Mapping the Landscape of Knowledge Management Research: 2020–2025

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ABSTRACT:

This bibliometric analysis explores the evolving landscape of knowledge management (KM) research from 2020 to 2025, aiming to identify key trends, influential contributions, and collaborative networks within the field. Despite the rapid growth and application of KM across various disciplines, a comprehensive understanding of its research trajectory in recent years remains limited. Addressing this gap, the study employed a systematic approach using Scopus Analyser for data extraction, OpenRefine for data cleaning and normalisation, and VOSviewer for visualising co-authorship, keyword co-occurrence, and citation networks. A total of 1,789 English-language journal articles published between 2020 and 2025 were analysed. The findings reveal a significant upward trend in KM publications, with a peak in 2024, indicating an increasing interest in both academic and practical aspects. China, the United States, and the United Kingdom emerged as the most prolific contributors, with notable collaborations from Malaysia, India, and several European and Middle Eastern countries. Keyword analysis highlighted dominant themes, including innovation, sustainability, digital transformation, organisational performance, and artificial intelligence, signalling the interdisciplinary and dynamic nature of KM research. Co-authorship patterns indicate a growing global research network, although disparities remain between high- and low-income countries. The results demonstrate how KM has become an integral element in enhancing decision-making, competitiveness, and adaptability in complex organisational environments. This study provides valuable insights for academics, policymakers, and practitioners by outlining the intellectual structure of KM research and identifying potential areas for future exploration and collaboration.

Keywords: Knowledge Management, Organisation

INTRODUCTION

The field of Knowledge Management (KM) has seen significant advancements from 2020 to 2025, particularly with the integration of Artificial Intelligence (AI) and Information Technology (IT). The convergence of AI and KM has been pivotal in optimising processes and enhancing decision-making capabilities within organisations. Research trends indicate a growing interest in the synergy between AI and KM, with key years such as 2020 and 2022 marking significant developments (Cantu-Ortiz, 2021). Thematic evolution in this period has shifted from traditional KM practices to incorporating machine learning and deep learning techniques, reflecting the adaptation to emerging technological trends (Cantu-Ortiz, 2021). This integration has been instrumental in uncovering hidden knowledge within large datasets, thereby enabling businesses to achieve their goals (Al Mansoori et al., 2021).

The role of Knowledge Management Systems (KMS) has been critical in facilitating knowledge acquisition, storage, and utilisation, which are essential for effective decision-making and maintaining competitiveness (Valencia et al., 2024). The COVID-19 pandemic further highlighted the importance of KM, as the literature on KM more than doubled from 2020 to 2021, indicating a heightened focus on knowledge sharing and organisational adaptability during crises (Fuloria et al., 2024). The pandemic period witnessed a surge in collaborative research efforts, resulting in a significant number of publications and citations, which underscored the relevance of KM in navigating unprecedented challenges (Fuloria et al., 2024; Khan et al., 2024). Additionally, the emphasis on digital innovation and communities of practice has been prominent, with SMEs and higher education institutions being key areas of focus (Valencia et al., 2024).

Recent studies have also underscored the importance of sustainability and adaptability in KM practices. The

integration of KM with sustainability initiatives has been a growing trend, with research highlighting the role of KM in developing sustainable business practices and improving organisational functioning. The bibliometric analyses conducted during this period have provided valuable insights into publication trends, author collaborations, and emerging thematic areas, such as deep learning, information sharing, and organisational behaviour (Abbas et al., 2021). These studies have laid a robust foundation for future research directions, emphasising the need for interdisciplinary approaches and the continuous evolution of KM practices to meet the dynamic needs of modern organisations (García-Pineda et al., 2024).

Research Question

RQ1: What are the research trends in knowledge management according to the publication year?

RQ2: What are the most cited articles?

RQ3: What is the 10th country based on the number of publications?

RQ4: What are the popular keywords related to the study?

RQ5: What is the distribution of co-authorship collaborations by country?

METHODOLOGY

Bibliometrics involves gathering, organising, and analysing bibliographic data from scientific publications (Alves et al., 2021; Assyakur & Rosa, 2022; Verbeek et al., 2002) beyond basic statistics, such as identifying publishing journals, publication years, and leading authors (Wu & Wu, 2017). Bibliometrics includes more sophisticated techniques, such as document co-citation analysis. Conducting a successful literature review requires a careful, iterative process to select suitable keywords, search the literature, and perform an in-depth analysis. This approach facilitates the compilation of a comprehensive bibliography and yields reliable results (Fahimnia et al., 2015). With this in mind, the study focused on high-impact publications, as they provide meaningful insights into the theoretical frameworks that shape the research field. To ensure data accuracy, SCOPUS served as the primary source for data collection (Al-Khoury et al., 2022; Di Stefano et al., 2010; Khiste & Paithankar, 2017). Additionally, to maintain quality, the study only considered articles published in peer-reviewed academic journals, deliberately excluding books and lecture notes (Gu et al., 2019). Using Elsevier's Scopus, known for its broad coverage, publications were collected from 2020 through December 2023 for further analysis.

Data Search Strategy

The study began with a screening process to identify appropriate search terms for retrieving relevant articles. Initially, a query string was formulated using the keywords "knowledge" and "management," which generated a total of 22,110 articles. This query was then refined to focus specifically on English-language journal articles published between 2020 and 2025, addressing the topic of knowledge management. The revised search further narrowed the results to articles classified under the subject areas of Engineering or Social Sciences. It limited the document type to full-length research articles, excluding conference proceedings, reviews, and other types of documents. This systematic approach ensured the inclusion of recent, high-quality, and contextually relevant publications, ultimately yielding a final collection of 1,789 articles suitable for analysis.

Table 1: The search string

Scopus	TITLE (knowledge AND management) AND PUBYEAR > 2019 AND PUBYEAR < 2026 AND (LIMIT-TO (SUBJAREA , "ENGI") OR LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (LANGUAGE , "English"))

Table 2: The selection criterion is searching.

Criterion	Inclusion	Exclusion
Language	English	Non-English

Subject	Social Sciences Engineering	Besides Social Sciences Engineering
Timeline	2020 – 2025	< 2021
Literature type	Journal (Article)	Conference, Book, Review

Data Analysis

The data analysis process employed a systematic approach, utilising multiple tools to ensure accuracy, consistency, and a meaningful interpretation of the bibliometric data. Initially, data were extracted from the selected database using an analyser to obtain relevant publication records. OpenRefine was then employed for data cleaning and normalisation, which included resolving inconsistencies in author names, keywords, and other metadata to enhance data quality. Following this, VOSviewer was used to visualise and analyse the cleaned data, focusing on co-authorship networks, keyword co-occurrence patterns, and citation relationships. This integrated approach enabled a comprehensive and structured analysis of the knowledge landscape within the selected research domain.

Cleaning keywords

OpenRefine v3.6 was utilised in the data cleaning process to cluster and merge variations in author and keyword names, ensuring consistency and accuracy. The key collision method with fingerprinting was applied to detect and unify similar terms, for example, *"knowledge management"* and *"Knowledge Management"* were consolidated under a single standard term. Through this process, approximately 2,400 keywords were refined to establish a standardised set for analysis. Manual inspection was conducted to verify the accuracy of the clustered results and prevent incorrect merges. Once the keyword refinement was complete, the cleaned dataset was exported and analysed using VOSviewer to perform bibliometric mapping and visualisation.

Co-occurrence analysis of keywords

VOSviewer is a user-friendly bibliometric software developed by Nees Jan van Eck and Ludo Waltman at Leiden University, Netherlands (Van Eck & Waltman, 2010a, 2017). Widely utilised for visualising and analysing scientific literature, the tool specialises in creating intuitive network visualisations, clustering related items, and generating density maps. Its versatility allows for the examination of co-authorship, co-citation, and keyword co-occurrence networks, providing researchers with a comprehensive understanding of research landscapes. The interactive interface, coupled with continuous updates, ensures efficient and dynamic exploration of large datasets. VOSviewer's ability to compute metrics, customise visualisations, and its compatibility with various bibliometric data sources make it a valuable resource for scholars seeking insights into complex research domains.

One of the standout features of VOSviewer is its capacity to transform intricate bibliometric datasets into visually interpretable maps and charts. With a focus on network visualisation, the software excels in clustering related items, analysing keyword co-occurrence patterns, and generating density maps. Researchers benefit from its user-friendly interface, enabling both novice and experienced users to explore research landscapes efficiently. VOSviewer's continuous development ensures it remains at the forefront of bibliometric analysis, offering valuable insights through metrics computation and customisable visualisations. Its adaptability to different types of bibliometric data, such as co-authorship and citation networks, positions VOSviewer as a versatile and indispensable tool for scholars seeking a deeper understanding and more meaningful insights within their research domains.

Datasets comprising information on publication year, title, author name, journal, citation, and keywords in Plain Text format were obtained from the Scopus database, spanning the period from 2004 to December 2024. Co-occurrence analysis of keywords was conducted using VOSviewer v1.6.19. The whole counting method was applied. The minimum threshold for keyword occurrence was set at 5. The LinLog layout algorithm was used

for visualisation, and the minimum link strength threshold was set at 0.1. Through the application of VOS clustering and mapping techniques, this software facilitated the examination and generation of maps. Offering an alternative to the Multidimensional Scaling (MDS) approach, VOSViewer focuses on situating items within low-dimensional spaces, ensuring that the proximity between any two items accurately reflects their relatedness and similarity (Van Eck & Waltman, 2010). In this respect, VOSViewer shares a similarity with the MDS approach (Appio et al., 2014). Diverging from MDS, which primarily engages in the computation of similarity metrics like cosine and Jaccard indices, VOS utilises a more fitting method for normalising co-occurrence frequencies, such as the association strength (Asij), and is calculated as (Van Eck & Waltman, 2007):$AS_{ij} = \frac{c_{ij}}{w_i w_j}$

Equation 1: Association Strength

which is "proportional to the ratio between on the one hand the observed number of co-occurrences of i and j and on the other hand the expected number of co-occurrences of i and j under the assumption that co-occurrences of i and j are statistically independent" (Van Eck & Waltman, 2007).

FINDINGS

RQ1: What are the research trends in knowledge management according to the publication year?

The bibliometric analysis of publications related to knowledge management in construction from 2020 to 2025 reveals a dynamic and growing research interest in this field. Starting with 281 publications in 2020 and 283 in 2021, the research output remained stable during these years, each accounting for 16% of the total publications. This consistency suggests a steady baseline of scholarly attention, likely driven by ongoing industry needs for efficient information handling, digital transformation, and organisational learning in construction practices.

A noticeable upward trend began in 2022, when the number of publications increased to 322, representing 18% of the total. This growth continued in 2023 and peaked in 2024, with 349 and 387 articles published, respectively, accounting for 20% and 22% of the total output. The sharp rise in 2024 indicates a surge in academic and professional interest, possibly linked to increased adoption of digital technologies and the growing importance of knowledge-based decision-making in construction projects amid global infrastructure demands.

In 2025, however, the number of publications declined to 167, constituting only 9% of the total. This drop may be attributed to incomplete data collection for the year or a possible saturation in publication volume following the peak. Nevertheless, the overall trend from 2020 to 2024 reflects a clear and growing emphasis on knowledge management as a vital discipline in enhancing construction project performance, collaboration, and compliance with regulatory frameworks. The fluctuations underscore the dynamic nature of research priorities and the impact of external factors, including policy shifts, technological advancements, and industry challenges. Figure 1 and Table 3 illustrate the trend in research on online learning by year.

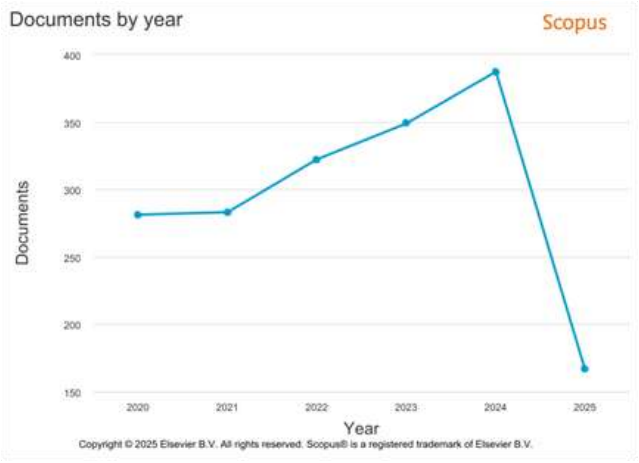

Figure 1: Trend of research in Online learning by years

Table 3: Total of Publications

Year	Total publication	Percentage (%)
2025	167	9%
2024	387	22%
2023	349	20%
2022	322	18%
2021	283	16%
2020	281	16%

RQ2: What are the most cited articles?

The analysis of the top 10 most cited authors in the field of knowledge management, based on Scopus data, highlights the dominant themes and impactful contributions that have shaped recent scholarship in this field. Leading the list is Schniederjans et al. (2020), whose work on supply chain digitisation trends integrated with knowledge management has amassed 311 citations, reflecting strong academic and practical interest in digital transformation. Sahoo et al. (2023) closely follow, with 308 citations, indicating the growing relevance of green knowledge management and innovation in addressing corporate environmental performance, a topic gaining traction amid global sustainability concerns.

A recurring theme among the most cited works is the integration of knowledge management with broader organisational and environmental contexts. For instance, Lam et al. (2021) and Shahzad et al.(2021) explore the synergy between knowledge management, organisational culture, innovation, and sustainability. Their contributions, each cited over 200 times, underscore the importance of fostering a knowledge-driven culture to enhance innovation capabilities and corporate green initiatives. Similarly, Abbas, (2020) and Abbas et al. (2020) have focused on the mediating role of knowledge management in achieving quality and sustainable innovation, highlighting the relevance of KM in organisational performance frameworks, particularly in SMEs.

Notably, digital transformation and technological integration also emerge as central themes, as seen in the works by de Bem Machado et al (2022) and Alvarenga et al. (2020), which emphasise the pivotal role of KM in Industry 4.0 and public sector modernisation. Additionally, Al-Emran et al. (2020) address knowledge management in the context of mobile learning, showcasing KM's adaptability across sectors. Overall, the citation data not only reflects the academic influence of these authors but also demonstrates a clear research trend: knowledge management is increasingly viewed as a critical enabler of innovation, sustainability, and digital capability across diverse industries and organisational contexts.

Table 4: The Top 10 Cited Authors

Authors	**Title**	**Source title**	**Cited by**
(Schniederjans et al., 2020)	Supply chain digitisation trends: An integration of knowledge management	International Journal of Production Economics	311
(Sahoo et al., 2023).	How do green knowledge management and green technology innovation impact corporate environmental performance? Understanding the role of green knowledge acquisition	Business Strategy and the Environment	308
(Lam et al., 2021)	The relation among organisational culture, knowledge management, and innovation capability: Its implication for open innovation	Journal of Open Innovation: Technology, Market, and Complexity	230

(Abbas, 2020)	Impact of total quality management on corporate sustainability through the mediating effect of knowledge management	Journal of Cleaner Production	218
(Shahzad et al., 2021)	Does the interaction between the knowledge management process and sustainable development practices boost corporate green innovation?	Business Strategy and the Environment	218
(de Bem Machado et al., 2022)	Knowledge management and digital transformation for Industry 4.0: a structured literature review	Knowledge Management Research and Practice	203
(Abbas et al., 2020)	Sustainable innovation in small and medium enterprises: The impact of knowledge management on organisational innovation through a mediation analysis by using the SEM approach	Sustainability (Switzerland)	174
(Santoro et al., 2021)	Do Knowledge Management and Dynamic Capabilities Affect Ambidextrous Entrepreneurial Intensity and Firms' Performance?	IEEE Transactions on Engineering Management	169
(Alvarenga et al., 2020)	Digital transformation and knowledge management in the public sector	Sustainability (Switzerland)	141
(Al-Emran et al., 2020)	Towards a conceptual model for examining the impact of knowledge management factors on mobile learning acceptance	Technology in Society	130

RQ3: What Is The 10 Country Based on A Number of Publications?

The Scopus analysis of the top 10 countries by number of publications in the field of knowledge management reveals that China is the leading contributor, with 234 publications. This dominant position reflects China's strong research focus on organisational knowledge strategies, likely driven by its rapid digitalisation, industrial growth, and academic investment in innovation. Following China are the United States (143 publications) and India (136), both countries with robust academic infrastructures and significant interest in leveraging knowledge management to drive performance across industries, particularly in technology, education, and manufacturing.

Southeast Asia is well represented by Indonesia and Malaysia, with 127 and 100 publications, respectively. Their growing presence indicates regional recognition of knowledge management as a strategic tool in addressing development challenges and improving institutional efficiency. Malaysia's performance is particularly notable, as it surpasses several developed countries, reflecting national-level initiatives and policy support for knowledge-driven governance and education. The United Kingdom, ranking sixth with 96 publications, continues to play a significant role in contributing theoretical and practical perspectives, primarily through its long-established higher education institutions.

Rounding out the top 10 are Iran, Brazil, Italy, and South Africa, each contributing between 64 and 84 publications. These figures underscore a growing global interest in knowledge management, particularly in emerging economies that are seeking to enhance competitiveness through innovation and digital transformation. The geographical diversity of contributions highlights the global applicability of knowledge management principles across various economic, cultural, and industrial contexts. Overall, the data suggests that while traditionally strong research nations maintain their influence, emerging countries are increasingly active and impactful in this research domain.

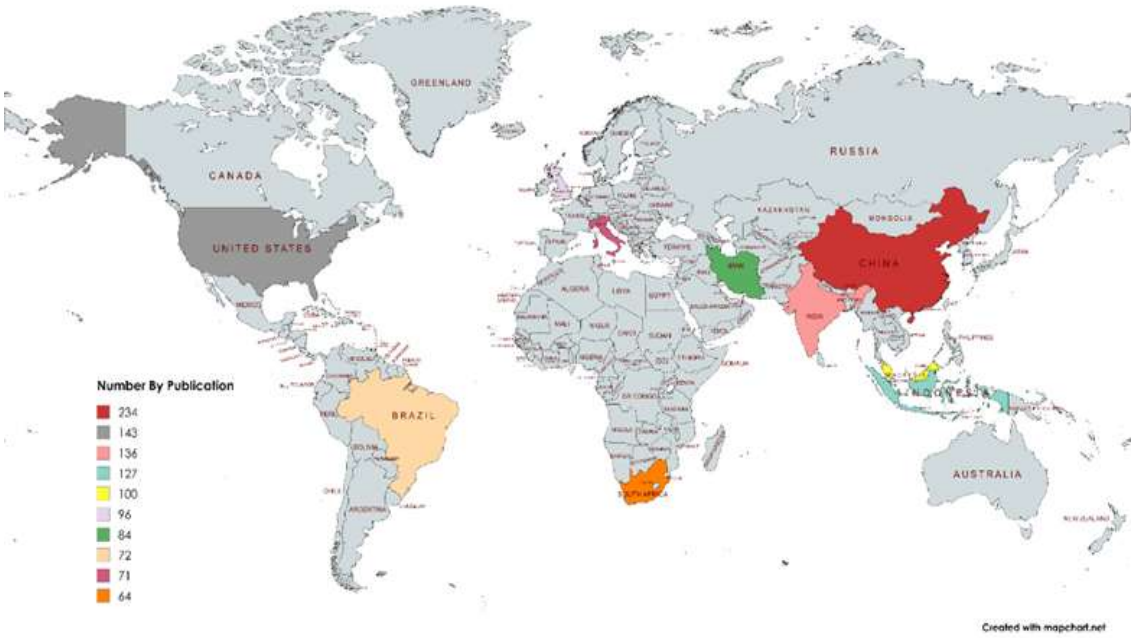

Figure 2: Top 10 Countries By Number of Publications in the Field of Knowledge Management

RQ4: What are the popular keywords related to the study?

The keyword analysis using VOS viewer reveals "knowledge management" as the most dominant term, with 1,220 occurrences and a total link strength of 2,399, indicating its central role and frequent co-occurrence with other keywords. Closely linked concepts, such as "organisational performance" (166 occurrences, 439 link strength), "sustainability" (129, 351), and "innovation" (74, 207), suggest that knowledge management is increasingly studied concerning organisational success, sustainable practices, and innovative capabilities. These linkages reflect the strategic importance of managing knowledge assets to enhance competitiveness, particularly in the construction, manufacturing, and education sectors.

Several other prominent terms, such as "entrepreneurial orientation" (62, 174), "higher education" (54, 151), "project management" (36, 87), and "construction industry" (58, 124), indicate the application of knowledge management across diverse domains. The strong presence of terms such as "explicit knowledge", "tacit knowledge", and "dynamic capabilities" further highlights theoretical depth and focus on both codified and experiential forms of knowledge. Notably, the frequent co-occurrence of "structural equation modelling" and "bibliometric analysis" implies that researchers are increasingly relying on advanced analytical methods to investigate and validate KM-related constructs, underlining a maturing field of study.

Emerging topics such as "artificial intelligence" (37, 107), "industry 4.0" (38, 97), and "digital transformation" (20, 62) reflect evolving interests in technology-driven knowledge systems. The inclusion of keywords like "green knowledge management", "supply chain management", and "resilience" suggests a growing focus on sustainability and operational agility. This diversity of keywords signifies that knowledge management is no longer viewed in isolation but as a core enabler integrated into broader frameworks of innovation, technology, and sustainability, responding to global shifts and organisational complexities.

Table 5: Keywords' Co-occurrence

Keyword	Occurrences	Total Link Strength
Knowledge Management	1220	2399
Organisational Performance	166	439

Sustainability	129	351
Information And Communication Technology	85	224
Innovation	74	207
Entrepreneurial Orientation	62	174
Higher Education	54	151
Management	56	136
Performance	46	135
Construction Industry	58	124

Figure 3: Network Visualisation Map of Keywords' Co-Occurrence

RQ5: What is the co-authorship by Countries Collaboration?

The VOSviewer co-authorship analysis highlights China as the most dominant country in terms of scholarly output in knowledge management, with 235 documents, 3,655 citations, and the highest total link strength of 158. This reflects not only China's prolific publication rate but also its strong collaborative ties with international scholars. Following China, the United Kingdom (96 documents, 1,894 citations, 128 link strength) and the United States (143 documents, 1,445 citations, 107 link strength) also demonstrate strong leadership in global research collaboration, backed by high citation impact and well-established academic networks.

Countries from the Asia-Pacific and Middle East regions also show growing involvement in collaborative research. Malaysia (100 documents, 1,048 citations, 94 link strength) and India (136 documents, 1,084 citations, 64 link strength) are particularly noteworthy for their research productivity and increasing influence. Pakistan, Indonesia, and Saudi Arabia also contribute significantly, with both high publication output and strong collaboration metrics. The inclusion of countries such as Jordan, Iran, the United Arab Emirates, and Vietnam, with moderate to strong link strengths, signifies an expanding international engagement from developing regions, likely supported by global academic partnerships and institutional collaborations.

European countries, such as Italy, Germany, France, and Spain, maintain a consistent research output and collaboration, underpinned by well-established academic systems. Interestingly, some smaller countries, such as

Cyprus, Hungary, and the Czech Republic, have relatively fewer documents but high citation counts and respectable link strengths, indicating high-impact contributions. On the other hand, countries such as Uzbekistan and Armenia exhibit minimal research output or impact, yet they have established linkages, suggesting an emerging interest in the field. Overall, the table underscores an increasingly interconnected global research landscape, where countries across diverse economic and academic contexts are contributing to and benefiting from knowledge management research collaborations.

Table 6: Co-authorship Analysis

Country	Documents	Citations	Total Link Strength
China	235	3655	158
United Kingdom	96	1894	128
United States	143	1445	107
Malaysia	100	1048	94
Australia	62	639	80
Italy	71	1836	77
Pakistan	62	1599	77
Saudi Arabia	51	378	75
India	136	1084	64
United Arab Emirates	36	357	58

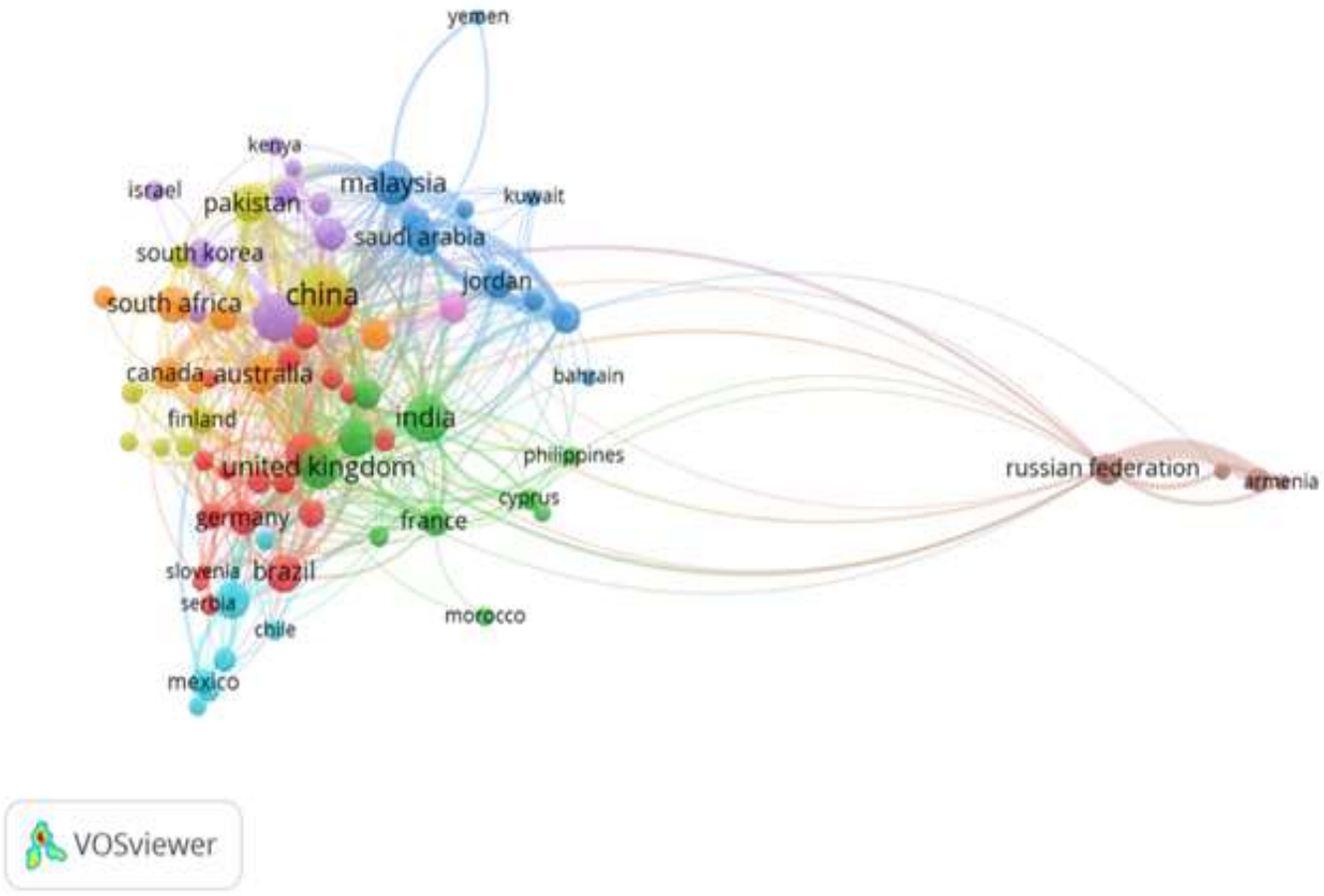

Figure 4: Network Visualisation Map of Keywords' Co-authorship

CONCLUSION

The purpose of this bibliometric analysis was to map the research landscape of knowledge management (KM) from 2020 to 2025 and identify significant patterns, influential contributions, and collaborative trends within the field. The study aimed to answer key research questions related to publication trends, most cited works, leading countries in publication output, popular keywords, and co-authorship networks. A total of 1,789 articles were examined using a rigorous methodological framework, which involved Scopus Analyser for data retrieval, OpenRefine for data cleaning, and VOSviewer for bibliometric visualisation and network analysis. The findings revealed a significant increase in KM-related publications, with a peak observed in 2024. This upward trend reflects growing academic and industry interest in applying KM to emerging global challenges. China, the United States, and the United Kingdom were the most prolific contributors, while countries such as Malaysia, India, and Saudi Arabia showed strong regional engagement and collaborative linkages. Keyword analysis highlighted critical themes including innovation, sustainability, organisational performance, and digital transformation, indicating that KM is increasingly integrated into strategic and technological domains across sectors. The presence of terms related to artificial intelligence and Industry 4.0 further underscores KM's expanding role in the digital economy.

This study contributes to the understanding of how KM research is evolving, offering a data-driven view of its intellectual structure and thematic orientation. It provides actionable insights for scholars, institutions, and practitioners to guide future research and policy. However, limitations exist in terms of data scope and the exclusion of non-English sources. Future studies may broaden the scope by incorporating other databases or qualitative methods to explore contextual factors influencing KM adoption. In summary, bibliometric analysis proves to be a valuable tool in identifying shifts in scholarly focus, fostering collaboration, and guiding strategic directions in knowledge management research.

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