. To this end, this study aims to address these gaps by conducting a bibliometric analysis of organizational innovation research based on 871 publications indexed in the Scopus database from 2012 to 2024. By focusing on emerging themes such as artificial intelligence (AI), digital transformation, and sustainability-driven innovation, this study offers a unique perspective on how contemporary challenges shape the discourse on organizational innovation. Moreover, it provides a detailed analysis of global research contributions, highlighting geographical trends, collaboration networks, and thematic developments. The study utilizes advanced visualization techniques and co-occurrence mapping to reveal insights that are not apparent in existing reviews, thereby advancing the understanding of the intellectual structure and evolution of the field.

This study is structured to provide a clear and comprehensive field exploration. It begins by outlining the methodology of the bibliometric analysis, detailing the approach used to examine the dataset. Next, the study results are presented, focusing on the contributions of critical documents, authors, countries, journals, and keywords. This is followed by discussing the findings' implications for future research and practice. The study concludes by synthesizing these insights and offering recommendations for scholars and practitioners to navigate the evolving landscape of organizational innovation effectively. This research illuminated the dynamic interplay of the six dimensions, thereby providing a roadmap for future exploration in this vital field. The objective of this study is to provide a comprehensive bibliometric review of organizational innovation. This will be achieved by analyzing a dataset encompassing citation metrics, keyword occurrences, and journal outputs. The review will focus on five key dimensions: (1) innovation management volume and development trajectory, (2) leading authors and co-authors with their contributions, (3) the geographical distribution

of research productivity, (4) the role of journals in disseminating knowledge, and (5) recurring and emerging thematic keywords. By synthesizing these aspects, the study seeks to offer an understanding of the intellectual landscape of organizational innovation and identify avenues for future research.

2. LITERATURE REVIEW

Innovation management, process innovation, organizational culture and innovation, technological adoption, employee involvement and collaboration, and sustainability and green innovation interact in complex ways to shape the trajectory of organizational innovation (Berndt *et al.,* 2024). Innovation management provides the overarching framework, while process innovation focuses on operational improvements. Organizational culture creates an enabling environment, and technological adoption introduces transformative capabilities. Employee involvement drives creativity and collaboration, while sustainability and green innovation address societal imperatives. Consequently, these dimensions, when considered collectively, offer a comprehensive framework for comprehending and propelling organizational innovation in an era characterized by rapid change and uncertainty.

2.1. Innovation management

Innovation management constitutes the foundation of organizational innovation, encompassing strategies, tools, and leadership practices designed to establish a culture of sustained creativity and transformation (Berndt *et al.,* 2024). Scholars emphasize that effective innovation management aligns innovation efforts with broader organizational goals, ensuring a seamless integration of new ideas into operational practices (Kim & Hur, 2024). Leadership plays a crucial role in this dimension. Transformational leadership styles, which emphasize employee inspiration, trust fostering, and the promotion of a shared vision, have been shown to positively impact organizational innovation. Leaders who encourage experimentation and accept the potential for failure have been shown to create environments where employees feel empowered to take risks and propose novel solutions (Gui *et al.,* 2024). Frameworks such as open innovation and design thinking are also prominent in the literature. Open innovation, which involves sourcing ideas and knowledge from external partners such as universities, suppliers, and competitors, has accelerated innovation cycles and improved outcomes. Conversely, design thinking emphasizes human-centered problem-solving, focusing on the needs and experiences of end users to develop practical and impactful innovations. Digital tools and analytics have transformed innovation management in recent years. The integration of AI and big data has enabled organizations to predict trends, optimize resources, and assess the success of innovation initiatives (Felicetti *et al.,* 2024). However, research also underscores the challenges associated with innovation management, including resistance to change, resource constraints, and difficulties in sustaining long-term innovation momentum.

2.2. Process innovation

Process innovation is the development and implementation of new methods, workflows, and operational systems that enhance organizational efficiency and effectiveness. It is particularly prominent in industries that rely on operational excellence, such as manufacturing, logistics, and healthcare. The lean manufacturing philosophy, which emphasizes the elimination of waste and continuous improvement, has significantly influenced process innovation. Scholars such as Mariani and Dwivedi (2024) argue that lean principles allow organizations to streamline operations and adapt to changing customer demands. Agile frameworks, initially developed for software development, have been adopted in various industries to improve responsiveness and flexibility. Technological advancements have revolutionized process innovation, enabling the automation of repetitive tasks and the optimization of complex systems. Robotic process automation and machine learning algorithms are increasingly used to enhance productivity and reduce operational costs. For example, blockchain technology is employed in logistics to improve transparency and traceability in supply chains (Sierra-Morán *et al.,* 2024). Customer-centric approaches

have emerged as a focal point in process innovation, with co-creation—where customers actively partake in the design and development of products and services—being a prime example. Studies have demonstrated that this approach enhances satisfaction and fosters loyalty. However, research has also identified barriers to process innovation, including high implementation costs, skill shortages, and organizational inertia.

2.3. Organizational culture and innovation

Organizational culture has been identified as a critical determinant of an organization's ability to innovate (Wang *et al.,* 2024). Culture has been shown to shape employee attitudes and behaviors, influencing their willingness to embrace change and contribute to innovation efforts. A culture that values risk-taking, collaboration, and continuous learning is essential for sustaining innovation over the long term. Leadership plays a pivotal role in shaping organizational culture. Transformational leaders, who prioritize innovation, often encourage employees to challenge conventional practices and think creatively. The concept of psychological safety, defined as an environment where employees feel safe to express their ideas, take risks, and admit mistakes without fear of retribution (Aslam *et al.,* 2020), is also a subject of extensive discussion in the literature. Such environments are conducive to experimentation and creative problem-solving (Afeltra *et al.,* 2023). Cultural diversity is another factor that influences innovation. Diverse teams, comprising individuals with different backgrounds, experiences, and perspectives, are better equipped to approach problems creatively and develop innovative solutions. However, diversity can also introduce challenges, such as communication barriers and conflicts, which organizations must address to harness its full potential. Barriers to an innovation-friendly culture include rigid hierarchical structures, bureaucratic decision-making processes, and risk-averse mindsets (Wang *et al.,* 2024). Addressing these challenges necessitates deliberate efforts to align organizational cultures with innovation objectives, such as cultivating interdisciplinary collaboration and nurturing a growth mindset among employees.

2.4. Technological adoption

Technological adoption represents a particularly dynamic dimension of organizational innovation, encompassing the integration of cutting-edge technologies to enhance organizational capabilities. Technologies such as AI, blockchain, the Internet of Things (IoT), and cloud computing are transforming traditional business practices and enabling organizations to achieve unprecedented levels of efficiency and innovation (Aslam *et al.,* 2020). The adoption of AI and machine learning has been extensive in marketing, healthcare, and finance, with these technologies being used to analyze large datasets, predict customer behavior, and automate decision-making processes (Adams *et al.,* 2006). Predictive analytics, for instance, enables organizations to identify market trends and respond proactively, while chatbots enhance customer engagement by providing real-time support. Another transformative force is blockchain technology, particularly in industries that require transparency and security. In the realm of supply chain management, blockchain facilitates real-time tracking of goods, thereby mitigating the occurrence of fraud and ensuring accountability. Similarly, the IoT is being utilized to monitor operations, optimize resource usage, and enhance product quality (Hidalgo & Albors, 2008). Notwithstanding the considerable potential of these technological advancements, their implementation is often encumbered by substantial costs, a dearth of technical expertise, and a reluctance to embrace change, which act as significant barriers. Addressing ethical concerns, such as data privacy and algorithmic bias, is also crucial to ensure responsible use of technology. In conclusion, scholars emphasize the importance of aligning technological adoption with organizational strategy to maximize its impact.

2.5. Employee involvement and collaboration

The involvement of employees at all levels is critical to the success of organizational innovation (Taishykov *et al.,* 2024). Engaged employees are more likely to contribute ideas, support change initiatives, and collaborate effectively to achieve innovation goals. Collaborative practices, such as cross-functional teams and participatory

decision-making, foster a sense of ownership and accountability. The literature highlights the importance of psychological safety in promoting employee involvement. Employees who feel comfortable sharing their opinions and taking risks are more likely to propose creative solutions and experiment with new approaches. Transparent communication and inclusive leadership styles are essential for cultivating such an environment (Sá *et al.,* 2023). Open innovation, which involves collaborating with external stakeholders such as customers, suppliers, and research institutions, is also gaining traction. By leveraging external expertise, organizations can expand the scope of their innovation efforts and accelerate the development of new products and services. However, challenges in this dimension include siloed organizational structures, a lack of trust among team members, and misalignment of goals. Addressing these challenges requires fostering collaboration, providing training and resources to support innovation, and recognizing and rewarding employee contributions (Sá *et al.,* 2023).

2.6. Sustainability and green innovation

In the contemporary business landscape, sustainability and green innovation have emerged as pivotal priorities for organizations as they confront mounting environmental and societal challenges (Cinar *et al.,* 2024). Green innovation refers to the development of eco-friendly products, processes, and business models that are in alignment with sustainability goals while concurrently generating economic value. The notion of a circular economy, which entails the utilization of a closed-loop system that recycles and reuses resources, has garnered significant attention in academic discourse. Circular economy practices, such as recycling, remanufacturing, and extending product lifecycles, have been shown to reduce waste and conserve resources (Liu *et al.,* 2024). Adopting these practices has been demonstrated to improve environmental performance, achieve cost savings, and enhance brand reputation. Another focus area is the adoption of renewable energy, with companies increasingly investing in solar, wind, and other renewable energy sources to reduce their carbon footprint. For instance, Tesla's advancements in electric vehicles and battery technology have profoundly impacted the automotive industry, underscoring the transformative power of green innovation (Mora *et al.,* 2023). However, the implementation of sustainability initiatives is not without challenges. These challenges include significant initial costs, regulatory compliance obligations, and the resistance of stakeholders. Researchers underscore the imperative for aligning sustainability goals with core business strategies and engaging stakeholders to cultivate support for green innovation initiatives.

3. RESEARCH METHODS

3.1. Data collection

The bibliometric data for this study was collected exclusively from the Scopus database, encompassing publications from 2012 to 2024. The selection of Scopus was driven by its comprehensive coverage of peer-reviewed literature, its advanced metadata capabilities (e.g., citation counts, author affiliations, keywords), and its interdisciplinary reach across business, management, engineering, and social sciences (Zhao *et al.,* 2023). While other databases, such as Web of Science, also provide comprehensive coverage, Scopus was chosen for its user-friendly interface and superior indexing of journals relevant to organizational innovation. However, future studies could integrate data from additional sources to enhance dataset diversity. These features make it particularly well-suited for analyzing trends and patterns in academic research. A systematic search strategy was developed to identify relevant literature on organizational innovation. Keywords were carefully selected to capture the breadth and depth of the field. The search query included terms such as "organizational innovation," "management innovation," "process innovation," "sustainability innovation," "technological adoption," "employee collaboration," and "organizational culture and innovation." Several filters were applied during the search to ensure the quality and relevance of the results. Only journal articles, conference papers, and reviews were included, as these document types typically provide rigorous and impactful research. The search was further limited to English-language publications to maintain consistency. The timeframe

encompassed 13 years (e.g., 2012-2024) to prioritize contemporary research trends, and subject areas such as business, management, economics, engineering, and social sciences were given priority.

Subsequent to the refinement of the search results, the metadata for the publications of interest was exported from Scopus. The exported data included critical fields such as document titles, author names and affiliations, keywords, abstracts, publication years, citation counts, source journal details, and collaboration networks. The data were exported in a CSV format to ensure compatibility with bibliometric analysis tools. Once the data were collected, they underwent a rigorous cleaning and preparation process to ensure accuracy and consistency. The initial search yielded 1,234 records, of which 871 were retained for analysis after the removal of duplicates and irrelevant entries, such as non-English publications, editorials, and papers not pertaining to organizational innovation. To ensure the integrity of the study's focus, abstracts of borderline-relevant papers were manually reviewed. To enhance reliability, synonymous terms such as "organization innovation" and "organizational innovation" were standardized during the data cleaning process (Girón *et al.,* 2024). Thematic keywords were meticulously mapped to group synonymous terms under unified categories, thereby enhancing the precision of the keyword analysis. Moreover, abstracts of borderline-relevant papers were manually reviewed to exclude publications that did not align with the study's focus on organizational innovation (see Figure 1).

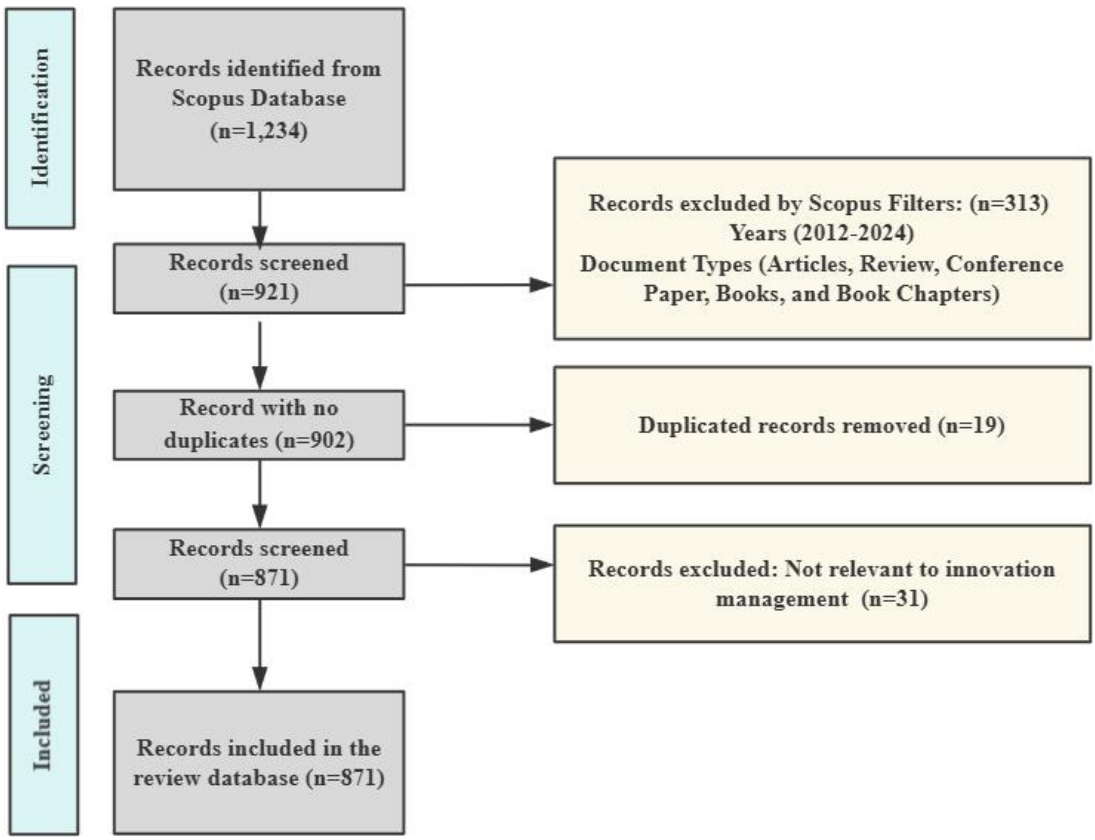

Figure 1. The PRISMA diagram of innovation management.

3.2. Data analysis

This bibliometric review employs a systematic approach to explore the intellectual structure and research trends in organizational innovation. Bibliometric methods are particularly effective for identifying influential documents, authors, countries, themes, and journals within a field by utilizing citation metrics, keyword occurrences, and publication data. The

research methodology is designed to address these five dimensions comprehensively, leveraging a structured dataset for analysis. The data for this study were drawn from a curated bibliometric dataset encompassing five key categories: authors, citations, documents, keywords, and journals. Each category provides a distinct perspective on the research landscape. The author's data include details about individual contributions and collaborative networks. Citation data highlight the impact and influence of specific publications, while the document category provides metadata for analyzing foundational and emerging studies. Thematic trends and focal points in the literature are represented by keywords, and the role of publication outlets in disseminating knowledge is reflected by journal data.

A five-stage framework was employed to analyze these data, aligned with the study's dimensions. The first stage focused on identifying influential documents based on citation metrics. Highly cited documents were ranked to pinpoint foundational studies that have shaped the discourse on organizational innovation. This analysis offers insights into the prominence and relevance of critical works within the field. The second stage examined leading authors. This analysis emphasized identifying scholars with significant contributions, measured by their publication output and citation counts. It also explored collaborative patterns, revealing the networks and connections that underpin the research community. Authors with high citation counts were considered pivotal to advancing the field. The third stage analyzed geographical contributions to organizational innovation research. Countries were ranked based on their research output (number of publications) and impact (citations). This stage also explored international collaboration patterns, highlighting regions that serve as hubs for innovation research and those with growing contributions. The fourth stage focused on thematic keyword analysis. Keywords were quantified based on their frequency of occurrence, revealing dominant themes and emerging trends in the literature. Co-occurrence patterns among keywords were mapped to visualize thematic connections, providing insights into how different aspects of organizational innovation are interlinked. The final stage analyzed journal contributions, identifying outlets with the most publications and citations. This analysis highlighted journals that serve as critical platforms for disseminating research on organizational innovation and shaping its intellectual discourse.

In order to ensure the robustness of the analysis, the quantitative data were processed using VOSviewer. Descriptive statistics were employed to summarize metrics, and rankings were generated to identify top contributors across dimensions. Additionally, visualization techniques, such as bar charts and keyword co-occurrence maps, were used to illustrate relationships and trends in the data. The validity and reliability of this review were enhanced by utilizing a dataset curated from credible academic sources. Citation-based metrics provided an objective foundation for the analysis, minimizing potential biases. Nevertheless, the study acknowledges certain limitations. Bibliometric methods rely heavily on citation counts, which may only partially capture the qualitative impact of some works. Moreover, the dataset's scope may influence the results' comprehensiveness. Future studies may complement bibliometric analysis with qualitative reviews for a more holistic understanding. This methodological approach facilitates a systematic exploration of the field of organizational innovation. The study provides a comprehensive overview of the intellectual landscape by analyzing key contributors, thematic trends, and publication outlets, offering valuable insights for researchers and practitioners. The results of this analysis are presented in the following sections.

4. RESEARCH RESULT

The temporal progression of publications indicates a consistent and substantial augmentation in scholarly interest concerning organizational innovation. From 2012 to 2024, there was a notable escalation in the annual publication rate, with seminal milestones denoting discrete phases in this growth trajectory (see Figure 2).

In the initial years of this study, from 2012 to 2014, the number of publications remained relatively modest, with an annual range of 29-31 documents. This period likely signifies the foundational stage of organizational innovation research, during which the academic

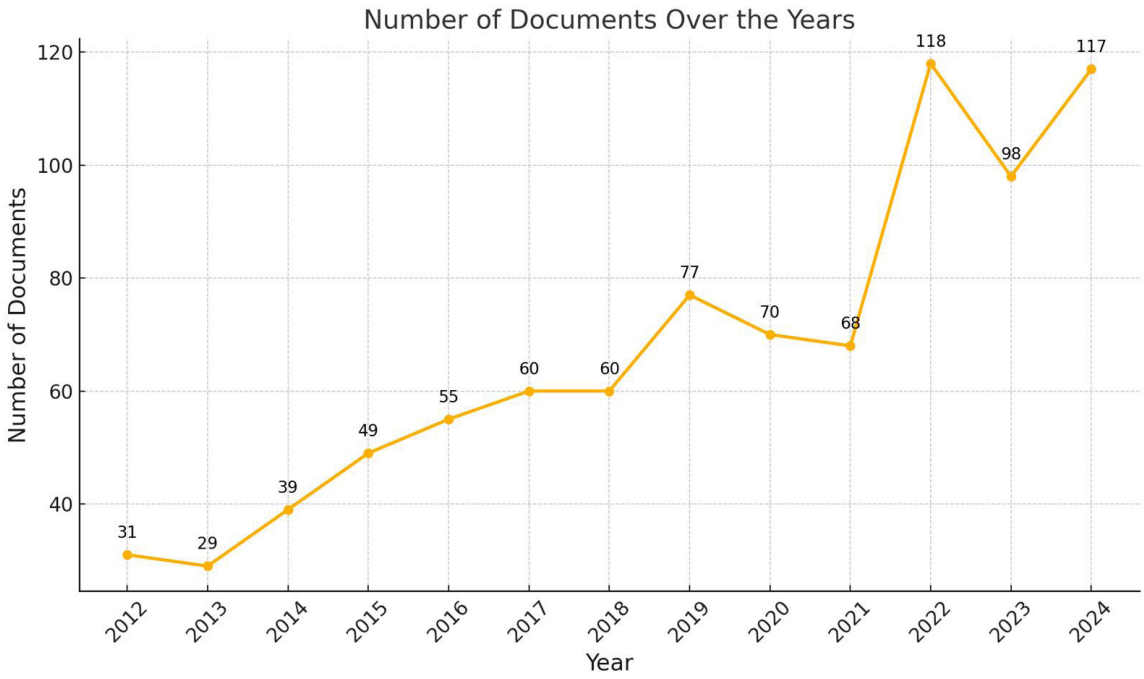

Figure 2. Number of innovation management documents from 2012 to 2024.

community initiated the exploration and delineation of the field's contours. From 2015 to 2019, a growth phase ensued, marked by a steady rise in publication numbers, culminating at 77 documents in 2019. This upward trajectory signifies the mounting recognition of the significance of organizational innovation, particularly as organizations endeavor to adapt to technological advancements and global market demands. The subsequent stabilization in publication numbers during 2019 and 2020 points to a maturing phase in the research. The most recent years, from 2021 to 2024, demonstrate a sharp surge in academic output, with 118 documents published in 2022 and 117 in 2024. This period coincides with the global response to the COVD-19 pandemic, which catalyzed innovation across industries. Organizations confronted unprecedented disruptions and placed significant reliance on innovative approaches to address challenges, a factor that likely precipitated this escalation in research output. The data collectively indicate a robust and sustained growth in academic engagement with organizational innovation, underscoring its pivotal role in confronting contemporary organizational and societal challenges.

The contribution of individual authors to the field of organizational innovation is illustrated in Figure 3, which ranks the top contributors based on the number of documents they have published. The data highlight the significant role of specific researchers in shaping and advancing the discourse in this field. Authors such as Jing, S. and Robert, M. emerge as the leading contributors, with seven documents each. Their prolific output underscores their influence and centrality in the academic conversation surrounding organizational innovation. The subsequent authors, including Giuliani, P., Volerda, H.W., and Ceme, M., each with six publications, further underscore the collaborative and expansive nature of this research domain. Additionally, authors contributing five or four documents, such as Fongsuwan, W. and Niu, Z., highlight the broader network of scholars actively engaged in this study area. This distribution of contributions reflects the collaborative nature of organizational innovation research, where multiple researchers collectively drive advancements by addressing diverse aspects of the field.

As illustrated in Figure 4, an analysis of the geographical distribution of research productivity reveals the preeminence of certain nations in the domain of organizational innovation. China stands out as the most prolific contributor, with a total of 252 documents

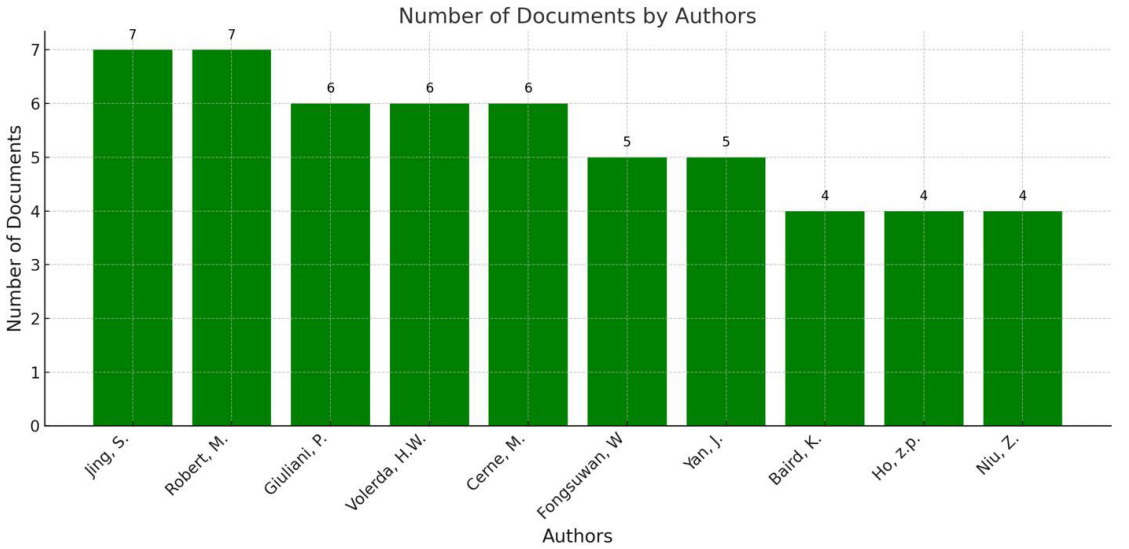

Figure 3. Number of documents by authors from 2012 to 2024.

published. This substantial output is indicative of China's national emphasis on innovation as a pivotal driver of economic and organizational transformation. The country's strategic focus on research and development, complemented by its extensive academic infrastructure, has firmly established China as a global leader in the field.

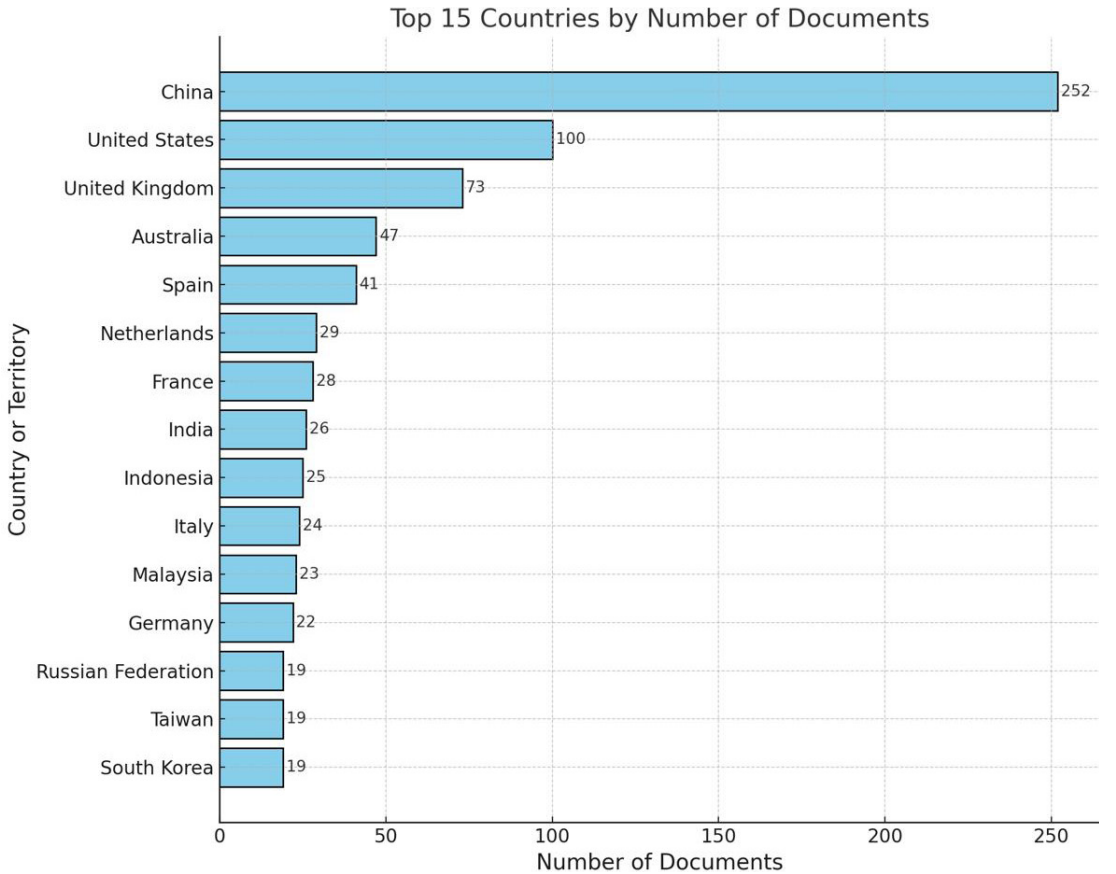

Figure 4. Top 15 most published countries around the world.

The United States is a close second with 100 documents, reflecting its long-standing tradition of academic excellence and leadership in innovation research. The presence of globally renowned institutions and a robust culture of innovation-driven scholarship contributes to the country's prominence in the field. Similarly, the United Kingdom, with 73 documents, demonstrates its significant role in advancing organizational innovation through academic research and practical applications. Other countries of note include Australia (47 documents) and Spain (41 documents), which indicate a growing focus on innovation as a critical study area. Emerging contributors such as India, the Netherlands, and Italy also show meaningful engagement, suggesting a geographically diverse research landscape. This global participation underscores the universal relevance of organizational innovation in addressing challenges across different economic, cultural, and technological contexts.

As illustrated in Figure 5, the distribution of research across various subject areas offers insights into the multidisciplinary nature of organizational innovation. The largest share of research falls within "business, management, and accounting," which accounts for 31.2% of the total publications. This predominance is anticipated, as organizational innovation is inherently embedded in management practices and strategies to enhance efficiency, competitiveness, and adaptability.

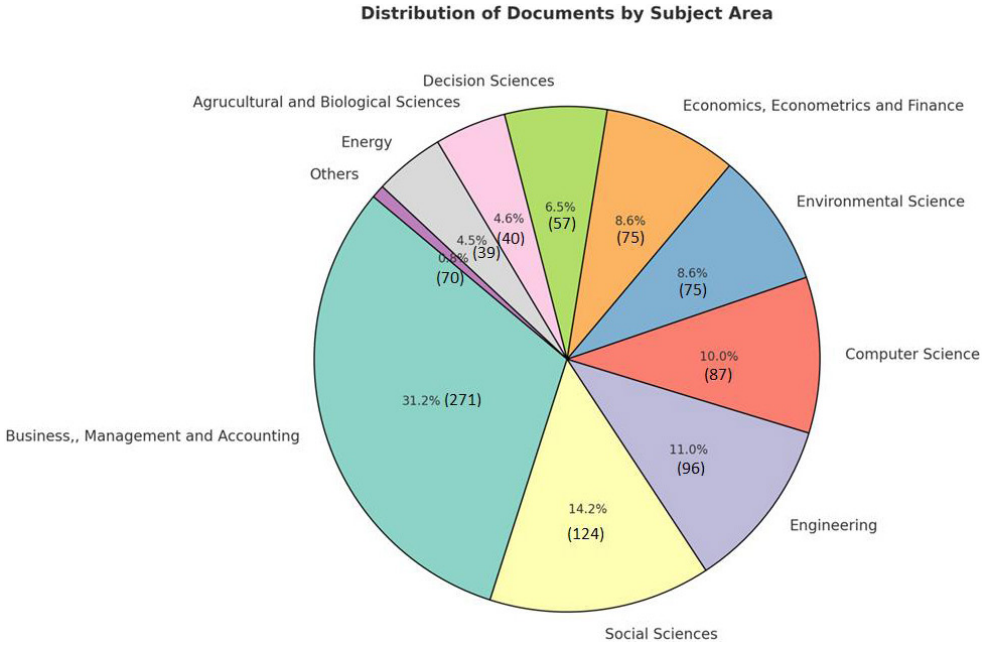

Figure 5. Distributions of papers by subject area of innovation management.

The "social sciences" constitute 14.2% of the research, reflecting the field's emphasis on the human and societal aspects of innovation. These studies often explore topics such as employee collaboration, organizational culture, and leadership styles, which are crucial for fostering innovation. With 11% of the documents, "engineering" highlights organizational innovation's technical and operational dimensions, particularly in process improvements and technological adoption. Other prominent areas include "computer science" (10%) and "environmental science" (8.6%). The substantial representation of "computer science" mirrors the mounting role of digital technologies and data-driven methodologies in facilitating innovation. Conversely, the notable presence of "environmental science" signifies the growing emphasis on sustainability and green innovation, aligning with global initiatives to address environmental challenges. Modest contributions from "economics," "decision sciences," and "energy" further underscore the interdisciplinary character of organizational innovation, where economic

theories, decision-making frameworks, and energy efficiency practices converge to address intricate organizational challenges.

As illustrated in Table 1, the top 15 contributors to the field of organizational innovation have been identified based on the number of citations received for their work. Citations serve as a critical indicator of the impact and influence of academic research, offering insights into how extensively a particular study has been used or referenced within the scholarly community. This analysis provides an overview of the key contributors and the trends reflected in their citation metrics.

Ranking	Authors	Citations	Focus	Nationality
1	Damanpour (2012)	539	Innovation management	United States
2	Abbas (2019)	465	Process innovation	Pakistan
3	Vaccaro (2012)	419	Green innovation	The Netherlands
4	Zhu (2012)	387	Technological adoption	China
5	Rotem (2012)	370	Employee involvement	United States
6	Roberts (2016)	326	Collaboration and sustainability	United States
7	Kusi-Sarpong (2019)	281	Green innovation	United Kingdom
8	Li (2018)	270	Organizational culture and innovation	China
9	Ma (2018)	249	Innovation management	China
10	Schaltegger (2012)	244	Innovation management	Germany
11	Mardani (2018)	235	Innovation management	Iran
12	Martin-Rios (2018)	225	Technological adoption	Switzerland
13	Damanpour (2014)	213	Technological adoption	United States
14	Zhang (2020)	192	Green innovation	China
15	Sun (2019)	186	Employee involvement	China

Table 1. The top 15 contributors of the authors (n=871).
Note. Ranking based on the number of citations.

The most frequently cited work in the table is Damanpour (2012), which has accumulated 539 citations, a figure that underscores its seminal role in shaping the discourse on organizational innovation. The high citation count reflects the study's foundational nature, suggesting that it has provided theoretical frameworks or empirical findings that have informed a wide range of subsequent research. Similarly, Abbas (2019), with 465 citations, represents a significant contemporary contribution to the field. The recent work in question has had a significant impact on pressing issues and methodologies that are highly relevant to current academic and practical needs. Other notable studies include those by Vaccaro (2012), Zhu (2012), and Rotem (2012), which have citation counts of 419, 387, and 370, respectively. Conducted in the early 2010s, these works underscore the enduring relevance of studies from this period. The consistent citation levels of these works indicate that the insights they provide continue to be applicable and influential in addressing ongoing challenges in organizational innovation. Roberts (2016), with 326 citations, serves as a pivotal piece in the field's evolution by reflecting a bridge between earlier foundational studies and recent advancements.

Recent contributions, including those by Kusi-Sarpong (2019), Li (2018), and Zhang (2020), underscore the mounting emphasis on contemporary research in this domain. The citation metrics for these studies, ranging from 192 to 281, reflect the rapid adoption of recent findings by the academic community. This trend underscores the mounting emphasis on contemporary challenges and opportunities, including those propelled by digital transformation, sustainability, and post-pandemic organizational strategies. The inclusion of Sun (2019), with 186 citations at the conclusion of the ranking, further accentuates the significance of organizational innovation studies in recent years. A noteworthy aspect of the table is the recurrent presence of Damanpour, who appears twice in the top 15, with contributions in 2012 and 2014. This consistent performance across different periods signifies the author's

sustained influence in propelling the field forward. Such recurrence suggests that Damanpour's work has addressed various critical facets of organizational innovation, thereby establishing it as a foundational text for researchers in the field.

As illustrated by Table 2, the top 15 co-authored contributions to organizational innovation research, as determined by citation counts, underscore the collaborative nature of impactful studies in the field. The most cited collaboration, by Vaccaro I. G., Jansen J. J. P., Van Den Bosch F. A. J., and Volberda H. W., has received 419 citations, signifying its foundational role in the discourse. In a similar vein, Zhu Q., Sarkis J., and Lai K.-H., with 387 citations, have made substantial contributions, likely addressing sustainability and innovation strategies. High-impact teams such as Rotem E., Naveh A., Ananthakrishnan A., Weissmann E., and Rajwan D. (370 citations), along with Roberts J. P., Fisher T. R., Trowbridge M. J., and Bent C. (326 citations), underscore the value of interdisciplinary approaches. Other notable collaborations, such as those by Kusi-Sarpong S., Gupta H., and Sarkis J. (281 citations), underscore the mounting interest in green innovation and digital transformation.

Ranking	Authors	Documents	Citations
1	Vaccaro I. G.; Jansen J. J. P.; Van Den Bosch F. A. J.; Volberda H. W.	1	419
2	Zhu Q.; Sarkis J.; Lai K.-H.	1	387
3	Rotem E.; Naveh A.; Ananthakrishnan A.; Weissmann E.; Rajwan D.	1	370
4	Roberts J. P.; Fisher T. R.; Trowbridge M. J.; Bent C.	1	326
5	Kusi-Sarpong S.; Gupta H.; Sarkis J.	1	281
6	Li D.; Zhao Y.; Zhang L.; Chen X.; Cao C.	1	270
7	Ma Y.; Cai X.; Zhao P.	1	249
8	Schaltegger S.; Csutora M.	1	244
9	Mardani A.; Nikoosokhan S.; Moradi M.; Doustar M.	1	235
10	Martin-Rios C.; Demen-Meier C.; Gössling S.; Cornuz C.	1	225
11	Zhang Y.; Xing C.; Wang Y.	1	192
12	Sun L.; Zou C.; Jia A.; Wei Y.; Zhu R.; Wu S.; Guo Z.	1	186
13	Millar C. C. J. M.; Groth O.; Mahon J. F.	1	180
14	Peng X.; Liu Y.	1	179
15	Wang S.; Abbas J.; Sial M. S.; Álvarez-Otero S.; Cioca L.-I.	1	161

Table 2. The top 15 contributors of the co-authors (n=871).
Note. Ranking based on the number of citations.

The table further elucidates the field's heterogeneity, as evidenced by the contributions of Schaltegger S. and Csutora M. on sustainability (amassing 244 citations) and the emerging works by Sun L., Zou C., Jia A., Wei Y., Zhu R., Wu S., and Guo Z. (attaining 186 citations) that concentrate on contemporary challenges, such as post-pandemic organizational restructuring. The spectrum of citation counts (ranging from 161 to 419) underscores the equilibrium between long-standing foundational works and more recent contributions.

Table 3 ranks the top 15 countries or regions contributing to organizational innovation research based on the number of documents published, citations received, and total link strength, providing insights into global research trends and collaborations.

China's performance is noteworthy, with 252 documents and 4,845 citations, indicative of a pronounced emphasis on organizational innovation. The high citation count signifies the quality and influence of its research output, while the total link strength of 82 reflects its substantial role in international collaboration and its presence within the global research network. The United States' performance is notable as well, with 100 documents and 4,724 citations, suggesting a robust academic infrastructure and sustained contributions to the field. Despite having fewer documents than China, the similar citation count underscores the high impact of American research. The United Kingdom ranks third with 73 documents and 2,533 citations, tied with the United States' link

Ranking	Countries/regions	Documents	Citations	C/PC	Total link strength
1	China	252	4,845	19.2	82
2	United States	100	4,724	47.2	76
3	United Kingdom	73	2,533	34.7	76
4	Australia	47	1,140	24.3	46
5	Spain	41	1,233	30.1	34
6	The Netherlands	29	1,535	52.9	32
7	France	28	643	22.9	30
8	India	26	769	29.6	22
9	Indonesia	25	276	11.0	10
10	Italy	24	634	26.4	25
11	Malaysia	23	310	13.5	18
12	Germany	22	1,202	54.6	19
13	Sweden	19	738	38.8	13
14	South Korea	19	347	18.3	19
15	Taiwan	19	342	18.0	13

Table 3. The top 15 countries/regions for organizational innovation (n=871).
Note. Ranking based on the number of documents. C/PC: Citation per cited paper.

strength (76), signifying its active role in collaborative research. Other countries of note include Australia (47 documents, 1,140 citations) and Spain (41 documents, 1,233 citations), which underscore their growing academic focus on innovation. European countries such as the Netherlands (1,535 citations) and Germany (1,202 citations) also play a crucial role, despite their lower document counts, reflecting the high quality of their research. Emerging contributors such as India (769 citations) and Malaysia (310 citations) indicate increasing research activity in organizational innovation, aligning with their growing focus on technology and development. Similarly, South Korea and Taiwan, each with 19 documents, highlight their efforts to integrate innovation into their academic and industrial ecosystems.

Table 4 identifies the top 15 journals contributing to research on organizational innovation, ranked by the number of citations. It reflects the diversity of academic outlets publishing on this topic and highlights the prominence of specific journals in disseminating impactful research.

Ranking	Journals	Documents	Citations	C/PC
1	*Journal of Cleaner Production*	17	2,256	132.7
2	*Organization Studies*	6	681	113.5
3	*Journal of Business Research*	11	642	58.4
4	*Management and Organization Review*	2	562	281
5	*Sustainability (Switzerland)*	23	528	22.9
6	*Petroleum Exploration and Development*	4	484	121
7	*Journal of Management Studies*	1	419	419
8	*International Journal of Production Research*	3	388	129.3
9	*Journal of Engineering and Technology Management – Jet-M*	1	387	387
10	*European Management Review*	8	374	46.7
11	*IEEE Micro*	1	370	370
12	*Healthcare*	1	326	326
13	*Business Process Management Journal*	6	297	49.5
14	*Journal of Innovation and Knowledge*	5	293	58.6
15	*Journal of High Technology Management Research*	2	273	136.5

Table 4. The top 15 journals for organizational innovation (n=871).
Note. Ranking based on the number of citations. C/PC: Citation per cited paper.

Among leading journals by citations, the *Journal of Cleaner Production* ranks highest with 2,256 citations from 17 published documents, showcasing its significant influence in the field. The journal's focus on sustainability and environmental innovation aligns closely with contemporary trends in organizational innovation, where green and sustainable practices are pivotal. *Organization Studies* follows with 681 citations from 6 documents, reflecting its strong emphasis on theoretical and empirical studies on organizational behavior and innovation. Similarly, the *Journal of Business Research* has 642 citations from 11 documents, indicating its importance in addressing the intersection of innovation and business strategies. *Sustainability (Switzerland)* (528 citations, 23 documents) and *Petroleum Exploration and Development* (484 citations, four documents) highlight the multidisciplinary nature of organizational innovation research, spanning environmental, industrial, and technical domains. The presence of *Management and Organization Review* with 562 citations from just two documents reflects its focus on high-quality, impactful research. The *Journal of Management Studies* (419 citations, one document) and the *Journal of Engineering and Technology Management – Jet-M* (387 citations, one document) demonstrate the value of niche contributions, with singular works making a notable impact. These journals likely cater to specialized audiences, enhancing the depth of knowledge within particular subfields. The inclusion of journals such as *European Management Review* (374 citations, eight documents) and *Healthcare* (326 citations, one document) underscores the broad applicability of organizational innovation across industries. These journals reflect the practical implications of innovation strategies in management and healthcare systems. Emerging focus areas journals such as the *Journal of Innovation and Knowledge* (293 citations, five documents) and *Journal of High Technology Management Research* (273 citations, two documents) highlight the increasing academic focus on knowledge-driven and technology-centric innovation. These publications emphasize the role of emerging technologies and knowledge management in driving organizational transformation.

The co-occurrence network of keywords offers a comprehensive visualization of the interconnected themes and dominant topics in organizational innovation research (see Figure 6). By mapping the relationships between frequently used terms, this network illustrates the primary areas of focus in the field and highlights emerging trends. The analysis identifies three significant clusters, each representing distinct thematic areas while emphasizing the strong interconnections between these themes.

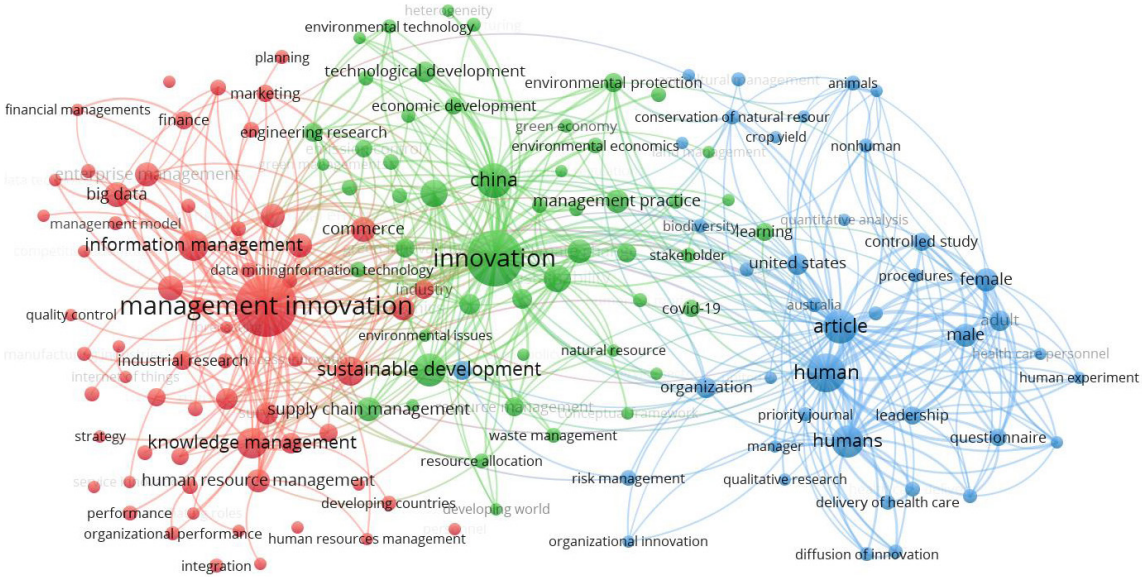

Figure 6. The co-occurrence network of keywords of innovation management.

At the core of the network are the keywords "management innovation" and "innovation," which function as the primary nodes. These keywords are prevalent throughout the network, underscoring their foundational role in the discourse on organizational innovation. Their extensive connections to other keywords reveal their integrative nature, linking diverse research areas and serving as focal points for scholarly exploration. The co-occurrence network reveals three major thematic clusters, each representing a unique area of research focus:

1. Management and Technological Focus (Red Cluster): This cluster is centered around the keyword "management innovation" and encompasses terms such as "technology," "digital transformation," and "information management." It strongly emphasizes integrating technological advancements into management practices, highlighting the role of digital tools and systems in fostering organizational innovation. Terms such as "enterprise innovation" and "industrial applications" suggest a practical orientation, focusing on applying innovation in real-world organizational contexts. This cluster thus represents the nexus where technology and management intersect, exploring how organizations adopt and leverage novel tools to drive innovation.
2. Organizational and Cultural Dimensions (Green Cluster): The green cluster focuses on innovation's organizational and human aspects. Keywords such as "organizational culture," "leadership," and "teamwork" underscore the importance of internal dynamics in fostering an innovation-friendly environment. The presence of terms such as "human resources" and "employee collaboration" highlights the role of people in driving innovative outcomes. At the same time, "surveys and questionnaires" suggest the widespread use of empirical methods to study these phenomena. This cluster emphasizes that the success of organizational innovation is not solely dependent on technology but also heavily influenced by cultural, structural, and human factors within organizations.
3. Sustainability and Environmental Innovation (Blue Cluster): The blue cluster, which is anchored around the keyword "sustainability" and related terms such as "green technology," "renewable energy," and "environmental innovation," reflects the growing emphasis on integrating sustainability into organizational innovation, driven by global environmental challenges. Keywords such as "circular economy" and "climate change" suggest a focus on eco-friendly practices and sustainable solutions. This cluster underscores the pivotal role of innovation in confronting pressing environmental challenges and exemplifies the mounting congruence between organizational objectives and global sustainability goals.

The network underscores the significant interconnections between these clusters, reflecting the interdisciplinary nature of organizational innovation research. For instance, the links between "sustainability" and "technology" illustrate the integration of environmental objectives with technological advancements. Similarly, the connections between "leadership" and "digital transformation" underscore the significance of human and managerial factors in successfully adopting and implementing new technologies. These interconnections suggest that while the clusters represent distinct research areas, they are not isolated. Instead, they form a cohesive network where insights from one area often inform and influence developments in another. This underscores the importance of adopting a multidisciplinary approach to organizational innovation research, where diverse perspectives are integrated to address complex challenges. The network also highlights emerging themes that are gaining prominence in the field. Keywords such as "artificial intelligence," "digitalization," and "knowledge management" point to the growing influence of advanced technologies and data-driven approaches in shaping organizational strategies. Consequently, the future of organizational innovation research is poised to prioritize the utilization of digital tools and the management of knowledge systems, with the aim of enhancing adaptability and competitiveness.

5. DISCUSSIONS AND IMPLICATIONS

5.1. Discussions

This study provides a thorough examination of the intellectual landscape of organizational innovation research. It accomplishes this by assessing its growth, major contributors, geographical diversity, dominant themes, and journal contributions. The synthesis of findings offers significant insights into the evolution of this field, highlighting areas that warrant further exploration. The discussion reflects the dynamic and interdisciplinary nature of organizational innovation research, emphasizing its relevance in addressing contemporary challenges.

5.1.1. Evolution and growth of organizational innovation research

The analysis of publication trends illustrates the steady growth of interest in organizational innovation, with a significant surge in research output from 2012 onward. This increase corresponds with the rising importance of innovation as organizations navigate technological disruptions, environmental challenges, and global crises, such as the COVID-19 pandemic. The peak in publications in 2022 reflects the urgency with which scholars and practitioners address these issues, exploring adaptive strategies to manage change in volatile environments. The sustained increase in publications also signifies the diversification of research themes within the field. Traditional studies on management innovation remain influential, while emerging areas, such as sustainability, digital transformation, and AI, indicate the field's responsiveness to new challenges and opportunities. A rapid increase in the number of publications and citations related to AI in recent years can indicate its emergence as a hot topic. The analysis of frequently occurring keywords (e.g., "big data") and their temporal clustering offers insights into the evolution of research domains. This progression underscores the significance of organizational innovation as a pivotal area of research in a progressively intricate global context.

5.1.2. Key contributors and collaborative dynamics

The identification of key authors and co-authors underscores the collaborative and interdisciplinary nature of organizational innovation research. Influential contributors, such as Damanpour and Aravind (2012) and Vaccaro *et al.* (2012), have provided foundational work that continues to shape the discourse. Concurrently, the emergence of emerging scholars and collaborations, such as those involving Zhu *et al.* and Kusi-Sarpong *et al.,* underscores the expanding reach of the field. The co-authorship network reflects the diversity and interdisciplinary nature of organizational innovation research, with collaborations combining expertise from various disciplines, including management, technology, and sustainability, to address complex challenges. However, the relatively low link strengths in some cases suggest potential opportunities for enhancing global and cross-disciplinary collaborations, which could further enrich the field and facilitate the exchange of innovative ideas.

5.1.3. Global contributions and geographical diversity

The geographical analysis reveals the dominant role of certain countries, such as China, the United States, and the United Kingdom, in advancing organizational innovation research. The study highlights China as the leading contributor to organizational innovation research, with 252 documents and significant citation counts. This prominence reflects China's strategic focus on innovation as a driver of economic development, supported by substantial investments in research and development. The United States and the United Kingdom follow as major contributors, leveraging their established academic infrastructures and traditions of interdisciplinary research. Emerging contributors, such as India and Malaysia, indicate increasing engagement with organizational innovation but face challenges such as limited funding and access to international collaborations. The geographical trends reveal a concentration of research in high-income countries, with limited representation from low-income regions. This imbalance underscores the need for more

inclusive research agendas that address diverse organizational contexts, particularly in underrepresented regions. For instance, research in emerging economies could prioritize frugal innovation and grassroots entrepreneurship, which are frequently overlooked in studies from developed countries.

5.1.4. Dominant themes and emerging trends

The keyword co-occurrence network reveals three predominant clusters within the domain of organizational innovation research: core management and technological focus, organizational and cultural dimensions, and sustainability and environmental innovation. These clusters exemplify the field's interdisciplinary character, wherein technological advancements, human dynamics, and sustainability objectives converge to catalyze innovation. The accentuated positioning of "management innovation" and "innovation" as central nodes underscores the foundational role of strategic management in fostering innovation. The increasing prominence of sustainability-related keywords, such as "green technology" and "circular economy," reflects the alignment of organizational innovation research with global environmental priorities. The emergence of themes such as "artificial intelligence" and "digital transformation" points to the growing influence of advanced technologies in shaping the future of organizational innovation. These technologies enable new forms of collaboration, decision-making, and process optimization, which are increasingly critical in dynamic organizational environments. However, the integration of these technologies gives rise to ethical and operational challenges, including concerns regarding data privacy and workforce displacement, necessitating further exploration. The symbiotic relationship between emerging technologies and sustainability presents a rich source of research opportunities. For instance, AI can optimize resource utilization in green innovation initiatives, while blockchain can enhance transparency in supply chains. The investigation of these synergies can lead to significant advancements in both theoretical understanding and practical applications of organizational innovation. The interconnectedness between clusters underscores the multifaceted nature of factors influencing organizational innovation. For instance, the integration of sustainability with technological advancements demonstrates the capacity for eco-friendly innovations to address global challenges. Analogously, the correlation between leadership and digital transformation underscores the significance of human and managerial elements in the effective implementation of technological changes.

5.1.5. Journal contributions and thematic specialization

The analysis of journal contributions underscores the importance of specific academic platforms in advancing organizational innovation research. Leading journals, such as the *Journal of Cleaner Production, Organization Studies,* and the *Journal of Business Research,* have played critical roles in disseminating impactful studies. These journals address a broad spectrum of topics, from sustainability-driven innovation to theoretical advancements in organizational behavior. The *Journal of Engineering and Technology Management* and the *Journal of Innovation and Knowledge* reflect the growing focus on niche areas such as technological innovation and knowledge management. The diversity of journal contributions demonstrates the field's broad relevance across disciplines and sectors, while specialization allows for deeper exploration of specific themes.

5.2. Implications for future research

The findings of this study offer several implications for advancing research on organizational innovation. First, the interconnected nature of research themes necessitates enhanced interdisciplinary collaboration, as integrating perspectives from management, technology, and environmental science can facilitate more effective addressing of complex challenges. Second, expanding research in underrepresented regions, such as emerging economies, can enrich the global discourse and provide novel insights into cultural and regional factors influencing innovation. Third, as sustainability gains prominence, future research should prioritize innovative solutions that align organizational goals with global environmental

objectives. Fourth, leveraging advanced technologies, such as AI and big data, presents vast opportunities for transforming organizational practices. Finally, strengthening international and cross-disciplinary collaboration networks can foster the exchange of ideas and create impactful research.

6. CONCLUSION

This discussion synthesizes key findings from the analysis of organizational innovation research, highlighting its growth, thematic diversity, and collaborative dynamics. The field has evolved significantly, integrating insights from multiple disciplines to address pressing organizational and societal challenges. However, opportunities remain to expand regional participation, deepen interdisciplinary collaborations, and leverage emerging technologies. By addressing these gaps, future research can advance the understanding and application of organizational innovation, ensuring its continued relevance in a rapidly changing global context.

Contribution statement

Conceptualization, formal analysis, investigation, methodology: Dr. Xinrui and Dr. Zongwen.

Data analysis, software, validation, visualization: Dr. Xinrui.

Writing-original draft, writing-review, and editing: Dr. Zongwen.

Conflict of interests

The authors declare no conflicts of interest.

Statement of data consent

All relevant data have been included in the manuscript. ●

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