

A systematic review of knowledge management and new product development projects: Trends, issues, and challenges



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ARTICLE INFO

Article History:

Received 3 June 2022

Accepted 17 February 2023

Available online xxx

Keywords:

Knowledge management
New product development
Organizational outcomes
Individual outcomes
Projects outcomes

ABSTRACT

This research aims to show that knowledge management is integral to business strategy and can lead to more efficient new product development in high-tech companies. Organizations have been increasingly focused on knowledge management methods as they have realized how important it is to manage knowledge to stay competitive in their marketplaces. Knowledge Management (KM) is responsible for a company's efficiency, effectiveness, and innovation. Project outcomes, individual outcomes, and organizational outcomes are linked to knowledge in New Product Development (NPD). More than 28,548 KM papers published in the previous 22 years were examined in this research using Scopus and Web of Science; the original sample was narrowed down to items that contributed to KM literature. The R Studio and VOS Viewer software executed the descriptive statistics and scientific mapping approaches using co-citation analysis. The descriptive analysis involved studying publishing patterns over time, the geographical localization of the contributing institutions, journals, the most prolific authors, the top-performing institutions, and the most-cited papers. Scholars and practitioners have been paying close attention to knowledge management and organizational performance in recent years. Once implemented, the integrated approach may significantly influence organizational processes and performance. This study examines both KM ideas in NDP initiatives. Several intriguing discoveries are presented, with extensive explanations of their future direction, a conceptual framework for the study, and practice based on the literature.

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Introduction

The movement and growth of organizations, particularly in business, determine a country's economy (Islam & Abd Wahab, 2021). According to Belmonte-Ureña et al. (2021) and Panda et al. (2022), a small and medium-sized enterprise (SME) can significantly impact a country's success. One of an organization's main priorities is its performance (Hanaysha & Mehmood, 2022). While revenues are commonly used to evaluate a company's performance, other indicators beyond income can represent standards for evaluation. Alshurideh et al. (2022) describe that performance is a metric established by management based on the organization's results over time. Moreover, an SME is likely to accomplish success on the financial and non-financial fronts within five (5) to ten (10) years. The concept of organizational performance assessment is formed based on the combined analysis of an organization's assets, i.e., human, physical, and capital, in order to achieve certain goals; determining an SME's performance is not

solely financial (Abubakar et al., 2019; Lee et al., 2022). Lazerretti and Capone (2016) argue that an organization's domain matters for innovation. Previous literature points out that groups tend to have better performance and possibilities while embedded in collaboration.

Businesses face numerous obstacles to staying competitive because of globalization (Katsikeas et al., 2019; Mukherjee, 2018). They encounter intense competition from other firms and risk losing consumers quickly since most need help recognizing and adapting to rapidly changing market trends. They are now driven to move away from other management approaches and towards knowledge management due to the growing value of knowledge. Knowledge management (KM) is defined as the capacity to manage information, including gathering knowledge from internal and external sources, transforming it into new strategies or ideas, and implementing and preserving it (de Bem Machado et al., 2022). In the early twentieth century, Henry Ford's creative use of the assembly line in the automobile sector aided in the broad adoption of mass production (Öberg & Alexander, 2019), resulting in cheaper manufacturing costs. Manufacturing costs are a point for rivalry. Businesses develop new products and identify new product and delivery techniques for existing products to boost earnings (Kharub et al., 2022). Innovation is a

Abbreviations: KM, Knowledge Management; NPD, New Product Development

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<https://doi.org/10.1016/j.jik.2023.100350>

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term used to describe breakthroughs (Begum et al., 2022). By improving an organization's performance (in terms of time, cost, and innovation) and product enhancements and differentiation, KM enables competitive advantage (Hornig et al., 2022). KM also facilitates incorporating current knowledge into new and creative products. SMEs have been increasingly focused on KM methods as they realize how important it is to manage knowledge to stay competitive in their marketplaces (Adam et al., 2022; Ma et al., 2022). KM is responsible for a company's efficiency, effectiveness, and innovation (Chen et al., 2022). *New product development* (NPD) knowledge is linked to design or manufacturing processes (Idrees et al., 2022). NPD refers to all product process phases, from product development through customer service; alternatively, it can be as simple as repositioning an existing product in a new marketplace.

Knowledge generation is the key benefit of a KM approach. Firms must anticipate market surprises, be flexible and adaptable to quick market changes, and overcome product development issues as part of their competitiveness strategy (Galli & Lopez, 2018). Several studies have demonstrated that a KM strategy can help to achieve these objectives (Adam et al., 2022; Chen et al., 2022; de Bem Machado et al., 2022). Investigating the link between KM capabilities and organizational, individual, and project outcomes is critical because the findings may aid firms in furthering their understanding of KM's repercussions. Practitioners are more likely to pay attention to KM strategies considering the value of knowledge as a strategic resource. According to available literature, firms heavily invest in KM projects to acquire and leverage this strategic resource (Chen et al., 2022). For many firms, capturing the most critical information and successfully disseminating it throughout the company is a crucial challenge. As a result of its relation to various performance measurements, KM has become a top priority for all enterprises (Zhang et al., 2022). The collective knowledge in people's thoughts is a valuable resource for today's business (Crespo et al., 2022).

In the past, the key trends, results, and implications of KM research were analyzed using various methods and methodologies, including bibliometrics. Serenko (2013), for example, employed a meta-analysis technique to bring together the numerous findings from many KM studies. Several studies have analyzed the most relevant KM papers; however, these studies had a narrow focus and needed to cover a wider variety of KM literature (Liao, 2003; Massaro et al., 2015). Literature reviews are frequently used in studies to incorporate the available literature on KM. Wallace et al. (2011) conducted a literature evaluation on a subset of KM research, while Ayatollahi and Zeraatkar (2020) reviewed KM studies in the healthcare industry. According to Massaro et al. (2015) and Ayatollahi et al. (2020), many KM researchers need to be aware of past publications from a bibliometric viewpoint. Now that KM has its field of study with specialized publications like "*Journal of Innovation & Knowledge*", it becomes essential to determine the elements that can contribute to its increased visibility in the scholarly community.

This study aims to compile the best KM papers published between 2000 and 2022 and sort them by publication year, number of authors, number of references, page count, keyword density, field of study, and publisher to learn more about the parameters influencing their citation counts. The following parts detail the study's strategy, results, and recommendations for future direction.

Literature review

Knowledge management

The definition of knowledge management has sparked much controversy in literature (Despres & Chauvel, 1999). Much discussion focuses on the distinctions between information and knowledge (Mårtensson, 2000). Although they can be used interchangeably, several writers have indicated that the two notions are separate

(McInerney, 2002). Information is commonly asserted to be a component of, but not entirely of, knowledge. Knowledge is a considerably broader phrase that encompasses information-based beliefs (Maier & Hadrich, 2011). It also depends on the individual's commitment and knowledge of these ideas, influenced by interpersonal interactions and the development of judgment, conduct, and attitude (Almashari et al., 2002).

On the other hand, organizational knowledge comprises corporate expertise and common understandings and shares many of the same features as personal knowledge (Martins et al., 2019). Organizational learning is linked to activities and is developed inside the firm through information and social interaction, providing growth opportunities (Awan, 2019; Rehman et al., 2021). This type of knowledge is the foundation of KM. Progress is accomplished when knowledge flows from an individual's domain to the organization's. As knowledge is difficult to measure or audit, businesses must successfully manage it to fully use the skills and experience inherent in their systems and structures and the tacit knowledge held by their personnel. It is a process that assists organizations in finding, selecting, organizing, disseminating, and transferring vital information and knowledge necessary for operations, according to Di Vaio et al. (2021).

Ammirato et al. (2021) recently defined KM as the comprehensive process of identifying, organizing, transferring, and utilizing information and skills. According to the survey contracted by Ferreira et al. (2018), 92.2% of business owners believe that a KM system can influence employee learning and organizational growth; 66.2% say it helps them to work together as a team. Only 91% of those surveyed believe their KM system aids them in developing new training programs based on their expertise. According to Ode and Ayavoo (2020), more than 50% of KM initiatives fail because firms need a well-developed KM approach. Zaim et al. (2019), p.XX explain that "instead of managing relevant knowledge, some businesses end up managing documents ... this is a common blunder since many KM technologies are focused on document management rather than knowledge management".

Individual outcomes

Because it leads to innovation, knowledge management is an effective technique for NPD (Lazzeretti et al., 2016). It is especially crucial in High Technology (high-tech) organizations since they must deal more with the market's dynamic changes than others (Islam et al., 2021). The short product life cycle necessitates innovation; a high-tech company must anticipate market surprises, overcome the constraints of its own and competitors' goods, and be laser-focused on the demands of its consumers. Individual knowledge sharing is also a central core of knowledge, and it is critical to establish a collaborative organization capable of adapting to market changes quickly and achieving effectiveness (Haider et al., 2022). KM is a practice that encourages an integrated approach to finding, recording, analyzing, retrieving, managing, and sharing an organization's data assets (Cui et al., 2019). These assets include databases, records, regulations, procedures, and employees' previously untapped skills and experiences. An abundance of limitations confounds information sharing among individuals in an agency (Obrenovic et al., 2020). Obstacles to information-sharing are common to giant organizations and massive multinational businesses and may pose problems for those working in these environments.

When workers recognize that information-sharing is beneficial, they are more likely to engage in it. Employees can accomplish their work more efficiently if they share their expertise (Haider et al., 2023). Furthermore, it aids employee retention, personal growth, and professional advancement and rewards them for completing tasks (Nguyen, 2020). Personal interaction is based on communication between individuals. Problem-solving, task coordination, information exchange, and conflict resolution are facilitated by this collaboration (Harb et al., 2021). This component is crucial for optimal information consumption and leads to new knowledge generation. The efficiency

with which embedded knowledge is translated to embodied knowledge is favorably connected to personal interactions (Usman et al., 2019). This engagement must be regular and direct, and informal networks are more important than official ones.

Team outcomes

Global Product Development (GPD) emerged in the recent decade. (Kherbachi et al., 2020). It comes with GPD team members that are geographically dispersed, speaking different languages, and from various cultural backgrounds (Haider et al., 2022). They differ from co-located teams that operate in a single location, such as a nation or city region, and speak the same language. According to Cui et al. (2019), as GPD teams become increasingly common, research is needed to create strategies for GPD teams to reach performance levels comparable to those of their co-located counterparts. A project's success depends on the relationships between the various teams (Harb et al., 2021). Communicating effectively between various NPD teams and reusing existing knowledge within an organization can influence whether a new product is released on schedule and budget. Recreating and recollecting the same information for various projects is expensive and time-consuming. It demonstrates the significance of capturing and distributing pre-existing knowledge among employees so that new knowledge may be built upon, describing innovation.

By incorporating essential departments and participants from the start of the project and anticipating manufacturability concerns, the product development process may accelerate in terms of market time (Kharub et al., 2022). Cross-functional teams allow shared information and choices during design and manufacturing (Awan & Sroufe, 2020). They also consider customers' demands (Hanaysha & Mehmood, 2022). Cross-functional teams are encouraged in the NPD process to reduce misinterpretation and encourage informal sharing. For example, Cooper (2019) defined and measured NPD team effectiveness using a systems perspective to identify a set of inputs that could influence how teams interacted and worked. He found that team inputs and processes significantly impact NPD; because they formed their expertise by integrating separate collections of tacit knowledge, team members who previously worked together were more effective than those who did not. Experience being in the same team breeds efficiency.

Organizational outcomes

Organizational performance measures an organization's capacity to meet the needs of its stakeholders and stay afloat in the market (George et al., 2019). It is the result of the actions or activities carried out by members of an organization to determine how successfully the group has achieved its goals. According to Lee et al. (2022), organizational performance is a multidimensional construct. Different performance characteristics enable a balanced and comprehensive assessment of an organization's performance (Hanaysha et al., 2022). Organizational success requires integrating systems, operations, people, customers, partners, and management. It is positively related to the ability of KM to produce a competitive advantage (Latilla et al., 2018). Obeso et al. (2020) provide the three "value disciplines," or strategic performance skills for competitive advantage. Gupta and Chopra (2018) identify the influence of KM resources on organizational performance.

New product development

New product development (NPD) initiatives are sophisticated business procedures that include people from areas of design, testing, manufacturing, and marketing (Awan et al., 2018; Cooper, 2019). For some years, researchers have argued that project failures are partly caused by a lack of a systematic approach to these complex initiatives

and have advocated for the adoption of formal process models to aid management decision-making (Galli et al., 2018). An organization must decide the most critical initiatives to pursue and determine a time estimate and implementation sequence. KM enables this using the organization's expertise, including customer, product, market, process, financial, and personal services knowledge (Haider & Kayani, 2020).

An NPD strategy is an information-processing approach that integrates a larger body of knowledge to achieve its objectives. This integration refers to an organization's blend of external and internal knowledge. NPD improves if the integration is good. The efficacy of knowledge management techniques plays a critical part in NPD strategy implementation; organizations that use appropriate knowledge management methods perform better. Organizations are likely to impress NPD performance if they adapt to the changes in the external environment faster than their competitors (Cui et al., 2019), stimulating product research & development (R&D).

Project teams with high levels of shared knowledge in terms of customers, suppliers, and internal capabilities tend to outperform those with low levels of shared knowledge in process performance. Minimizing the impact of hurdles to knowledge exchange in a product development environment is also desirable. Yildirmaz et al. (2018) maintain that knowledge lifecycle management promotes effective information exchange within organizations, particularly project teams. According to Mohammadi Moghadam et al. (2018), the essence of NPD is the production and use of new knowledge to address organizational problems and introduce new goods to the market. At the same time, an organization's capacity to manage its NPD processes is critical to its long-term viability. Benabdellah et al. (2021) emphasize that project accomplishment comes from practical knowledge-sharing among project team members. Project teams increase cooperation across a project lifecycle through socialization (Stock et al., 2021). They can improve their knowledge-sharing expertise and skillsets over the project lifecycle. Employees use socialization to trade personal or specialized knowledge. Ball et al. (2022) support this by claiming that executives learn tacit knowledge through observation, imitation, and practice in a social setting.

Methodology

This study involves a bibliometric analysis of current KM research (Akhavan et al., 2016). Two (2) databases take centerstage - Scopus and Web of Science (WoS), ensuring that only high-quality articles are included. They contain the "Emerging Sources Citation Index", "Social Sciences Citation Index", "Science Citation Index Expanded", "Science Citation Index", and "CPCI-SSH". The time frame for the investigation is 2000–2022. The bibliometric approach is used to analyze and acquire data (Gupta & Bhattacharya, 2004; Moed et al., 2014). Scopus and WoS have the most extensive repositories of peer-reviewed social sciences research and are widely used in empirical and quantitative studies (Li et al., 2017). The contribution of authors, countries, the number of publications, and the number of citations of a topic are all quantified by bibliometric research, as indicated in the literature (Kalantari et al., 2017).

KM keywords are combined using Boolean operators (i.e., AND, OR) to find relevant articles. The term "knowledge management" as a keyword returned 18,078 results. In addition, 73 unique keywords commonly used in the titles of articles emerged in the first sample, closely connected to the KM stream. A narrowed search of this comprehensive list of terms (knowledge management OR new product development OR organizational outcomes OR individual outcomes OR project outcomes) yielded 25,622 articles.

Two programs, the VOS Viewer Version 1.6.18 and the R Software Version 4.2.2, support this study. The VOS Viewer conducts network analysis and displays the findings in a graphical format, identifying the networks of author collaborations and the links between KM themes in

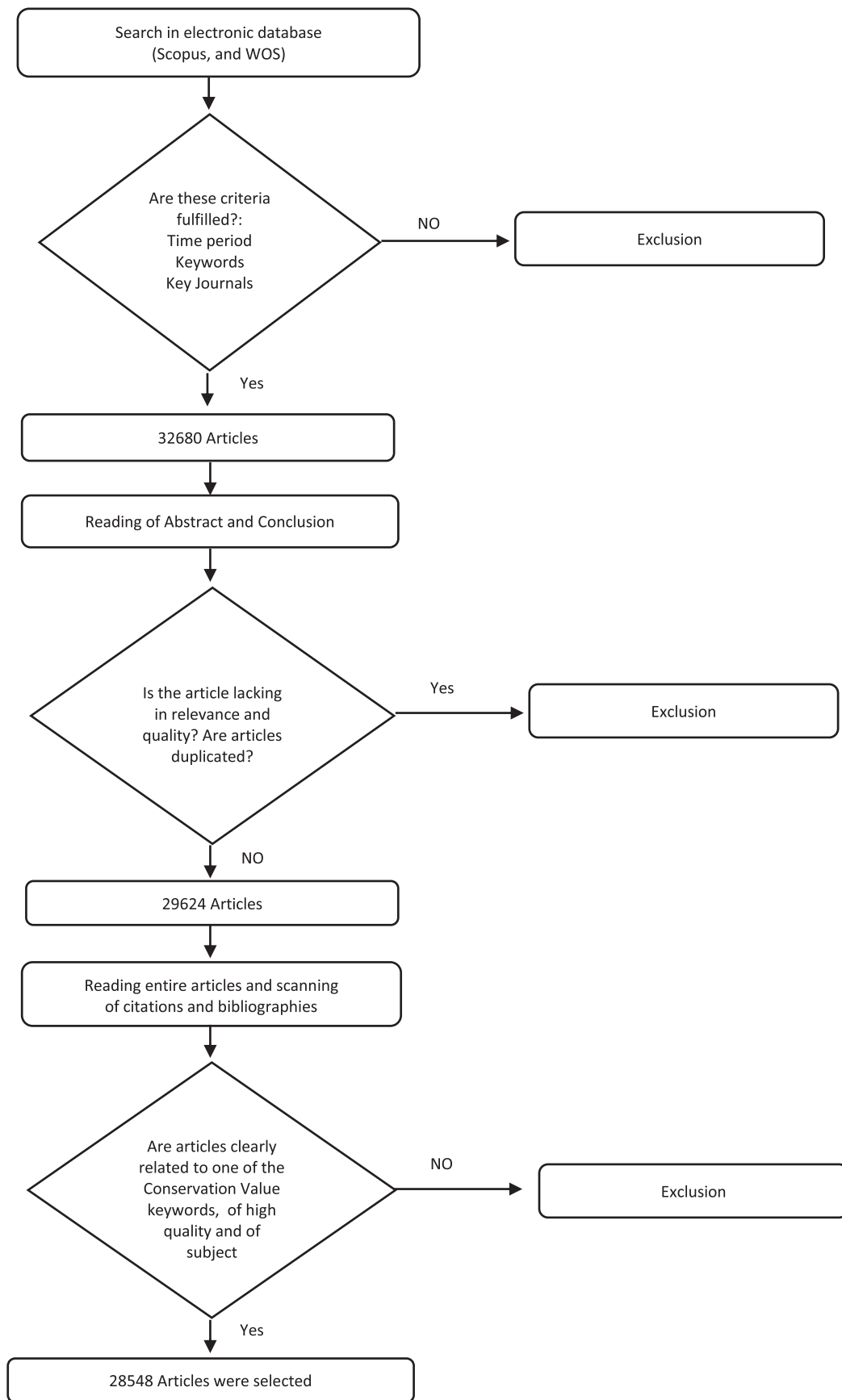


Fig. 1. Article selection summary.

Table 1
Keywords, queries, and number of documents

Keywords	No. Documents
Knowledge management	18078
Knowledge management OR new product development	22405
Knowledge management OR organizational outcomes	19883
Knowledge management OR individual outcomes	18566
Knowledge management OR projects outcomes	19054
Knowledge management OR new product development OR organizational outcomes OR individual outcomes OR projects outcomes	25622

this case. The investigation is developed in R, a computer language for statistical analyses (Derviş, 2019), and visualized using the VOS Viewer (Van Eck & Waltman, 2017). The search terms are closely associated with the purpose, scope, gap, and research questions to be addressed, representing the inclusion criteria. Also, only articles published in the English language are selected. The search involves research articles, book chapters, and conference papers published between 2000 and 2022. Fig. 1 provides the article selection summary.

The VOS Viewer maps the bibliographic materials into a graphical representation by using specified input data (Al-Ashmori, Othman and Rahmawati (2020); Williams (2020)). The data are analyzed using various bibliometric methods, including BC, co-citation, and co-occurrence of the author’s keywords. When two (2) authors, "A" and "B", quote a third author’s document, "C", the citation is referred to as BC. When a document references two (2) publications, this is referred to as co-citation, as when publications A and B are mentioned by

research C. Additionally, the co-occurrence of keywords is calculated by calculating the number of times a term appears in the same article. Table 1 presents the keywords, queries, and number of documents.

Table 1 presents the keywords, i.e., knowledge management OR new product development, knowledge management OR organizational outcomes, knowledge management OR individual outcomes, knowledge management OR project outcomes, knowledge management OR new product development OR organizational outcomes OR individual outcomes OR project outcomes. Despite an increasing publication trend among policymakers and scholars in developing countries on KM, more studies are needed.

Research finding

Publication trend

Fig. 2 shows the research publication trend in “knowledge management”. The study begins with the year 2000, observing an increasing trend in publications yearly, with 28,548 publications cited 49,6339 times.

Fig. 2 displays the annual output for the top twenty (20) countries producing the most KM publications, the selection minimum being 5. One hundred and thirty-four (134) countries produced KM-related publications, with 107 countries meeting the threshold. Table 2 demonstrates that the United States has the highest number of publications by a developed country (5084), while the United Kingdom ranks second with 2442 publications and China third with 1501 publications. More importantly, Table 2 displays the surging interest of policymakers and researchers in KM.

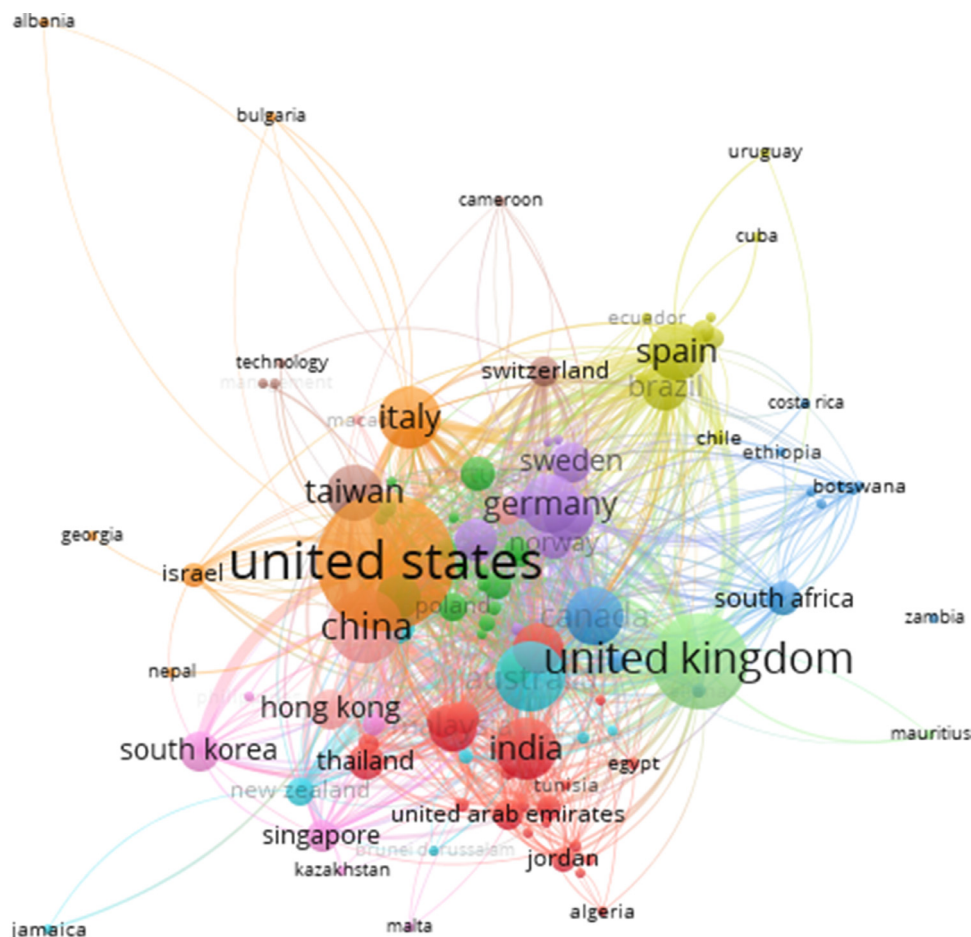


Fig. 2. Knowledge management publications based on country.

Table 2
Publication trend based on country

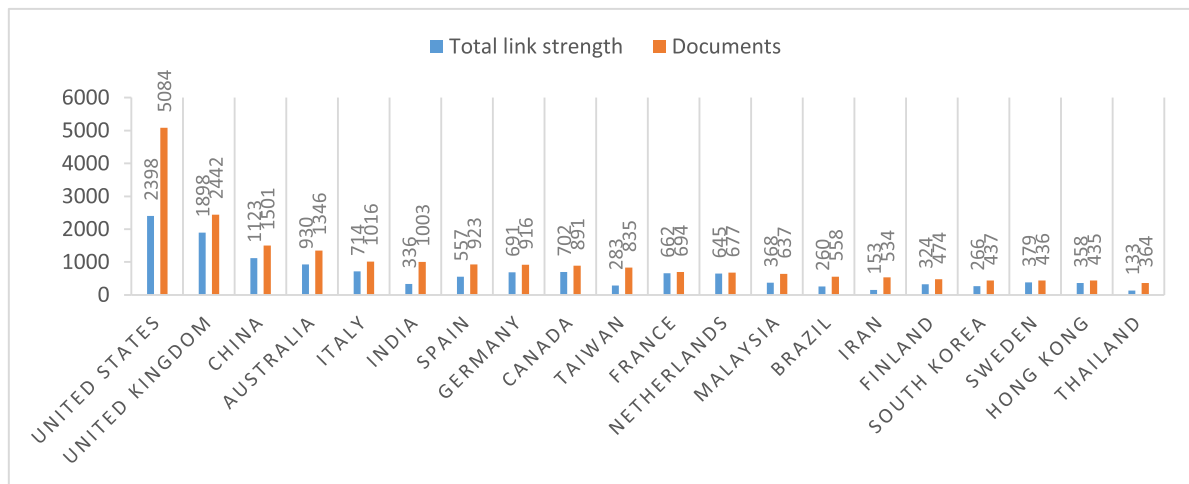
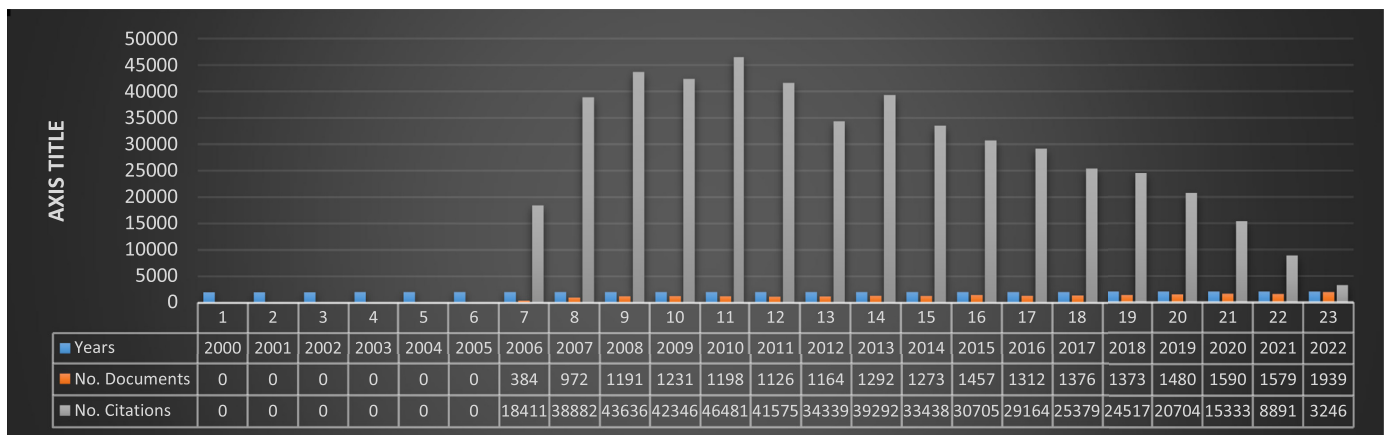


Table 3
Publication trend based on number of citations, publications, and year



As shown in Table 3, the maximum number of KM-related publications in 2022 is 1939. From 2000 to 2005, there was no publication related to KM. However, the yearly growth rate of KM publications exceeded four (4) times, from 384 articles in 2006 to 1939 articles in

2022. This progression shows considerable growth in KM research from an NPD perspective. KM data was taken until 10 December 2022.

Table 4 shows the fourteen (14) journals that had the maximum number of KM-related publications between 2005 and 2022. The

Table 4
Number of publications based on journals

No.	Sources	Articles	Total Citations	Indexing	Impact Factor	Publisher
1	Journal Of Knowledge Management	916	40733	SSCI	8.689	Emerald
2	Knowledge Management Research and Practice	360	5826	SSCI	2.744	Taylor & Francis
3	Journal Of Product Innovation Management	274	17913	SSCI	7.00	Wiley-Blackwell
4	Sustainability (Switzerland)	273	2755	SSCI	3.889	MDPI
5	Vine Journal of Information and Knowledge Management Systems	247	2012	ESCI		Emerald
6	International Journal of Knowledge Management	222	2556	ESCI		IGI Global
7	Ieee Transactions on Engineering Management	192	3768	SSCI	8.702	IEEE
8	Technological Forecasting and Social Change	176	6708	SSCI	10.88	Elsevier
9	Journal Of Business Research	162	8879	SSCI	7.55	Elsevier
10	International Journal of Information Management	161	9133	SSCI	18.95	Elsevier
11	Knowledge And Process Management	159	1908	ESCI		Wiley-Blackwell
12	International Journal of Production Research	152	4875	SCIE	8.56	Taylor & Francis
13	International Journal of Project Management	148	7924	SSCI	9.04	Elsevier
14	Journal Of Cleaner Production	138	5311	SCIE	9.29	Elsevier

Table 5
Number of publications and citations based on authors

No	Authors	Articles	Articles Fractionalized
1	LI Y	51	14.24
2	WANG Y	51	17.93
3	BONTIS N	45	17.40
4	WANG X	44	14.58
5	LI X	43	14.93
6	ZHANG X	43	14.82
7	DURST S	41	17.12
8	ZHANG Z	40	15.24
9	BOLISANI E	39	15.68
10	GOTTSCHALK P	37	24.17
11	JR	37	8.92
12	AKHAVAN P	36	12.12
13	LI J	36	11.34
14	ZHANG Y	36	9.85

Table 6
Number of publications and citations based on institutions

NO.	AFFILIATION	ARTICLES
1	ISLAMIC AZAD UNIVERSITY	160
2	THE HONG KONG POLYTECHNIC UNIVERSITY	160
3	LAPPEENRANTA UNIVERSITY OF TECHNOLOGY	145
4	RMIT UNIVERSITY	144
5	POLITECNICO DI MILANO	121
6	CITY UNIVERSITY OF HONG KONG	119
7	NANYANG TECHNOLOGICAL UNIVERSITY	115
9	UNIVERSITY OF TEHRAN	108
10	LOUGHBOROUGH UNIVERSITY	106
11	NATIONAL CHENG KUNG UNIVERSITY	106
12	UNIVERSITY OF CAMBRIDGE	106
13	XI'AN JIAOTONG UNIVERSITY	105
14	DELFT UNIVERSITY OF TECHNOLOGY	104
15	UNIVERSITY OF TWENTE	103
16	HONG KONG POLYTECHNIC UNIVERSITY	102
17	NATIONAL UNIVERSITY OF SINGAPORE	102
18	GRIFFITH UNIVERSITY	99
19	MONASH UNIVERSITY	97
20	MULTIMEDIA UNIVERSITY	95
21	UNIVERSITI TEKNOLOGI MALAYSIA	94
22	QUEENSLAND UNIVERSITY OF TECHNOLOGY	91
23	MICHIGAN STATE UNIVERSITY	83
24	UNIVERSITY OF GRONINGEN	81
25	UNIVERSITY OF OULU	81
26	UNIVERSITY OF CALIFORNIA	79

highest number of publications came from the *Journal of Knowledge Management* (916 publications, 40,733 citations) and *Knowledge Management Research & Practice* (360 publications, 5826 citations). Most journals were from Scopus (SSCI, SCIE, and ESCI-indexed). This study's results reveal that most publications were on KM practices, organizational culture, leadership behavior, and performance.

Thirty-seven thousand nine hundred and eighteen (37,918) authors produced 28,548 publications on Knowledge Management. Based on the number of publications, citations received, number of publications, H-index, and institutional affiliation, the fourteen (14) most prolific authors are shown in Table 5. The maximum number of publications was by Ye Li and Ying Wang.

Table 6 shows the institutions that contributed the most to the growth of KM research. A country's citation count is based on the institutional affiliations given on the publications. Therefore, institutions in the United States of America, the United Kingdom, and China are the most significant contributors. Asian institutions made a small but considerable contribution, primarily through China, India, and Malaysia.

Based on the number of publications, the institution's ranking is shown in Table 6. The Islamic Azad University and The Hong Kong Polytechnic University achieved 160 publications. These two (2) institutions are among the most influential in KM research. The top 25 universities in the world based on publications comprise universities in the United States of America, the United Kingdom, and China.

As seen in Fig. 3, items are identified by label and node. The sizes of each item's label and node are determined by the item's weight

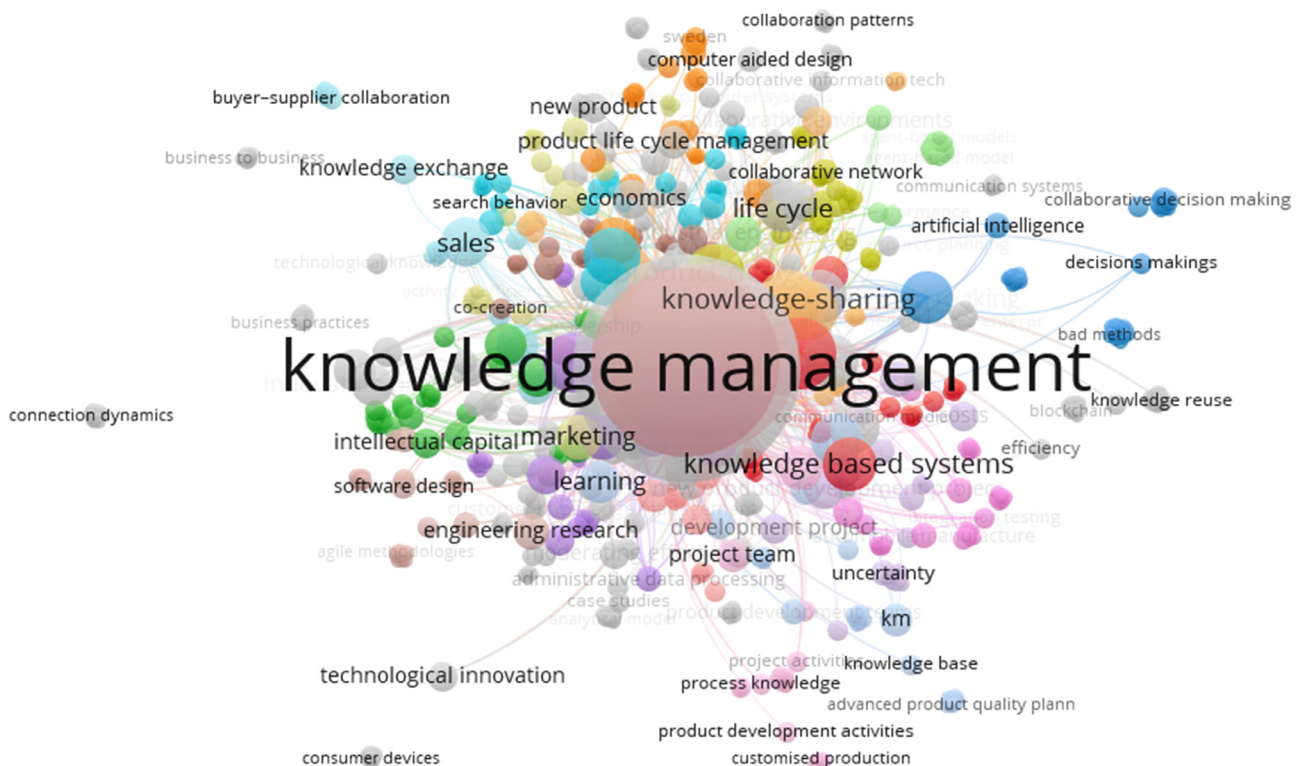


Fig. 3. Trending Keywords used from (2000–2022).

(importance). Furthermore, the distances between different keywords, and their placement and relatedness to other topics, show their connections in the bibliographic network map. Based on the bibliometric analysis, several variables relate to knowledge management and are marked by large letters. It indicates research that examines the variables' effect or relationship with KM. There are five (5) primary subjects related to KM: new product development (464 frequency), innovation (280 frequency), project management (218 frequency), knowledge transfer/sharing (145 frequency), and organizational learning (116 frequency).

Conclusion

This study uses bibliometric analysis to thoroughly assess the existing literature on KM, NPD, organizational outcomes, individual outcomes, and project outcomes in SMEs to identify antecedents, consequences, and future research paths, aiding in the development of a conceptual map. It is likely the first work that uses a systematic methodology and a bibliometric approach to investigate KM and NDP in SMEs. The literature is analyzed using (1) "textual analysis", identifying emerging research hotspots and keywords such as organizational outcomes, individual outcomes, and project outcomes as critical success factors for effective KM and NDP in SMEs; (2) "co-citation analysis" of references, identifying the theoretical foundations of knowledge as a competitive advantage through KM and NDP; and (3) "bibliographic coupling analysis" of documents, revealing the antecedents.

The generated concept map may aid practitioners in comprehending the distinct roles of KM and NDP in the specific context of SMEs, particularly in terms of organizational, individual, and project performance development (Haider and Kayani, 2020). The results indicate the following. First, KM and NDP benefit SMEs with organizational learning, improved customer interaction, innovations, increased profit, enhanced operational processes, and faster decision-making. Second, innovation, trust, and performance are highlighted as crucial human elements in SMEs associated with KM and NDP. Third, human resource management research can contribute to KM and NDP in the SME domain by examining KM and NDP-based practices, establishing a link between the emergence of innovation and innovative behaviors, and gaining a better understanding of strategies for the long-term storage and retrieval of tacit and explicit knowledge, or organizational memory.

Future directions

This study's systematic review of the literature has identified clear directions for future research in the following areas: governance structure, human resource management support, knowledge-sharing practices, managerial decisions, types of tools and sharing mechanisms, type and complexity of knowledge, organizational outcomes, individual outcomes, project outcomes, and SMEs' size and sector. Numerous inquiry domains are concerned with the fundamental human challenges and functions, moving away from the technical emphasis of KM and NDP.

This study's bibliometric analysis indicates that HRM research has the potential to advance understanding of SMEs' behaviors related to KM and NDP in three specific areas: (1) understanding KM and NDP-based practices; (2) connecting the emergence of innovation and innovative behaviors to these practices to organizational, individual and project outcomes; and (3) contributing to a better understanding of strategies for long-term storage and retrieval of tacit and explicit knowledge. To begin, HRM researchers can examine KM practices, tools, and mechanisms to design SME studies that clarify the interplay and impact on an employee's KM and NDP behavior, to support the employee and facilitate knowledge management and sharing in succession planning. Conceptually, a strategy-as-practice perspective

may facilitate the adoption of everyday practices and a better understanding of how SME employees execute knowledge management and sharing in their local settings.

Second, the results establish a stronger relationship between KM and NDP to innovation in the context of SMEs. However, further study is necessary to understand how KM contributes to practical innovation in NPD. Although it is well established that KM implementation is necessary for an SME's innovation capabilities, more understanding is needed to manage this implementation. Future studies can examine how information technology and digitalization enhance SMEs' KM and NPD, leading to innovation as organizational, individual, and project outcomes. SME preferences for knowledge management through online or face-to-face channels should be investigated, along with the digital capabilities required to learn new information and apply innovation.

Third, there needs to be a better understanding of how SMEs acquire and preserve knowledge and more studies on organizational memory in SMEs. HRM scholars can investigate its strategic importance and how tacit and explicit knowledge can be proactively acquired, stored, and retrieved to help SMEs in the long run.

Limitations

This study comes with certain limitations. For instance, bibliometric analysis is one of many literature review methods. Systematic literature review (SLR), interpretative techniques, and narrative approaches may also be used. However, bibliometrics provides a more scientific synthesis of a topic using several sources through the dimension database. According to Walsh & Renaud (2017), bibliometric approaches need markers to quantify the amount, quality, and relationships between publications, obscuring emerging ideas in a study area. Thus, this study's strategy to circumvent this constraint may serve as a model for future KM-related advancement using bibliometric analysis. Nonetheless, this study of keyword co-occurrence, abstracts, and titles may include some bias. The sample consists only of journal articles and conference papers, book chapters with no special issues were included. Because the VOS Viewer uses a fractional counting approach to restrict journal citations, alternative applications such as Histcite, Pajek, or SCiMat may analyze data differently to provide various viewpoints.

Future research may use a constructive categorization strategy to highlight emerging research trends in knowledge systems. A mix of direct citation and BCA-D analysis may be beneficial. By choosing and synthesizing abstracts, the selected approach may omit certain insights that can be gained from full-text analysis. Future scholars can continue by coding and analyzing whole manuscripts. Despite these limitations, this work significantly contributes to the growing knowledge of KM and NDP related to organizational, individual, and project outcomes in SMEs.

Acknowledgments

This study was supported by grants from National Natural Science Foundation of China (72171197), the Natural Science Foundation of Sichuan Province of China (23NSFSC0795).

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