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A COMPREHENSIVE BIBLIOMETRIC ANALYSIS OF INNOVATION MANAGEMENT IN SMALL AND MEDIUM FIRMS (2000–2024)

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Abstract: This study aims to provide an overview of the most recent scientific studies about innovation management in small and medium-sized enterprises. This review focuses on evaluating the intellectual structure and knowledge progress of innovation management in SME studies. Bibliometric analysis is used to quantitatively examine the bibliographic data gathered from the Scopus database and examine and evaluate 2647 research documents. To obtain the results, bibliometric analysis was conducted using Excel and VOS viewer software. In addition, this study discusses how the IM literature in SMEs has evolved between 2000 and 2024. The publications increased significantly from 2019 to 2024, and the leading and influential journals, affiliations, authors, and countries were identified. Innovation, SMEs, small and medium-sized enterprises, knowledge management, and Time are popular research and collaboration trends in the extant literature. Reflecting on the arguments in the previous literature, several research gaps and further suggestions are acknowledged for future studies.

Keywords: Innovation Management, SMEs, Bibliometric analysis, VOSviewer, Scopus.

INTRODUCTION

Innovation management encompasses generating novel concepts, advancing technology, producing goods and services, and promoting new products or manufacturing methodologies (Costa et al., 2023; Zhang et al., 2019). Moreover, a systematic approach to the planning, implementation, and evaluation of innovations is known as innovation management (Khosravi et al., 2019). This approach generates beneficial products, services, or processes from innovative concepts. Innovation can enhance product quality and a company's competitiveness, resulting in enhanced overall performance (Arundel et al., 2019). Innovation is an important part of SMEs, which enables SMEs to remain ahead of their competition in the market by offering innovative goods, services, or processes that suit customer expectations (Wellalage & Fernandez, 2019). Improve the quality of products and services, increasing customer satisfaction and loyalty (Maldonado-Guzmán et al., 2019), through Innovation, SMEs may swiftly adjust to changes and market demands while capitalizing on new technologies and processes,

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enabling the optimal use of current resources and enhancing outcomes from limited assets (Beltramino et al., 2020). It offers personnel opportunities to improve their skills and competencies, increasing efficiency and general development (Saunila, 2020). SMEs are essential to global economic growth, as they are an important source of employment and competitiveness (Corral de Zubielqui et al., 2019). This study drives significant growth in national and international markets (Castillo-Vergara and de Lema, 2022). Small and medium-sized enterprises (SMEs) are strategically equipped to innovate and generate due to their ability to adjust to market demands and fluctuations swiftly, launch new goods and services, and compete (Manzoor et al., 2021). However, several SMEs have challenges establishing and sustaining competitive advantages due to restrictive resource constraints, inferior technology, and a lack of professional expertise (Gherghina et al., 2020).

Principles of innovation management research and examination of these methods assist SMEs in enhancing their innovation skills and maintaining competitiveness in a swiftly changing business market. A recent study emphasizes the significance of digital transformation, customer-centric Innovation, and sustainability, which SMEs may use to enhance flexibility and relevance (Ndubisi et al., 2021). Study indicates that developing essential qualities like creativity, collaboration, and risk management may promote an innovative culture and assist SMEs in exploring new markets (Adla et al., 2020). By recognizing these patterns, SMEs may adjust to global shifts and develop resistance against industry changes.

According to Cárdenas et al., (2022), Study on bibliometric analysis of innovation management (IM) in SMEs. The aim is to make the main contribution to the innovation management of SMEs from 1985 to 2019. The study examines articles on innovation management in SMEs from 1985 to 2019 using bibliometric analysis using the "Web of Science" database. The study examines and presents the most frequently referenced publications, original authors, institutions, countries, and the most frequently published journals. Results of the study show that the most productive universities and the most influential and productive authors are in the United States. (Odriozola-Fernández et al., 2019), the study on open Innovation in small and medium enterprises was a bibliometric analysis, and 112 publications were extracted from the Web of Science database. This bibliometric study reveals the most significant authors, journals, organizations, and countries. Furthermore, the primary topics addressed in these essays are improved. The findings indicate that the most prolific authors are associated with the universities that rank highest among institutions. Notably, leading authors in this domain have few publications on Open Innovation in Small and Medium-sized Enterprises. However, they integrate this study topic with other relevant subjects. European countries rank highest with South Korea at the national level.

Previous bibliometric analysis focused on the web of science and only published articles to fill this gap (Odriozola-Fernández et al., 2019; Sharma, 2019). This study used bibliometric analysis between 2000 and 2024 using the Scopus database, which captures the most recent trends and developments in innovation management in SMEs; the selected period covers more than two decades of research, including articles, review articles, book chapters, conference paper, based on technological advancements, digital transformation, and significant policy changes. In particular, it presents the progress made since 2000, especially considering the rapid changes due to globalization and the COVID-19 pandemic because globalization has generated new possibilities and difficulties for SMEs, the convergence of markets has heightened the need for Innovation in business structures, manufacturing techniques, and customer management (Liñán et al., 2020). The COVID-19 epidemic has precipitated swift alterations in corporate operations, compelling several SMEs to innovate in domains such as

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digital transformation, remote work, and supply chain management (Belitski et al., 2022). This study investigates the following questions.

Q1: How is the growing research publication on innovation management in SMEs?

Q2: Which countries, Affiliations, journals, and authors are the most productive and influential in innovation management in SMEs?

Q3: What are the current and expanding topics in the field?

This study aims to provide an overview of the most recent scientific studies about innovation management in small and medium-sized enterprises (SMEs). This study uses bibliometric techniques to examine the growth of publications and the rise of academic literature in SME Innovation Management from 2000 to 2024. It aims to identify research patterns and developments and the most leading and influential countries, institutions, journals, and authors in the field while conducting keyword analysis to enhance innovation management in SMEs. Research outlines essential subjects, ideas, and trends, it will enable academics to comprehend new trends and research domains in innovation management. This study allows for discovering reoccurring subjects and determining the necessity for future investigation. The findings will show scientists a network of scientific cooperation across different countries and institutions, which will assist them in identifying partners and establishing international research collaborations. This research enables policymakers to identify the top countries and affiliations in Innovation, guiding them in the optimal allocation of resources toward Innovation and technology. This study enables professionals to discover the most popular journals and authors, locate reliable information sources for their research, and access relevant articles for subject updates. This study maintains the following sections: Section 2, analysis method and technique. Section 3 Result and discussion and Section 4 Conclusions and limitations.

RESEARCH METHODOLOGY

The research methodology uses bibliometric analysis. Bibliometric is a quantitative analysis technique that distributes review papers and studies the literature using statistical and mathematical techniques (Krndzija & Pilav-Velic, 2022). The bibliometric technique is helpful since it makes it possible to extract the fundamental essence of a study field from a significant amount of data. It makes it possible to explore information structure, create new research fields, and document the interdisciplinary nature of research subjects (Lestari & Ardianti, 2019). In this context, the bibliometric technique is advantageous as it enables the extraction of essential elements of the study domain from extensive data sets. It enables the assessment of data structuring, formulation of research themes, and selection of study subjects (Malacina and Teplov, 2022). The most effective method for carrying out a bibliometric analysis study is to analyze publications to determine an appropriate number of journals, the evolution of publications over Time, and the years that include pertinent subject areas. A few bibliometric studies also look at citations, identifying the authors with the highest citation counts and potential research trends (H. T. T. Le et al., 2019). The research used VOS Viewer bibliometric analysis software to gather relevant information on academic publications about innovation management in SMEs from 2000 to 2024. The data for this research was sourced from the Scopus database in July 2024, including articles, review articles, book chapters, and conference papers produced during the preceding 24 years. Scopus database is a famous database for academic research that indexes millions of peer-reviewed publications. It covers various topics and allows academics to monitor citations, analyze research trends, and locate relevant papers, and it is widely used for bibliometric

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analysis. We searched the database for documents mentioning Innovation Management and Small and Medium Enterprises in the title, abstract, and keywords sections. To search for papers focused on "Innovation Management and Small and Medium Enterprises," the study includes the following steps.

Step 1: The study depends on the terms "Innovation Management" and "Small and Medium Enterprises." These were performed during the preliminary search, and 3208 of the documents were obtained. To indicate recent research trends, the publication date was limited to 2000 to 2024, which resulted in 3186 documents. The dataset has been reduced to 2,647 articles using a topic area filter for bibliometric analysis.

Step 2: These documents were organized, presented, developed, and analyzed using the CSV file with the assistance of VOS viewer software. This software was used to establish quantity and quality indicators that would enable us to comprehend the productivity and effects of the scientific literature.

Step 3: This research includes bibliometric indicators, including descriptive and network analysis of publications.

Step 4: Ultimately, the study uses a VOS viewer to represent the network analysis visually. VOS viewer has been used in several research investigations for descriptive analysis, including bibliographic correlations, cross-references, and the descriptive study of author keyword synchronization.

3. RESULT AND DISCUSSION

3.1. DESCRIPTIVE ANALYSIS

3.1.1 PUBLICATION GROWTH ANALYSIS

The results of our bibliometric research relate to SMEs in innovation management within the Scopus database, covering the period from 2000 to 2024. Figure 1 illustrates this advancement; the findings indicate that a comprehensive study has been undertaken on the innovative management of SMEs. The research demonstrates tremendous improvement, increasing the number of documents from 9 in 2000 to 180 in 2024. The number of documents released in the first years (2000-2006) was limited, beginning with 9 in 2000 and progressively rising to 47 in 2006, which was small, commencing with 9 in 2000 and progressively rising to 47 in 2006. Between 2007 and 2015, there was a consistent increase in publications. The annual publication count has consistently risen from 30 in 2007 to 106 in 2015, and the volume of publications has intensified significantly. At the beginning of 2016, with 161 documents, it intensified to 289 by 2023. The volume of publications rose from 2020 to 2022, related to an increase in research associated with the COVID-19 pandemic; this rose from 203 in 2020 to 243 in 2020. The overall number of publications for 2024 is 180, which remains significant despite the year's deficiencies. This illustrates a continuous range of superior research outputs.

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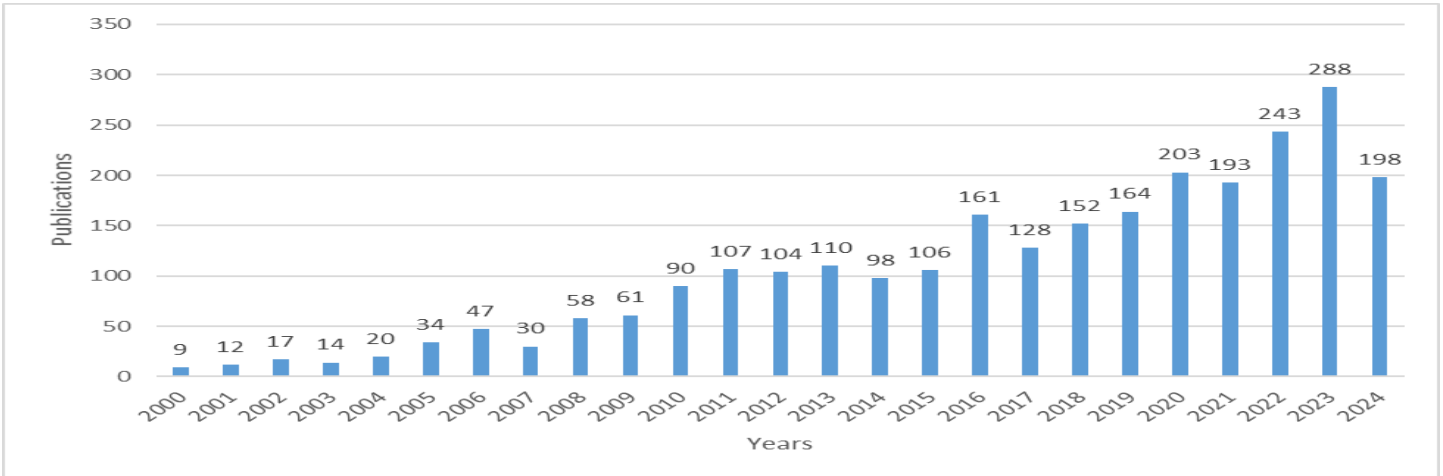


Figure .1 Publications growth of innovation management in SMEs from 2000 to 2024.

Source: Scopus Database

3.1.2. LEADING AND INFLUENTIAL COUNTRIES

These countries have published several research publications on innovation management in SMEs, demonstrating their ongoing commitment to advancing knowledge in this important business sector. The quantity of publications serves as a significant statistical indicator of productive activity, reflecting the extent of investment in research funding and underscoring the relevance of these studies for national economic growth and competitiveness in new research endeavors (Klarin, 2019). Moreover, despite the abundance of publications, several countries are conducting research that significantly impacts global opinions and methods in innovation management (Aboelmaged et al., 2024). The significance of this study is often evaluated based on the quantity of references, many of which have considerable local and worldwide significance. Citation counts are a vital metric of scholarly influence, indicating the frequency with which other academics use a country's research output as a basis for further study and application (Gao et al., 2020). This effect highlights a country's research quality and capacity to establish trends and direct best practices in the larger realm of innovation management in SMEs. Table 1,2 indicates the UK's best position in innovation management research for SMEs. With 325 publications, the UK exhibits significant development in research production, reflecting the country's dedication to advancing knowledge in innovation management for SMEs. This productivity is crucial since research in this domain assists SMEs in attaining sustained development and competitiveness in the global market (Kumar Kar and Harichandan, 2022). The UK has a significant position in publishing and is regarded as the most significant country in this field, with a total of 13,010 citations. The number of citations demonstrates that the UK's research achievements are widely regarded and cited by the international scientific community, highlighting the quality and importance of this work. Often cited publications include significant ideas, techniques, or frameworks that enable later research (Strielkowski et al., 2022).

Table. 1Leading Countries

Country	Publication
UK	325

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China	270
Italy	205
Spain	175
Malaysia	172

Source: author's Creation

Table. 2 Influential Countries

Country	Publication	Citation
UK	325	13010
Italy	205	7743
Spain	175	7516
France	121	5631
USA	140	4954

Source: Author's Creation

The UK's active and significant involvement in innovation management for SMEs highlights its national leadership. Leading research in this country offers significant theories and empirical discoveries that shape practice and inform worldwide study

3.1.3. LEADING AND INFLUENTIAL AFFILIATIONS

This study evaluates deployment and attribution data from the Scopus database to find critical relationships in SME innovation management studies. Analyzing this data allows us to identify linkages that enhance this field of study and encourage intellectual discourse. Affiliations with significant publications often reflect robust research initiatives, dedicated financing, and faculty expertise in Innovation and business, making them vital to knowledge creation (Jankovský et al., 2021). Moreover, these significant interactions often establish regional and worldwide collaborative networks, enhancing the exchange of ideas and methodologies while fostering the advancement of the broader research community. Affiliations with high citation counts emphasize their influence since citation metrics indicate the extent to which other scholars depend on and appreciate their discoveries. Increased citation counts indicate that the research generated by these institutions enhances academic theories and offers practical insights relevant to real-world challenges faced by SMEs, including resource management, agility promotion, and innovative process implementation. The study emphasizes key affiliations that act as research hubs, significantly influencing SME innovation practices globally and fostering advancements in business strategies, resource optimization, and sustainable development within SMEs. These connections enhance the worldwide understanding of efficient innovation management in resource-limited firms via foundational knowledge and international engagement, ultimately enhancing the competitiveness and resilience of SMEs in swiftly evolving marketplaces. Table 3,4 defines the concept of the five leading production and vital organizations that contribute to innovative management research for SMEs, as derived from Scopus data. The Bucharest University of Economic Studies leads in publication creation, with 29 publications that reflect its commitment to creative research on SMEs. The substantial publishing output from such organizations signifies a commitment to developing a thorough understanding of innovative techniques (H. T. T. Le et al., 2019). In contrast, the National Yunlin University of Science and Technology is the leading affiliation in this region, with 1,523 citations. Many references point to the significance and impact of the findings and are often cited by other researchers (Donthu et

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al., 2022). Institutions such as Yunlin National University of Science and Technology show that the impact of research is not limited to the number of publications. The quality and relevance of services can improve efficiency, as evidenced by the organization's unusual referral statistics.

Table .4 Leading Affiliations

Affiliations	Publication
Bucharest University of Economic Studies	29
Universidade do Minho	25
Università degli Studi di Torino	22
Universidade da Beira Interior	21
University Utara Malaysia	20

Source: Author's Creation

Table. 5 Influential Affiliations

Affiliations	Citations	Publication
National Yunlin University of Science and Technology	1523	2
Abu Dhabi University	1357	4
The University of Rome	1188	2
Paris school of business	981	2
University of Murcia	547	2

Source: Author's Creation

Institutions such as the National Yunlin University of Science and Technology illustrate that significant research impact is dependent on an immense quantity of publications and the quality and relevancy of services, which may enhance efficiency, as shown by an organization's outstanding reference statistics. Institutions such as the Bucharest University of Economic Studies and the University of Minho substantially enhance research output, providing critical concepts for advancing knowledge in this field. This study delineates many approaches via which academic institutions might improve innovation management in SMEs, promote research quality, develop collaborative networks, and increase sector impact (Medias et al., 2024).

3.1.4. LEADING AND INFLUENTIAL JOURNALS

The study found the most important journals that promote research in the innovative management of SMEs and are considered the most important to increase knowledge in this field. This method uses bibliometric data to identify journals with a high level of publication and citation, thus revealing their production and impact within the academic community. The elevated citation rate of these publications indicates that their papers are extensively read and regularly referred to, underscoring their influence on academic discourse and practical applications in innovation management. These publications facilitate the distribution of knowledge among academics, professionals, and policymakers, making them vital resources for advancing the discipline. This study highlights significant journals, offers insights on publishing significant research, and assists prospective researchers and editors in locating credible information sources in innovation management for SMEs. These publications jointly provide a robust platform for examining new trends, assessing successful techniques, and confronting the unique problems SMEs encounter in their quest for Innovation. Table 5,6 displays the five most prolific and important journals in innovation management inside SMEs. It is derived from the Scopus database.

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Sustainability Switzerland produced a significant quantity of documents in innovation management, totaling 67 publications. This publication highlights sustainable practices and innovations, highlighting the intersection of sustainability and Innovation that is growing in SMEs. In contrast, Tec Novation is regarded as the most influential journal, with 4,218 citations. Tec Novation's study has been frequently acknowledged, emphasizing the necessity for creative SMEs, particularly technological Innovation. This research examines the main publications that impact innovation management in small and medium-sized enterprises (SMEs). Sustainability (Switzerland) and IEEE Transactions on Engineering Management are exemplary discussions for disseminating new findings. Tec Novation and the Journal of Cleaner Production are recognized for their elevated reference metrics and robust affiliations. Researchers concentrating on the creative management of SMEs may explore these publications to share their findings and identify high-impact research.

Table 5 Leading Journals

Journal	Publication
Sustainability Switzerland	67
IEEE Transactions On Engineering Management	30
Strategic Direction	29
Journal of Cleaner Production	28
International Journal of Technology Management	27

Source: Author's Creation

Table 6 Influential Journals

Journals	Citation	Publication
Tec novation	4218	22
Journal of Cleaner Production	2595	28
Technological forecasting and social change	2490	24
Journal of Business Research	2170	25
European Journal of Innovation Management	1287	23

Source: Author's Creation

3.1.5. LEADING AND INFLUENTIAL AUTHORS

The most prolific authors have produced the most papers on innovation management in SMEs; they have significantly contributed to advancing research in this sector by presenting several studies and concepts (Odriozola-Fernández et al., 2019). Conversely, the most impactful authors are identified by the highest number of citations for their publications, reflecting the quality of their research since their publications are often referenced by other scholars (Cardenas et al., 2022). Table 7,8 presents the top five authors in SME innovation management, ranked by productivity and effectiveness according to the Scopus database. Rahman, H leads the high number of publications in innovation management in SEMs with 11 total publications. On the other hand, Soto-Acosta, Pedro led the most influential author with 1115 citations. Consequently, each author has distinct priorities in innovation management. Several authors emphasize quantity and seek to publish numerous articles, despite others stressing quality and efficiency, with their work often used by others.

Table7 Leading Authors

Author	Publication
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Original Article

Rahman, H	11
Camargo, M	10
Durst, S	9
McAdam, R	9
Raymond, L	9

Source: Author's Creation

Table 8 Influential Authors

Authors	Citation	Publication
Soto-Acosta, Pedro	1115	6
Popa, Simona	839	5
Madrid-Guijarro, Antonia	639	7
Scuotto, veronica	521	8
Saunila, Minna	449	6

Source: Author's Creation

3.2. NETWORK ANALYSIS

3.2.1. KEYWORD ANALYSIS

Keywords provide insights into the essential material of academic papers. In contrast, the co-occurrence of keywords may offer a more profound understanding of the development of emerging interdisciplinary research limitations within a knowledge area.. This analysis presents the most often inquired terms about SMEs and the robustness of their associations within the domain of innovation management. Table 9 show that Innovation is SMEs' leading keyword in innovation management, with 876 co-occurrences and 5671 total strength links. Innovation is an often referenced and essential term in research, particularly concerning medium-sized enterprises (SMEs). It is essential for improving competitiveness, promoting sustainability, and encouraging adaptation in changing markets. Innovation management is particularly essential in SMEs because it handles resource restrictions and supports the formation of special interests, which separates SMEs from larger competitors (Zhang et al., 2019). In addition, innovation is intimately connected to issues such as technology adoption, and business and organizational culture, stressing its multidisciplinary value (Dziallas and Blind, 2019). This link demonstrates that innovation serves as an engine for business growth while encouraging greater economic and societal advancement. SMEs rank as the second most used term, with 681 collaborations and a total link strength of 3,716. These terms contain the significant ideas often used in creative management research for small and medium-sized enterprises (SMEs). The significance of recurrence and its pertinence underscores their importance and the robust association among the research.

Table 9. Keyword Analysis

Keywords	Co-Occurrence	Total Strength Link
Innovation	876	5671
SMEs	681	3716
Small and medium-sized enterprises	334	2890
Knowledge management	322	2133
TIME	206	1258

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Source: Author's Creation

Figure 2 shows clusters of keywords, each cluster related to a specific area of research or topic and highlighted in different colors.

The Green Cluster represents a mix of Innovation and sustainability in small and medium-sized enterprises (SMEs), underscoring their fundamental contribution to economic development and environmental management. This method highlights the multiple essences of Innovation, including product, process, organizational, and market innovations, which empower SMEs to adjust to changing markets and environmental requirements (T. T. Le & Ikram, 2022). This model fundamentally relies on the use of intellectual capital and technology, which are essential facilitators of inventive ability (Khrais & Alghamdi, 2022), emphasizing the essential function of knowledge assets, including staff expertise and technical innovations, in promoting sustainable business practices (Jia et al., 2020). The decision-making processes of SMEs are crucial for their capacity to adopt and implement Innovation effectively. Strategic decisions on resource allocation, risk management, and flexibility to market changes significantly influence the success of Innovation (Klarin, 2019). The focus on supply chain impacts underscores the importance of sustainability since enhancements in supply chain management reduce environmental consequences, enhance operational efficiency, and provide competitive advantages (Taghikhah et al., 2019). Economic factors substantially impact the development of Innovation in SMEs, with adept financial management and effective resource allocation acting as catalysts for Innovation. Technological elements, especially digital transformation and automation, enable SMEs to sustain competitiveness and adapt to global changes (Surya et al., 2021). These factors together illustrate the interrelation between Innovation, sustainability, and resilience, establishing SMEs as essential contributors to sustainable economic growth. The Red Cluster in the illustration highlights organizational growth and development, concentrating on key issues such as innovative activities, organizational learning, and human resources. These interrelated themes emphasize the need to develop an innovative corporate culture, embrace emerging technology, and enhance human capital to drive sustainable growth inside organizations. (Lau et al., 2019), highlights that organizational learning is crucial for organizations to assimilate and use new information, fostering an adaptable environment that promotes continual development and Innovation. Integrating human resources into innovation processes is essential since human capital supports creativity, problem-solving, and executing new ideas. (Papa et al., 2020), indicates that efficient human resource management techniques, including talent development, employee engagement, and collaboration promotion, directly enhance organizational innovation performance. Furthermore, fostering a strong corporate culture that encourages risk-taking, cooperation, and adaptability is crucial for integrating Innovation as a fundamental organizational value. In addition, this Group emphasizes the significance of using technology to enhance innovative skills. Technology offers instruments to enhance product performance, facilitate advanced data analysis, inform decision-making, and drive product or service innovation, which are crucial for sustaining competitiveness in fluctuating markets (Loo et al., 2023). The collaboration between technology and human resources creates a synergy that encourages creativity and Innovation. The Blue cluster highlights the important function of technology transfer and its relationship to global innovation management and institutional capital. Technology transfer facilitates the global exchange of information, skills, and technical innovations, enhancing companies' competitiveness in the global market (Guerrero and Urbano, 2019). This process is especially important for growing economies since the assimilation and modification of foreign information greatly enhance

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the development of inventive capacities. This research examines the influence of external data on how global Innovation enhances management practices. External knowledge sources, such as international collaboration, foreign direct investment, and engagement with global supplier networks, drive Innovation and organizational advancement. This communication enables the distribution of information, assisting businesses in enhancing their structural assets, such as internal systems, processes, and foundations (Ma and Rauf, 2020). The funds are essential to continue Innovation since they contribute by integrating foreign knowledge with internal resources. The Group concentrates on the importance of economic globalization and its impact on world trade. Economic globalization provides access to wider markets, diverse consumer groups, and resources, enabling companies to improve operations and adopt best practices from other regions (Liñán et al., 2020). The Yellow Cluster highlights the essential influence of current technology and Innovation on small and medium enterprises (SMEs) performance and competitiveness. This cluster is centered on developing technologies like artificial intelligence (AI), cloud computing, and e-commerce, transforming company operations by providing adaptable, efficient, and creative solutions. Artificial intelligence enables small and medium-sized enterprises to automate decision-making, analyze complicated information, and provide customized customer service, improving productivity and market adaptability (Hansen & Bøgh, 2021). Likewise, cloud computing diminishes infrastructure expenses, promotes easy cooperation, and guarantees access to advanced computational resources, allowing SMEs to concentrate more on Innovation and strategic development (Saratchandra & Shrestha, 2022). Despite advancements in technology, social media and data management are crucial in this cluster. Social media offers SMEs economical marketing tools, direct connection channels with customers, and platforms for enhancing brand recognition and strengthening their market standing (Liñán et al., 2020).

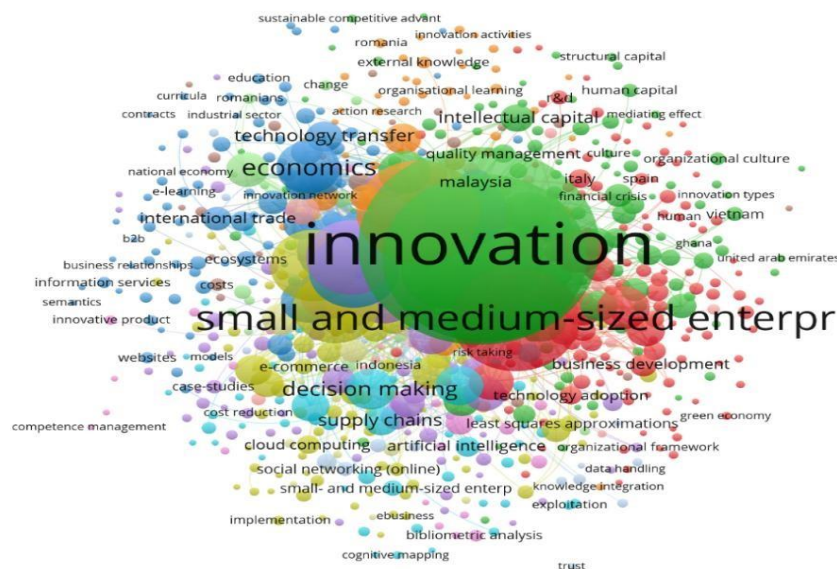


Figure 2. Co-occurrence of Keywords Source: Author's Creation

Efficient data management allows organizations to use big data analytics to get actionable insights, enhance operations, and forecast market trends, making it an essential resource for Innovation (Maroufkhani et al., 2022).

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The Yellow Group emphasizes the significance of innovation networks in promoting knowledge sharing and collaboration among SMEs. These networks, often driven by existing digital platforms, facilitate value creation, market expansion, and the expedited adoption of innovative methodologies. Collaboration with suppliers, customers, and technology providers enables SMEs to surmount resource limitations and use collective experience to promote Innovation.

The Purple Cluster emphasizes research methodology and business-oriented subjects, specifically innovation management in small and medium-sized enterprises (SMEs). Principal methodologies include bibliometric analysis, which systematically maps and assesses current research trends, and cognitive mapping, which facilitates the visualization of linkages and processes within complex structures. This Group highlights the significance of risk desire, a crucial factor in promoting Innovation and motivating SMEs to explore new ideas and tactics amid uncertain conditions (Saunila, 2020). Case studies emphasize the significance of practical learning in understanding the complicated workings of innovation management. This plan emphasizes the need for strict research methodologies to address obstacles and possibilities in Innovation inside SMEs effectively.

The five classifications indicate that innovation management research investigates many subjects and fields. Each Group addresses different research areas, including technology, economics, organizational learning, and research methodologies. These studies have produced an extensive understanding of many different points of view within the expansive domain of innovation management.

3.3. FINDINGS

This study examines the progress and changes in innovation management research in SMEs. The study presents important findings through bibliometric analysis that explain the progress and effectiveness of research in this field globally.

Figure 2 indicates that research in innovation management has significantly expanded over the last twenty-four years. The rise in innovation research publications concerning SMEs from 2000 to 2024 indicates a growing worldwide scholarly interest in this domain. This practice has intensified recently, particularly during the COVID-19 epidemic and globalization. The pandemic has significantly affected worldwide economic and corporate operations, prompting experts to undertake comprehensive studies on creative and sustainable management practices. The epidemic has forced businesses to implement new crisis management techniques, expediting scientific research toward new approaches.

Conversely, globalization has created new chances for SMEs to engage in foreign markets. These organizations must innovate to capitalize on this potential, use technology, enhance the delivery of goods and services, and adjust to changing market needs. They must also build strong international networks, enhance their supply chain efficiency, and stay competitive through continuous learning and adaptation to global trends. Therefore, research has increased in innovation management to address market demand and international competition; with the advent of globalization, there has been rapid progress in technology. SMEs are required to implement this technology in their products and services. It is presented as an important part of innovation management research, so the publication of research articles in this field is also increasing.

Secondly, keyword analysis indicates which topics and keywords are more widely used. Keywords such as "innovation" and "SMB" are often used and have the highest connection in search results. This indicates that academics continuously investigate this problem and that Innovation is crucial in developing SMEs. Innovation

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is the main engine of economic development, particularly for small and medium-sized enterprises. Small and medium-sized enterprises provide many employment opportunities and constitute a significant portion of GDP. Innovating goods, services, and processes may improve competitiveness and contribute to overall economic growth.

The correlation between Innovation and economic development is an essential topic for scholars to comprehend to enhance local and national economies. In the current dynamic market, SMEs must exhibit adaptability to change. Innovation allows these organizations to enhance their goods, improve operations, and get deeper insights into the customer wants. The principal elements of "innovation" and "SMEs" emphasize the significance of research in economic growth, development, job creation, sustainability, collaboration, and global competitiveness. By comprehending these connections, researchers may provide critical insights that assist policymakers, firms, and experts in using Innovation more efficiently to enhance the performance and influence of SMEs.

CONCLUSION

The study aims to provide an overview of the most recent scientific studies about innovation management in small and medium sized enterprises (SMEs and identify the top-producing and influential countries and their affiliations, journals, and authors in innovation management research. It does keyword analysis to identify essential topics, ideas, and trends in innovation management research inside SMEs. This study will advance the field of innovation management for SMEs and provide novel insights to enhance the sector. The study depends on the terms of Innovation Management and Small and Medium Enterprises. These were performed during the preliminary search in Scopus results, and documents were organized, presented, developed, and analyzed using the CSV file with the assistance of VOSviewer software. The findings of this study demonstrate that the relevance and expansion of research in innovation management have remained critical for SMEs during the last 24 years. This bibliometric demonstrates the beneficial interactions and relationships between researchers, countries, institutions, and journals and demonstrates that research has advanced significantly in innovation management in SMEs. The quantity of research publications is increasing, particularly during the COVID-19 epidemic, which underlined the significance of Innovation in altering and regulating global economic and commercial activities. During the pandemic, innovation management has shown to be a critical aspect of the recovery and sustainability of the global economy. The United Kingdom, China, Italy, and Spain are at the top of innovation management research in small and medium-sized enterprises (SMEs). The Bucharest University of Economic Studies and the National University of Science and Technology Online have significantly contributed to the advancement of this field of study. Leading journals like "Sustainability Switzerland" and "Tec Novation" provide reliable locations for distributing research and scientific information in the field. These affiliations and publications are crucial in communicating significant discoveries in innovation management and encouraging scientific discourse. The abundance of study topics and keywords like "innovation" and "SMEs" indicates that Innovation is crucial for enhancing SMEs' competitiveness and addressing the global market's demands. It facilitates the establishment of new research networks and partnerships, enabling researchers and academic institutions to interact via mutual references and engage in novel research endeavors.

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LIMITATIONS AND RECOMMENDATIONS FOR FUTURE RESEARCH

Although the significance of this research is acknowledged, using bibliometric analysis to evaluate trends in innovation management inside SMEs has several limitations. This research only utilizes data from the Scopus database. However, to carry out extensive studies, additional databases, such as Web Science and Google Scholar, can be used to expand the scope of findings. Second, this study only includes publications in English. Future studies show that the focus is not only on English but also on other languages; this will improve the breadth and quality of research. Third, this study covers a few types of bibliometric analysis. Therefore, it can only explain some types of bibliometric analysis; future research can include the remaining types of bibliometric analysis for better results.

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