

Knowledge Sharing on Social Media: A Decade in Review (2013-2023)

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To Link this Article: <http://dx.doi.org/10.6007/IJARBSS/v13-i11/19766> DOI:10.6007/IJARBSS/v13-i11/19766

Published Date: 05 December 2023

Abstract

The main objective of this research is to carry out a bibliometric analysis to investigate the prominent publications, organizations, and countries that have exerted the most significant influence in the realm of social media publications on knowledge sharing. In addition, various research themes in "knowledge sharing on social media" (KSSM) publications were explored. A total of 5,176 publications related to the KSSM were obtained via the Web of Science database between 2013 and 2023. These publications were subsequently analyzed using VOSviewer software. Computers in Human Behavior is the most influential journal for KSSM publications. The USA and China are the leading nations in terms of output, occupying the first and second positions, respectively. Wuhan University is a highly productive institution for KSSM research. This study represents the inaugural bibliometric analysis conducted to investigate the comprehensive contributions made to the discipline of KSSM. Such an examination is crucial for gaining a holistic comprehension of the latest developments in KSSM research. Nevertheless, the scope of the review is constrained by the quantity of literature chosen, impacting its inclusivity and comprehensiveness.

Keywords: Knowledge Sharing; Social Media; Web Of Science; Bibliometric Analysis

Introduction

With the Internet's evolution and ease of availability, the number of social media participants is rapidly increasing, with about 3.6 billion people utilizing it (Statista, 2023). Social media can be defined as a form of computer-mediated technology that facilitates the exchange of information, ideas, and various forms of expression within virtual communities and networks (Obar and Wildman, 2015). It incorporates an extensive variety of online media, including social networks (such as Facebook and Instagram), microblogs (such as Twitter and Weibo), photo or video-sharing applications (such as Flickr, YouTube, TikTok, Douyin, etc.), and cooperative websites (such as Wikipedia and Zhihu) (Ahmed *et al.*, 2019). These particular

social media platforms have gained recognition as prominent and established platforms for facilitating the exchange of knowledge, allowing individuals to connect with like-minded individuals and share their ideas (Bilgihan *et al.*, 2016).

Today, the uses of social media reach well beyond the individual user. An increasing number of entities, including public sector organizations (Azyabi, 2023), the business sector (Nguyen *et al.*, 2023), higher education institutions (Thi Chung and Thi Tram Anh, 2022), and healthcare organizations (Cano-Marin *et al.*, 2023), are utilizing social media for knowledge sharing. In summary, the utilization of social media for knowledge-sharing purposes has significantly transformed various aspects of our lives, professional endeavors, educational pursuits, and social interactions (Ahmed *et al.*, 2019). They make it easy and seamless to share information in a virtual world (Wong *et al.*, 2021).

In recent years, many studies have been undertaken to explore a range of subjects pertaining to the dissemination of information on social media platforms, commonly referred to as "knowledge sharing on social media" (KSSM). However, only a few studies have attempted to review the literature on KSSM. The most essential review study to date was conducted by Ahmed *et al.* (2019). The authors conducted a systematic literature review on KSSM, examining 103 research papers. The review was based on the databases Scopus, ISI Web of Knowledge, ScienceDirect, ACM Digital Library, and IEEE Explore. The researchers analyzed and classified the published papers, encompassing various research areas. These areas include user behavior on KSSM, the utility and advantages of social media platforms and tools, as well as other overlooked issues.

Scholars have conducted bibliometric analyses on knowledge sharing, including Fauzi *et al.* (2023) and PM *et al.* (2019). Additionally, various studies have explored associated subjects, such as knowledge management (Fauzi, 2023; Gaviria-Marin *et al.*, 2019; Noor *et al.*, 2020; Shashi *et al.*, 2021), knowledge syntheses (Maggio *et al.*, 2021; Perrier *et al.*, 2016), knowledge structure (Peng *et al.*, 2020), knowledge development (Johnson and Samakovlis, 2019), and knowledge hiding (Di Vaio *et al.*, 2021). Reviewing the existing literature, we found that almost no studies have conducted the bibliometric analysis of KSSM attempted in this study. The specific objectives of this investigation are as follows:

- To identify the journals that have published the most papers and the countries and organizations.
- To examine the various academic fields and their associated thematic groupings.
- To examine the prospective regions and future directions.

To tackle the aforementioned research challenges, the present study employs bibliometric analysis techniques that involve mapping and clustering methodologies. The research was conducted on 5176 articles published in scientific journals listed within the Web of Science (WoS) database for nearly ten years, specifically from 1 January 2013 to 31 July 2023. The VOSviewer application has been utilized.

The paper is structured as follows: The research methodology section outlines the bibliometric methods employed. The subsequent section entails a discussion of the results and findings, while the final section, namely the conclusions section, presents the primary contributions of this study.

Research Methodology

A bibliometric study is frequently utilized to infer the quantitative fluctuations within a specific research field, to determine the publication trends related to a particular subject, and to uncover the publishing tendencies within a specific area (Lee and Hew, 2017). The findings

of this analysis provide practical, valuable, and pertinent information for professionals and experts interested in evaluating the scientific process (Oliva *et al.*, 2006). In addition, bibliometric analysis offers the opportunity to objectively examine a particular discipline quantitatively (Merigó *et al.*, 2015).

The search strings employed in prior research (Chen *et al.*, 2018; Nguyen, 2021) were utilized to identify publications that used KSSM-related literature (see Figure 1). The inclusion of information sharing in our study is justified by the prevailing conceptualization that equates information sharing with knowledge sharing, as supported by Malik *et al.* (2021). To select and evaluate pertinent articles for potential inclusion, we employed the screening program available in WoS, a reputable database encompassing prominent journals across various disciplines, including the natural sciences, social sciences, and humanities. This approach facilitated the identification of the most noteworthy research publications. The WoS database encompasses a comprehensive collection of scholarly resources comprising over 34,000 journals and 171 million documents (Clarivate, 2023). For over four decades, it has established itself as the premier bibliographic database (Pranckutė, 2021).

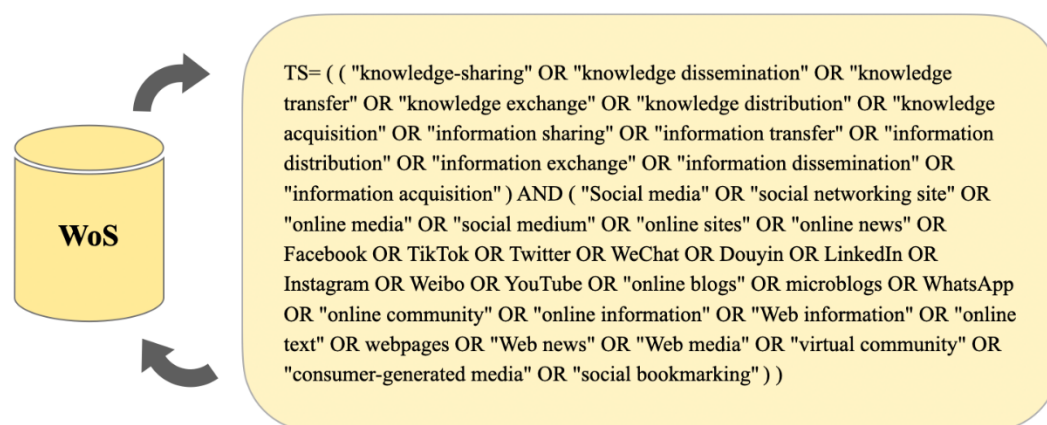


Figure 1. Search string in the Web of Science database.

The method and layout of the present research were primarily influenced by the procedures employed in two recent bibliometric studies (Fauzi, 2023; Jia and Mustafa, 2023). VOSviewer is a freely available software application designed for the purpose of generating visual representations of network data in the form of maps, and this software was used to conduct analyses of co-authorship, inter-country co-authorship, and keyword co-occurrence networks.

Results and Findings

Yearly Outputs, Document Types, and Study Topics

Figure 2 illustrates the quantity of scholarly articles that were published within the time frame spanning from 2013 to 2023. It is evident that there has been a notable increase in research on the KSSM in recent years. Before 2017, there was a period of continuous growth in research output, with an average annual growth rate of 17.93% and an average of 389 publications per year. This was followed by a slight decline in published papers in 2018. In order to investigate the factors contributing to the decline in publication figures, a comparative analysis of publication categories was conducted for the two respective years. The comparison shows that computer science, information science, and educational studies

are the most popular categories, with 60 more publications in these three categories in 2017 than in 2018, when the distribution of publications across disciplines was more dispersed. During the period from 2018 to 2022, there was a substantial rise in the quantity of papers, rising from 438 to 661. Among the aforementioned, there was a marginal decline in the quantity of documents in 2020, primarily attributed to the influence of the COVID-19 pandemic. However, the number of papers reached its highest point in 2021, totaling 686 (representing a growth rate of 13.26%). In contrast, there was a slight decline in 2022, but the magnitude was smaller, with a difference of only 25 articles from the previous year. In addition, we can also see that the highest number of papers have been published in the last two years. Looking at the decade from 2013 to 2022, the number of documents doubled from 264 to 661. This indicates the growing interest among researchers in this field.

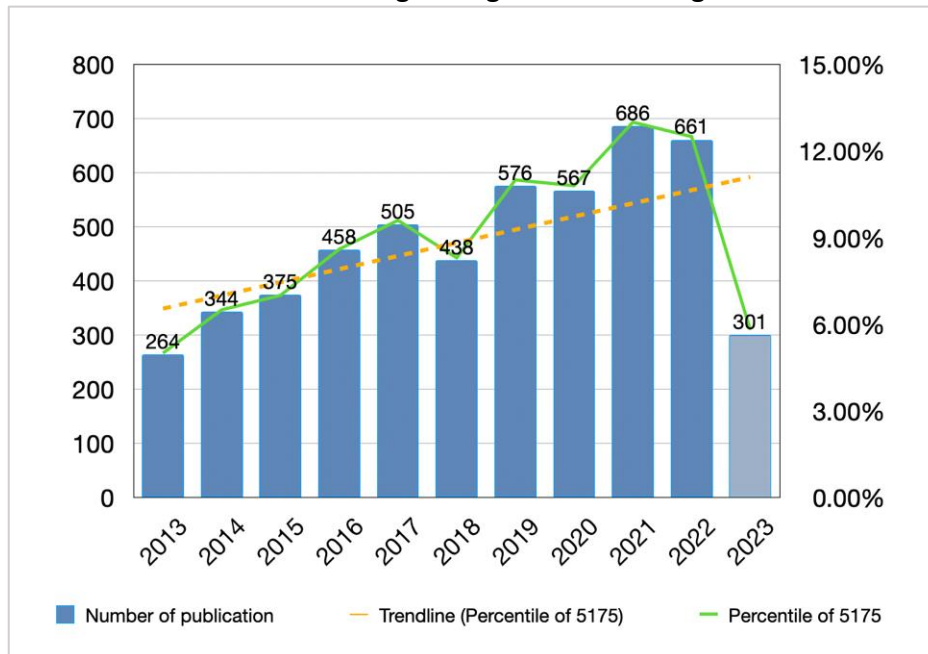


Figure 2. Papers published each year.

The present study analyzed various research literature pertaining to the KSSM framework. Table 1 provides a comprehensive overview of publications on KSSM themes, categorized by their respective literature types. The combined percentage of articles and conference papers was 93.51%, indicating that these two types of publications constituted a significant majority. Furthermore, the review considers a proportion of 3.63% due to the escalating quantity of studies published in recent years. This surge in publications has garnered the interest of several scholars. Additional types of documents encompass various forms, such as conference abstracts, book chapters, book reviews, notes, news, and letters.

Table 1

Publication types of documents.

Publication Types	Number of Publications	Percentage of Total Publications (%)
Article	3614	69.84%
Conference Paper	1225	23.67%
Review	188	3.63%
Editorial Material	46	0.89%
Others	103	1.99%
Total	5176	100%

Table 2 presents an overview of the foremost 20 research categories pertaining to publications about KSSM. The research conducted in the field of KSSM primarily revolves around the domain of information technology. It centers on investigating various patterns of human behavior exhibited while using social media for knowledge sharing. So, statistics indicate that KSSM research encompasses a diverse array of academic disciplines, of which computer science is the most widely studied discipline, such as categories Computer Science Information Systems (n=926, 17.89%), Computer Science Theory Methods (n=518, 10.01%), Computer Science Artificial Intelligence (n=351, 6.78%), Computer Science Interdisciplinary Applications (n=312, 6.03), Computer Science Software Engineering (n=148, 2.86%), Computer Science Cybernetics (n=121, 2.34%), etc., with a total number of publications reaching 2376. Information Science (n=701, 13.55%) and Management (n=523, 10.11%) are also essential categories of KSSM studies. Pedagogy, Communication, and Electrical Engineering are the number one research areas at KSSM and continue to receive attention. In addition, the categories of Psychology, Social Science, and Environmental Science also contain research related to KSSM, but the overall proportion is relatively small. It is essential to acknowledge that within the realm of Public Health disciplines, such as Public Environmental Occupational Health, Health Care Sciences Services, and Medical Informatics, there is a growing inclination to research KSSM, particularly in light of the COVID-19 pandemic.

Table 2

Top 20 research topics of publications.

WoS Categories	Number of Publications	Percentage of Total Publications (%)
Computer Science Information Systems	926	17.89%
Information Science Library Science	701	13.55%
Management	523	10.11%
Computer Science Theory Methods	518	10.01%
Business	407	7.87%
Computer Science Artificial Intelligence	351	6.78%
Education Educational Research	350	6.76%
Communication	349	6.74%
Engineering Electrical Electronic	315	6.09%
Computer Science Interdisciplinary Applications	312	6.03%
Public Environmental Occupational Health	224	4.33%
Telecommunications	217	4.19%
Health Care Sciences Services	214	4.14%
Psychology Multidisciplinary	171	3.30%
Medical Informatics	170	3.29%
Computer Science Software Engineering	148	2.86%
Social Sciences Interdisciplinary	147	2.84%
Environmental Sciences	124	2.40%
Computer Science Cybernetics	121	2.34%
Environmental Studies	104	2.01%

Journal Distribution

In general, KSSM-related research can involve a variety of industries, as it focuses on sharing and disseminating knowledge using various social media. Research articles related to KSSM were published in multiple journals, indicating that the field has come a long way. The researchers selected 5,176 articles published in 2,900 different journals. Table 3 summarizes the leading 20 journals by number and reports citations and impact factors for these journals. Notably, we removed one handout, one book, and three conference proceedings from this ranking and sorted the final top 20 journals by number of papers. If juxtaposition occurs, the journal's impact factor is considered.

Table 3

Top 20 most effective journals.

Journal	Publications	Citations	Average Citations	Impact Factor
<i>Computers in Human Behavior</i>	87	4628	53.2	10.2
<i>Journal of Medical Internet Research</i>	86	3840	44.7	7.6
<i>Sustainability</i>	62	360	5.8	4.0
<i>Journal of Knowledge Management</i>	61	2110	34.6	7.0
<i>Frontiers in Psychology</i>	43	187	4.3	4.3
<i>IEEE Access</i>	42	458	10.9	3.9
<i>PLOS ONE</i>	34	488	14.4	3.7
<i>International Journal of Environmental Research and Public Health</i>	32	355	11.1	4.6
<i>Internet Research</i>	31	1060	34.2	5.9
<i>Behavior Information Technology</i>	30	449	15	3.7
<i>Information Technology People</i>	29	416	14.3	4.4
<i>International Journal of Information Management</i>	29	1384	47.7	21.0
<i>Online Information Review</i>	28	622	22.2	3.1
<i>Social Network Analysis and Mining</i>	27	169	6.3	2.7
<i>Frontiers in Public Health</i>	25	163	6.5	5.2
<i>Journal of the Association for Information Science and Technology</i>	25	485	19.4	3.5
<i>Telematics and Informatics</i>	24	1166	48.6	8.5
<i>Physica A Statistical Mechanics and Its Applications</i>	22	256	11.6	3.3
<i>Information Systems Frontiers</i>	21	864	41.4	5.9
<i>Vine Journal of Information and Knowledge Management Systems</i>	21	174	8.3	3.0

The ranking of journals based on the quantity of published articles does not align with the journal's citation count. Although the quantity of published papers is limited, specific journals exhibit comparatively elevated citation rates. In order to investigate the underlying reasons, we constructed a tree diagram to illustrate the average citations of the leading 20 journals (as depicted in Figure 3). This approach is an efficient means of visually presenting the data

concisely, optimizing space utilization (Kong *et al.*, 2010). The data presented in Table 3 indicates that the five most productive journal categories are distinct. Similarly, the leading five journals with the highest average citations, as depicted in Figure 3, also differ. Although KSSM mainly deals with computer science, computer journals are not the most productive. This is probably because social media has spread across all walks of life, and researchers have conducted studies related to social media across various disciplines and topics.

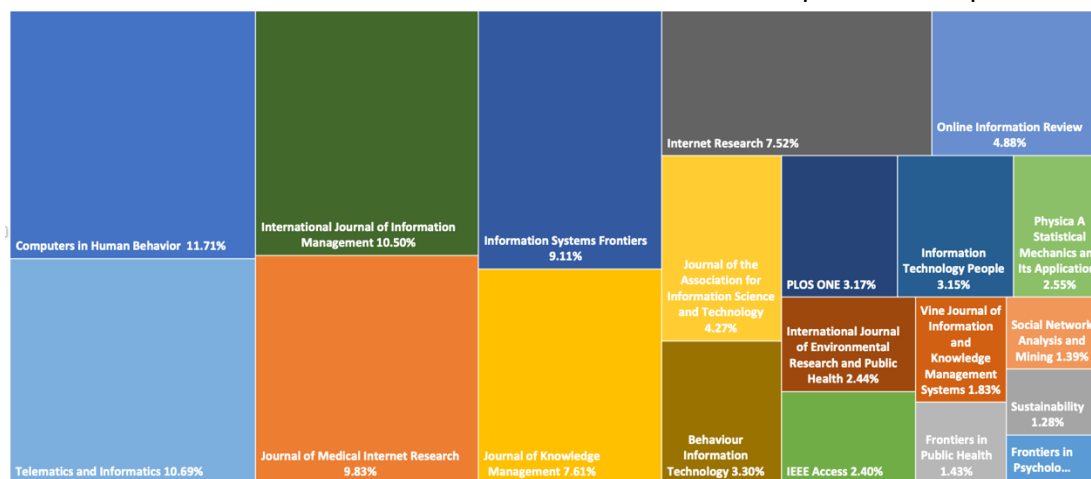


Figure 3. Treemap shows the highest 20 journals by average citations.

Specifically, the journal that published the most papers involving KSSM is *Computers in Human Behavior*, with 87 papers and 4,628 citations, which is also the journal with the most average citations ($n = 53.2$). The primary references come from Zhang *et al.* (2017), Kwahk and Park (2016), and Ma and Chan (2014). Although *Telematics and Informatics* has only published 24 articles, these articles have been cited 1,166 times, ranking 2nd in average citations ($n = 48.6$). In addition, the journal *Sustainability* ranks third in overall publication ($n = 62$) but has only 5.8 average citations. The journal focuses on human-environmental, cultural, economic, and social sustainability.

We used VOSviewer to analyze the co-citations of 5176 papers and formed five cluster journal co-citation networks containing 365 journals, with a minimum of 80 citations per cluster journal. As depicted in Figure 4, the representation of each node corresponds to a journal, with the node's scale representing the quantity of published papers. The connections between nodes symbolize the co-citation intensity, whereby thicker lines denote a higher intensity.

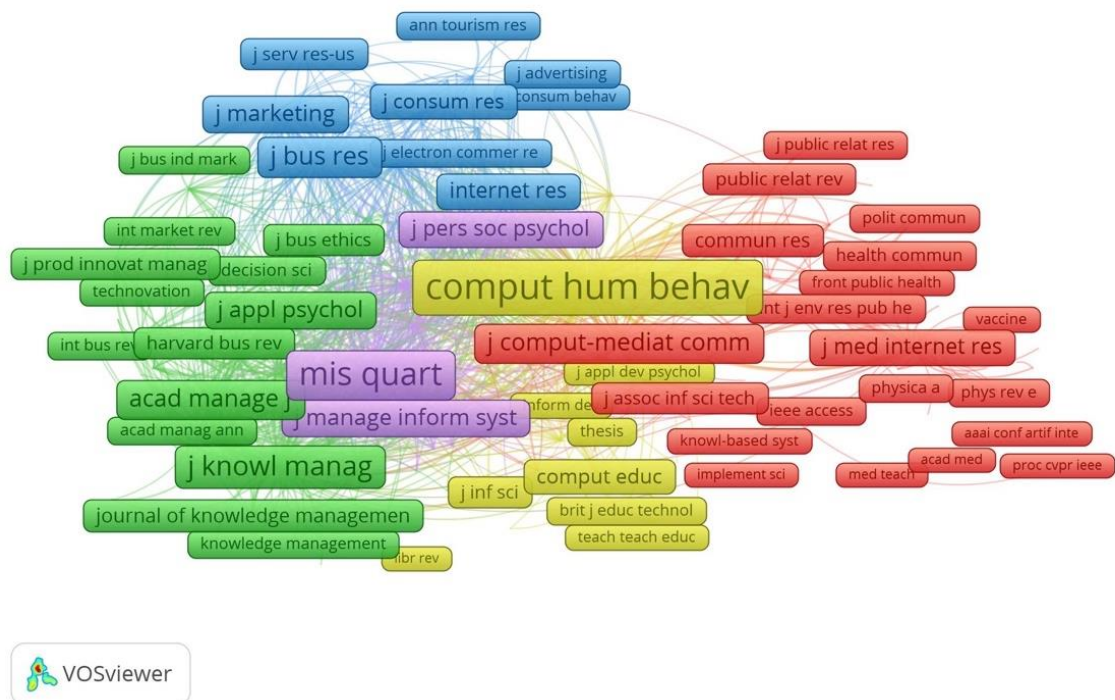


Figure 4. The network of co-citations among academic journals.

The red cluster, comprising 148 nodes, stands out as the most prominent cluster identified within the co-citation network. Among them, the most prominent is the *Journal of Computer-Mediated Communication*, which has co-cited links with all four other groups. However, it has only published six papers related to KSSM. The *Journal of Health Communication* is also essential because it is affiliated with high-level international associations such as the American Public Health Association and International Communication Association. The green cluster has 96 nodes. The *Journal of Information Knowledge Management* holds a prominent position within its field, exhibiting a strong influence factor. It is in the middle of the green cluster and has the most incredible co-citation intensity. The blue cluster comprises 42 nodes, with a predominant focus on business and tourism within the journals associated with this cluster. The most frequently cited journal is the *Journal of Business Research*, which mainly studies consumer behavior, business strategy, and organizational responsibility. It makes an essential contribution to studying the well-being of stakeholders in the business sector. Of the 40 nodes in the yellow cluster, *Computers in Human Behavior* is the most prominent. The journal publishes the most papers on KSSM and is the most cited journal on average. The journal illuminates the evolving relationship between individuals and technology, providing essential insights into decision-making, communication, and well-being, making it a vital resource for academia and industry. The purple cluster contains 39 nodes, and the most frequently cited in the cluster is *MIS Quarterly*. This journal mainly studies IT knowledge and its managerial, organizational, and social impact. The other journals in the Purple Journal cluster also play an essential supporting role in KSSM research.

Country Distribution

Countries and institutions are typically used as critical analytical variables in bibliometric analysis to compare the research activity and contributions of different areas and institutions within a specific research subject. The academic caliber and collaborative networks of foreign

countries or institutions can be assessed by examining citations and co-citations of their publications (Guo *et al.*, 2019).

Upon data extracted from the WoS database, our analysis reveals that 5,176 papers were dispersed among 117 countries. Table 4 provides an overview of the ten countries that exhibited the highest volume of documents, collectively representing 88.3% of the entire corpus of KSSM papers ($n = 4571$). The USA ranked first in the number of publications, with 1,354 publications representing 26.2 percent. China was the runner-up (1292/5176, 25%), and both countries were far ahead. England followed China in third place (419/5176, 8.1%).

Table 4

Top 10 countries for publication (n=4571).

Country	Publications	Citations	Link Strength
USA	1,354	28,211	3,970
China	1,292	18,114	4,559
England	419	7,412	1,479
Australia	294	5,517	1,276
Canada	251	4,287	851
India	244	2,417	516
Germany	190	3,613	785
Spain	185	2,959	611
Malaysia	181	2,241	899
South Korea	161	2,323	642

Subsequently, an examination is conducted on the countries with the most significant influence in KSSM research employing bibliographic coupled links. The underlying rationale of bibliographic coupling is predicated on the notion that two articles exhibiting a substantial number of standard bibliographic references are likely to possess similar content. (Van Eck and Waltman, 2010). The integrated analysis, therefore, reveals the extent to which the academic publications exchange citations, a measure of their level of inter-institutional cooperation within the country of publication. The analysis type chosen for our study was "bibliographic coupling" using VOSviewer software. The unit of analysis employed in this study was the country. Furthermore, it was determined that a minimum of one file for the "Country" category in VOSviewer is necessary to maximize the number of links between countries. Among the 117 countries included in the network, it was observed that the studies conducted in Burkina Faso, Papua New Guinea, Yemen, Iceland, Timor-Leste, Liechtenstein, Guyana, and Cuba did not exhibit interconnections with studies conducted in other countries. Therefore, the total count of interconnected entities within the resultant network of coupled systems amounted to 109 nations.

Figure 5 shows a network depiction of the clusters found in the country study using bibliographic coupling. The red cluster symbolizing the USA stands out prominently among the others. USA has been at the forefront of KSSM research, conducting many studies in this field. The primary factors contributing to this phenomenon are the country's geographical extent, the quantity of researchers, and the level of investment in scientific research. Countries such as Spain, Sweden, and South Africa are also part of this cohort, suggesting that these nations reference comparable scholarly publications in the KSSM investigation.

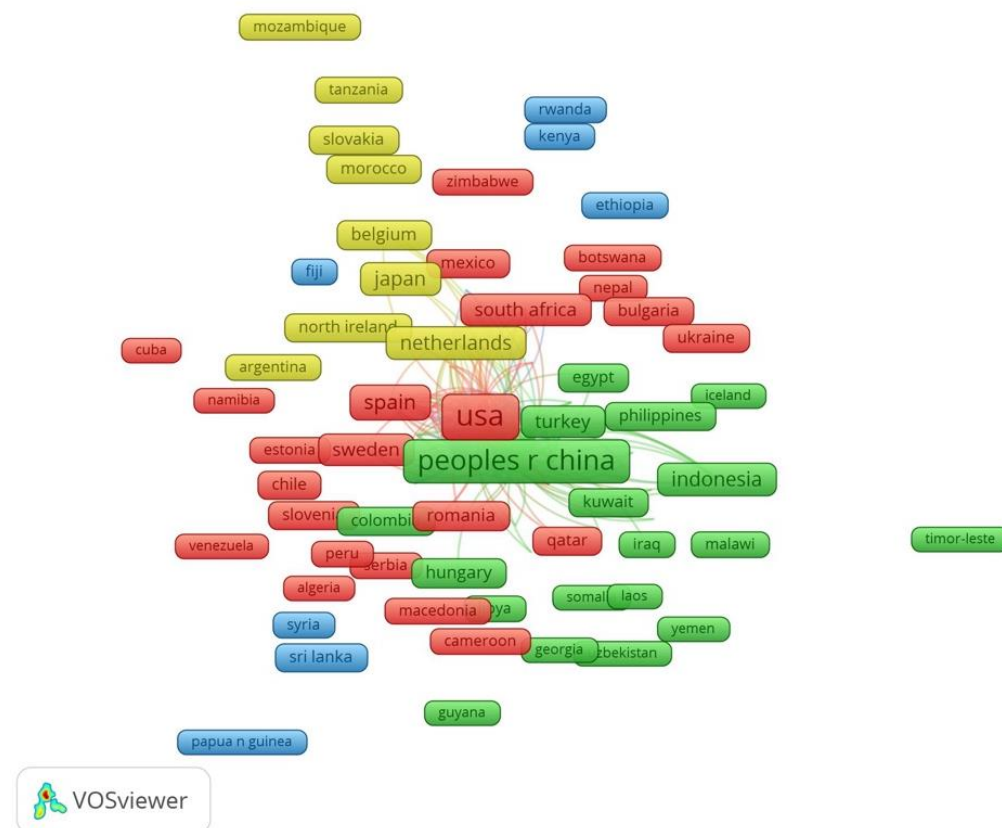


Figure 5. The visualization of the bibliographic coupling network of countries.

The cluster categorized as "green" encompasses a total of 41 countries, with a majority of them being located in Asia. Notably, China stands out as the most prominent country within this cluster. In addition, China, Malaysia, and Indonesia are more pronounced. Other countries are mainly European countries (such as the Czech Republic, Denmark, Finland, Germany, Greece, etc.), African countries (such as Egypt, Libya, Malawi, Sierra Leone, Somalia, Tunisia, etc.), American countries (such as Colombia, Guyana, etc.) and Oceanian countries (such as New Zealand, etc.). Similar publications have been referenced by these countries in their KSSM research. A total of nineteen countries, encompassing a diverse range of regions, including Europe (e.g., Russia, Italy, and Turkey), Asia (e.g., Singapore, Iran, and Sri Lanka), and the Americas (e.g., the Dominican Republic and Brazil), have been categorized as blue clusters. In addition to their geographical remoteness, these countries have been cited in similar articles. Japan and the Netherlands are the most obvious of the sparse yellow clusters. We developed an overlapping visualization of national analysis to obtain a comprehensive understanding of the countries that have exhibited recent activity in the KSSM study. By default, the point values are color-mapped according to the mean year of the nation study, as shown in Figure 6. Since 2018, several countries, such as the USA, Romania, Slovenia, the Netherlands, and Spain, have emerged as frontrunners in initiating or expanding their engagement in KSSM research. Following these countries, China, Indonesia, South Africa, and Kuwait have also shown an increased interest in participating in KSSM research. Over the previous two years, numerous developing nations, including but not limited to Pakistan, Laos, Vietnam, and Iraq, have allocated resources towards research in the field of KSSM. It is posited that this phenomenon strongly correlates with a nation's level of economic growth and the extent of its academic research endeavors. The KSSM initiative is intended to enhance decision-making processes to facilitate the efficient dissemination of knowledge. Nations

characterized by elevated levels of development demonstrate a tendency to expedite the adoption of social media platforms and commence research on KSSM at earlier stages. Consequently, drawing upon an analysis and comprehension of the present circumstances, it is reasonable to anticipate and forecast a flourishing study and application within the relevant domains.

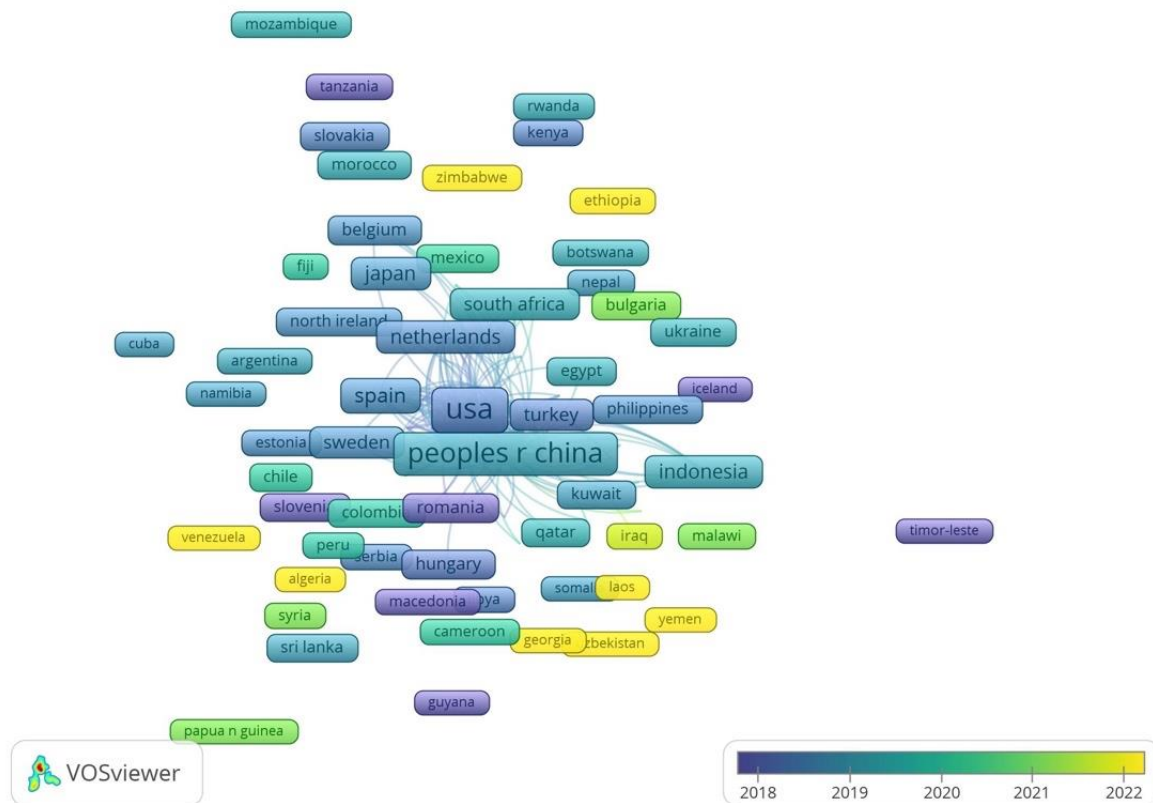


Figure 6. The overlay of the country analysis's visualization.

Institution Distribution

According to the KSSM data retrieved (5,176 articles), 4649 institutions participated in KSSM research worldwide. The author conducted a "citation analysis" of the above institutions. As shown in Table 5, we ranked the top 10 institutions by publication volume. Similarly, we used VOSviewer to create a visual network of the most productive institutions (as depicted in Figure 7). Wuhan University published the most papers ($n=54$), with 799 citations and 39,270 co-author links. In addition, although City University of Hong Kong ranked second in terms of publication volume ($n=51$), its publications were more influential than Wuhan University in terms of citations (1556 vs. 799) and BC-links (47,885 vs. 39,270). The University of Toronto and the Chinese Academy of Sciences ranked third and fourth (48 and 45 articles, respectively), with little difference in the number of publications and citations. The remaining six institutions (such as Nanyang Technological University, National University of Singapore, University of Pennsylvania, Harbin Institute of Technology, University of Florida, and University of Hong Kong) have published between 32 and 39 articles. Their corresponding citations are 948, 410, 584, 526, 605, and 656, respectively, indicating their outstanding significance in KSSM research.

Table 5

Top 10 publication institutions.

Institution	Publications	Citations	Link Strength
Wuhan University	54	799	39270
City University of Hong Kong	51	1556	47885
University of Toronto	48	735	6497
Chinese Academy of Sciences	45	774	8754
Nanyang Technological University	39	948	19549
National University of Singapore	36	410	10411
Pennsylvania State University	35	584	11092
Harbin Institute Technology	33	526	22065
University of Florida	33	605	8447
University of Hong Kong	32	656	13411



Figure 7. The visualization of the bibliographic coupling network of institutions.

Author Distribution

Social media significantly shares knowledge in various domains, including work-related tasks, cultural aspects, customer interactions, business operations, competition analysis, and sports. It facilitates the seamless exchange of knowledge and the expression of ideas, experiences, and opinions among many users (Ahmed *et al.*, 2019). Therefore, KSSM-oriented research is also attracting more and more researchers. Finding research descriptions in the KSSM discipline requires identifying the most prolific and influential authors. To achieve this objective, we analyzed author citations (as depicted in Figure 8), intending to place the ten most influential authors. These authors were subsequently ranked according to the extent of their contributions to the existing body of literature and the number of citations they received. Table 6 shows the results of the analysis. It should be noted that the number of

published papers is an indicator that requires careful analysis, considering factors such as the length of each paper, the quality of the journal, and the number of authors per paper (Merigó *et al.*, 2015). The tabular arrangement is organized based on the quantity of articles attributed to each author, with the secondary criterion being the amount of citations each author has in the case of a tie. The H-index, a combined statistic that combines output and impact, is also included to round out the table.

Table 6
Notable authors by documents and citations.

Author	Number of Documents	Citations	H-index
Muhammad Ashraf Fauzi	12	110	11
Khalid Mahmood	10	88	22
Yogesh K. Dwivedi	8	651	82
Matthew K. O. Lee	8	549	45
Yalan Yan	8	128	12
Osamu Uchida	7	46	6
Christy M. K. Cheung	7	502	49
Xianjin Zha	7	67	12
Qingpeng Zhang	7	275	26
Jason Watson	7	285	8



VOSviewer

Figure 8. The network of co-citations among authors.

Among the top 10 authors, Fauzi is the most prolific, with 12 published papers, but his citation count is not outstanding compared to other scholars, ranking only 7th ($n = 110$). Because of his continuous contributions to knowledge sharing, he has provided vital support for developing related disciplines (such as computer science, information science, business, and

education). He has also provided a giant shoulder for later scholars. The second-ranked author is Mahmoud, a professor at the University of the Punjab with ten published research papers. He and his team are committed to exploring how to use social media better to share knowledge. In recent years, they have mainly focused on researching knowledge sharing in economics, education, and medicine.

Among the top ten prolific scholars, the most cited is Dwivedi, who has published eight papers and has been mentioned 651 times. He is a Professor in the School of Management at Swansea University, Wales, and the *International Journal of Information Management* Editor-in-Chief. It is worth noting that among the top ten prolific scholars, five (Lee, Yan, Cheung, Zha, and Zhang) are from China, and they are all scholars in the fields of information science and management. Among them, Lee from the City University of Hong Kong has published eight papers related to KSSM, and he focuses on the innovative adoption and dissemination of IT, knowledge management, e-commerce, online social networks, Internet addiction, and the development of digital capabilities. Lee ranks in the top 2% of scientists in information systems (CityU, 2023). He significantly promoted the research of KSSM.

Keywords Co-Occurrence Analysis

The present study employs a keyword co-occurrence network analysis to ascertain the prevalence of specific keywords across the diverse range of papers under investigation. This analysis aids in gaining insight into the predominant topics that researchers have primarily focused on. The VOSviewer software employs a text-mining algorithm to construct a visual representation, known as a map, wherein the proximity of distinct terms reflects the degree of association between the different keywords (Laudano *et al.*, 2018). The closer the closeness between two or more terms, the higher their semantic association. The analysis of co-occurrences within the publications was conducted to ascertain the degree of association between the terms (Van Eck *et al.*, 2010).

Table 7 shows the leading ten keywords that appear most frequently in the data set. The keyword "social media" appeared 603 times in the dataset. Many keywords synonymous with "social media" were also found in the data set, such as social networks, social networks, social network sites, Twitter, Facebook, YouTube, WeChat, TikTok, etc. Adding all these keywords together, we found 3,548 social media-related keywords in the dataset. This shows that of the 5,176 papers in the study, more than 3,548 contained the keyword "social media" or a synonym for it.

Table 7

Top 10 keywords by occurrences.

Keyword	Occurrences
Social media	3548
Knowledge sharing	1325
Knowledge management	585
Information	521
Model	496
Communication	457
Trust	359
Technology	324
Behavior	313
Covid-19	214

Figure 9 depicts the network map of keyword co-occurrence. The dataset contained a total of 14,518 keywords. The network map was constructed using a selection of 603 keywords that were observed to occur over ten times within the dataset. The map illustrates the interconnectedness of various lines through the representation of different keywords. The presence of lines in the visualization indicates a recurring co-occurrence of keywords across multiple papers within the dataset. After conducting a more detailed examination of the network map, it was observed that nearly every alternate keyword with the highest frequency in Table 7 had exhibited co-occurrence with the keyword "social media" or its synonyms, as well as "knowledge sharing." The prevalence of specific keywords indicates a higher level of research activity in those areas.

The co-occurrence network depicted in Figure 10 illustrates the keywords that exhibit the highest frequency of co-occurrence with KSSM keywords. This map offers a concise overview of the different methodologies, subjects, and domains that frequently engage researchers at KSSM. For example, the three keywords "social media," "knowledge sharing," and "trust" appear at the same time, indicating that there is more research on the role of trust in KSSM research. Similarly, the three keywords "social media," "knowledge sharing," and "technology acceptance model" appear at the same time, indicating that researchers have used the technology acceptance model to build the relevant model of KSSM.

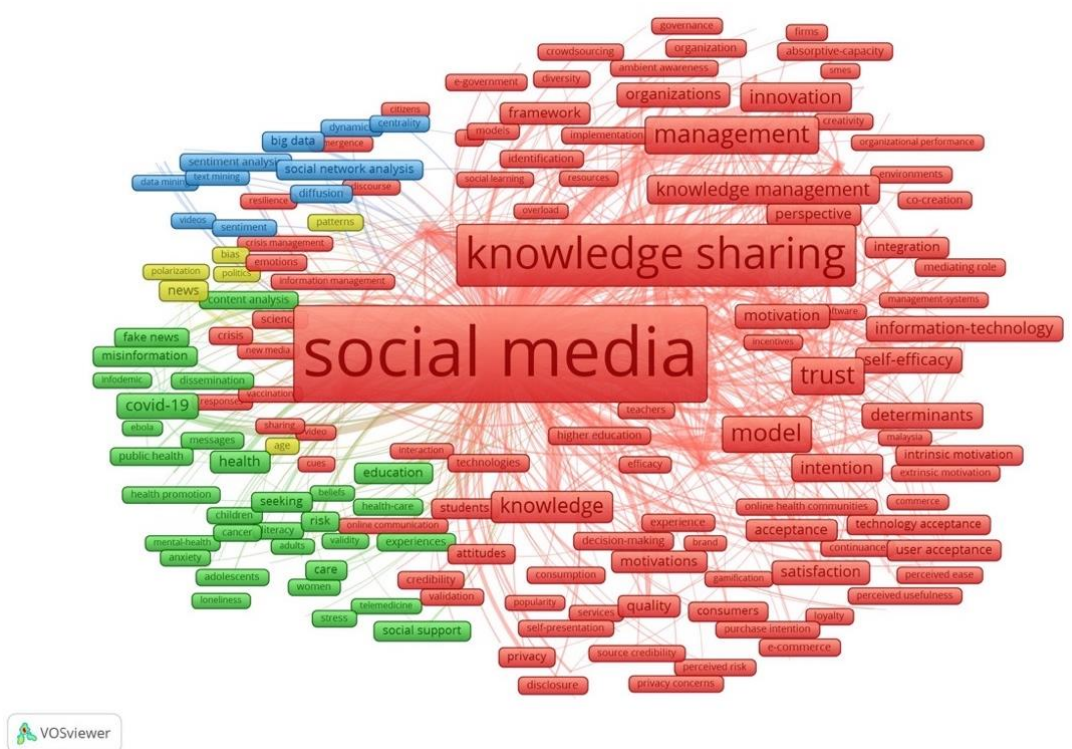


Figure 9. Network visualization of keyword co-occurrence analysis.

Overlay visualization and density visualization are the final two types of visualizations. Figure 10 presents three distinct categories of groups. The first category is nouns related to KSSM, such as social media, knowledge sharing, knowledge management, knowledge, organization, etc. The second group is characterized by their utilization of technologies about KSSM, including social media analytics, "big data," data mining, text mining, and other similar tools. This aligns with the previously mentioned abundance of scholarly articles and citations and is an area of continued investigation within the field of KSSM research. After 2019, especially since the outbreak of COVID-19, the sharing of news and health information in the digital environment has attracted increasing attention. Keywords such as "news," "fake news,"

"misinformation," "Covid-19," "cardiovascular disease," "mental health," and "coronavirus" have surged after 2020. The proliferation of the pandemic has prompted numerous nations to implement quarantine mandates and enforce social distancing measures, resulting in a significant surge in individuals' engagement with social media platforms. It is worth noting that keywords such as "machine learning" and "deep learning" are also emerging, which shows that people's enthusiasm for KSSM research is still growing and, with the help of new technologies, continues to break through and extend.

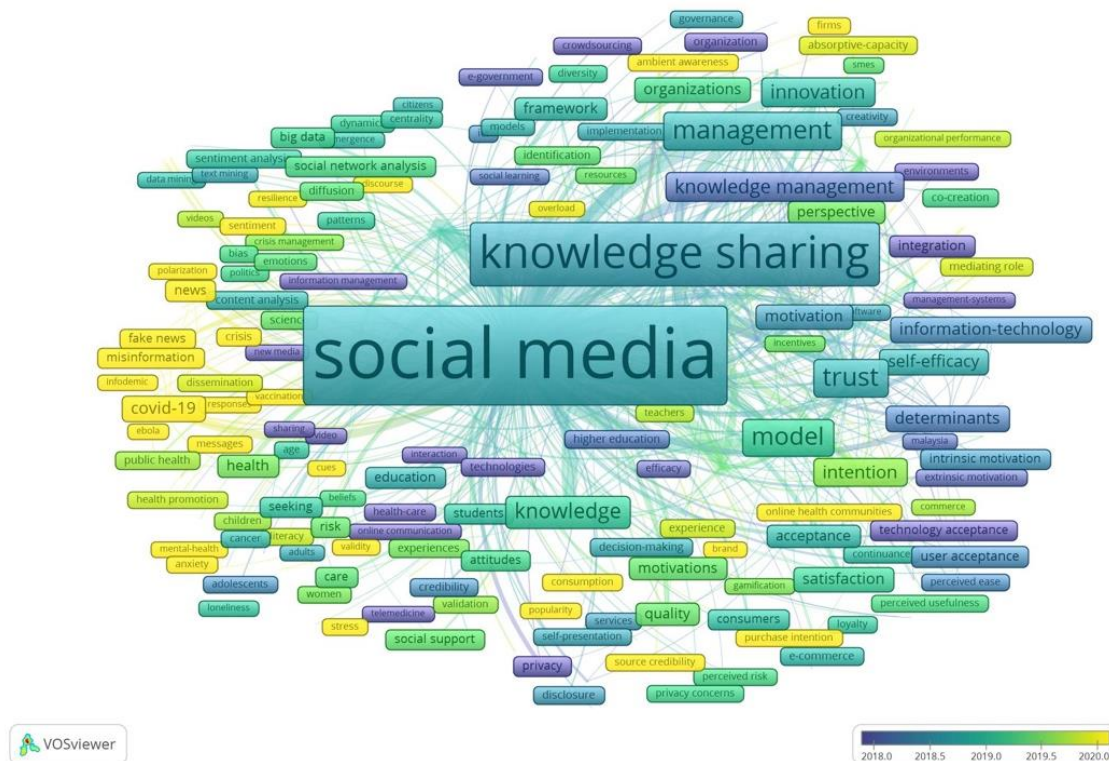


Figure 10. Overlays of keyword co-occurrence analysis visualization.

Figure 11 indicates a visual representation of the extensive study conducted in fields related to the KSSM. In the present analysis, the colors span a spectrum that includes shades of blue, green, yellow, and red. The closer the color is to red, the more related the objects are. Contrarily, smaller, less prominent dots show a more similar hue to blue. Through density visualization, it becomes possible to expeditiously discern key attributes of KSSM research, namely social media, knowledge sharing, knowledge management, models, trust, self-efficacy, innovation, Covid-19, health, and technology, which presently constitute extensively debated subjects.

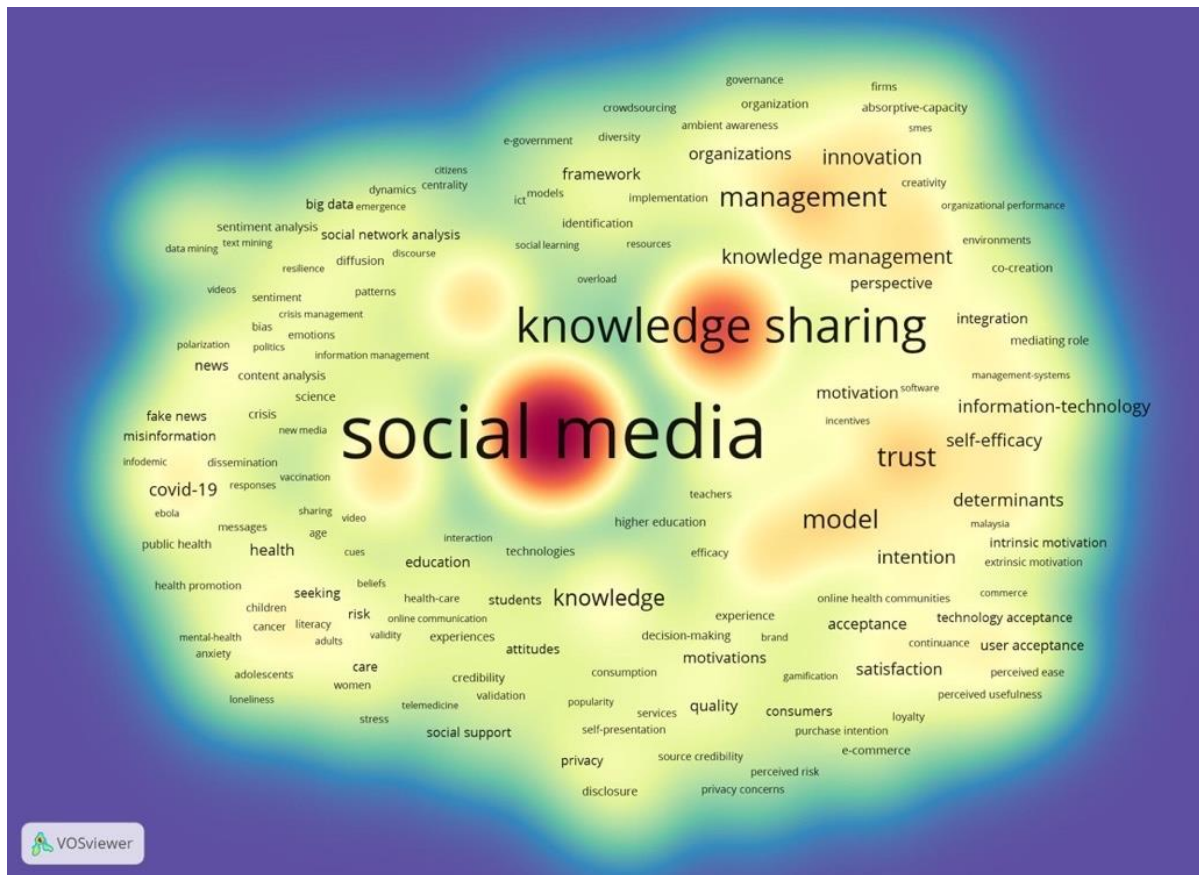


Figure 11. The visualization of keyword co-occurrence analysis density.

Conclusions

This study offers a comprehensive perspective on the current research trends in the KSSM field. This study utilizes the bibliometric analysis method to examine the co-occurrence of 5176 publications obtained from the Web of Science. The analysis is based on various factors, including journals, publication types, countries, authors, and keywords. The findings indicate that research in the field of KSSM has diversified across multiple disciplines beyond computer science and information science. Moreover, KSSM has emerged as a prominent contributor in both domains. The analytical results laid the framework for responding to the study questions posed in the introduction.

Specifically, (1) The quantity of KSSM articles has experienced a substantial rise since 2013, particularly after 2019. Notably, the proportion of articles within this total has surpassed fifty percent, and this figure is anticipated to continue to expand. Currently, KSSM research is dominated by the United States and China with the highest frequency, followed by England, Australia, Canada, and other countries, which have also impacted KSSM research. (2) Computer science is the most studied discipline of KSSM. Still, due to the multi-disciplinary perspective, exploring the KSSM application also involves information science, management, education, medicine, business, and communication. This is particularly important in knowledge sharing, which aligns with the primary goal of social development: to make the public more quickly access information from all walks of life. The future research potential and trajectory of KSSM may persist in centering around individuals' knowledge-sharing behavior on social media platforms. Especially in the digital environment, we need to help improve the efficient acquisition and sharing of knowledge using fast-changing new media technologies such as machine learning and deep learning. When employing social media as a

platform for disseminating knowledge, it is imperative to consider the authenticity and ethical dimensions of expertise to mitigate the potential misuse of technology.

This study significantly enhances the knowledge-sharing information while expanding upon earlier reviews in various aspects (Ahmed *et al.*, 2019; Maggio *et al.*, 2021; Nguyen, 2021; Noor *et al.*, 2020). This study utilizes a bibliometric methodology to uncover the most prominent scientists, institutions, and countries by analyzing the quantity of published and cited publications. Secondly, the terms social media, knowledge sharing, information, and communication are suggested to impact the network positively. Thirdly, the most widely discussed topics are social media, knowledge sharing, and knowledge management. Furthermore, this study aids academics in identifying the most impactful articles. Moreover, this study enables editors to selectively invite prominent authors and institutions when organizing subjects and journals. Based on this study, knowledge management organizations can utilize the findings to identify competence in information sharing worldwide. This can serve as a foundation for developing research initiatives focused on knowledge sharing. This study builds upon prior research by offering a comprehensive framework to assist scholars in investigating knowledge sharing from diverse and more significant viewpoints. Utilizing clustering techniques based on co-cited publications can assist scholars in identifying study gaps and enhancing the existing literature on knowledge sharing. Researchers in the field of knowledge sharing can efficiently identify scholars, research institutions, and nations that prioritize information sharing. Consequently, interested researchers might collaborate on research initiatives, exchange their thoughts and findings, and seek academic posts to advance research in the fields above.

Ultimately, this study has certain limitations that should be acknowledged. Its primary objective is to enhance our comprehension of KSSM from a broader viewpoint. This study is limited in scope since it uses only data from the WoS database of published works. Although WoS is widely regarded as comprising predominantly authoritative data sources, it must acknowledge that the data contained within it is not immune to errors and may not encompass all studies. Hence, future researchers should explore alternative databases, such as Scopus, EI, and SpringerLink, among others, in order to ensure comprehensive coverage of crucial journal indexes and various periods. Furthermore, the study's analysis is constrained by the monolingual nature of the publications, which hinders its inclusivity and comprehensiveness. The research exclusively focuses on publications written in the English language. However, it is essential to acknowledge that most non-English publications are not encompassed within the WoS database.

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