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Bibliometric network of scientific research on knowledge sharing

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Abstract

Open knowledge sharing offers numerous advantages, including facilitating innovation in organizations by amalgamating and incorporating knowledge to foster the development of novel processes, products, insights, and solutions. This paper seeks to evaluate the current status and visual representation of research in the field of knowledge sharing, as indexed in Scopus, using bibliometric methods. The research involved data analysis and visualization through the utilization of the VOSViewer program and Scopus search result analysis function. The review encompassed data from 1,391 documents published between 1992 and 2019. The study discovered that Oliveira, M., and the University of Technology Sydney were the most active individual researchers and affiliated institutions in the realm of knowledge sharing research. Computer science and Sustainability in Switzerland emerged as the most prevalent areas of study and sources of dissemination in knowledge sharing research. A single worldwide group map was generated to illustrate collaborative researchers. To delineate the body of knowledge accumulated over twenty-seven years of publications, this study constructed a convergence axis grouping that encapsulated the essence of knowledge sharing research: Knowledge, Human, Innovation, Research, Information, and Industry, abbreviated as KHIRII theme.

Keywords: Bibliometric; Information; Knowledge Sharing; Networks; Technology; VOSViewer

1. Introduction

Technological developments in this global era have benefited from the existence of knowledge management practices. Is essential for the management of complexity, interaction and initiative, coordination and problem solving, and decision making [1]. Openly sharing knowledge undoubtedly offers numerous advantages. For instance, innovative organizations rely on the fusion and incorporation of knowledge to create fresh procedures, products, insights, and solutions [2]. Enhancing the mechanisms for knowledge sharing among key enterprises is crucial for fostering synchronized operations and achieving sustainability [3]. These aspects present new prospects for innovation and leadership [4]. Knowledge sharing involves the transfer of knowledge between individuals. To be precise, only information can be transferred, and if both the sender and the recipient understand the information's meaning and its context, it counts as knowledge [5]. This comprehension involves assessing and grasping the existing state of knowledge in the broader context, generating and persistently working with promising ideas, offering and receiving constructive feedback, exchanging and amalgamating various viewpoints, anticipating and identifying challenges, and resolving problems [6]. In addition, companies need to have the means to adopt innovations or even access disseminated information. Social technology has previously been used to facilitate more equitable development terms than is offered in the standard innovation diffusion approach [7].

The growth of industries driven by significant technological advancements and pressing developmental requirements serves as a crucial force in steering both the overall economy and its sustainable development [1]; [6]. Furthermore, social network analysis is indispensable as it enables the investigation of structural connections and impacts within networks, the flow of information within networks, the spread of innovative concepts, tools, or methods, and the

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sustainability of networks. It involves scrutinizing network structure and how structural characteristics shape information-related behaviors [8] to create space to align motivation and build trust [9] and activities designed to enhance their teaching-knowledge, attitudes and behavior to enhance learning [10]. Social networks, or social media, provide the ability to foster extensive knowledge sharing within an organization [11], which can modify web content, share knowledge and socialize with others online [1]. Human resources for increased diversity in the workplace include not only better utilization of talent and market understanding but also increased creativity and problem-solving abilities [12]. Contributes in problem-solving, knowledge exchange, and career advancement [13] in order to achieve sustainable development goals [14].

Socialization is a process involving the acquisition, enactment, and creation of culture and knowledge, which in turn influences identity formation. By internalizing the dominant values, norms, and behaviors, newcomers become integrated members of an organization [15]. Typically, research in the field of knowledge sharing is quite focused, often centered around a single research topic within a specific field [16], and limited to a particular country [17]. According to [18], organizational justice has an impact on organizational commitment, knowledge sharing, and company performance. Additionally, organizational commitment affects both knowledge sharing and company performance. Furthermore, it was discovered that knowledge sharing significantly influences company performance [18]. Regrettably, despite visualizing a comprehensive global image map based on details from numerous published studies over the years, there hasn't been a substantial amount of research on knowledge sharing. The strong positive correlation between affiliations, scholars, yet no publication has specifically studied the effect of academic studies. Since 1992, we have been observing the rise in the number of academic papers on knowledge sharing that have been printed and included in the Scopus database.

2. Literature Review

Knowledge sharing is a means through knowledge, which is owned by individuals and then transferred to groups and organizations as a whole, so that the benefit is that it can create new knowledge, innovation and improve the performance of the company organization [19]. As pointed out by M Pitt, knowledge management should not be ad-hoc but [20], exemplary organizations systematically make intuitive knowledge-based experiences available to others thereby disseminating them throughout the organization. Roberts et al. [21] pointed out that it should not be assumed that knowledge flows from the center of the company but is likely to be based on the periphery of the organization. Information flow in organizations helps in promoting creativity. When information flows freely within an organization, it creates opportunities for new ideas, beliefs, choices, and information to interact and enables a creative enabling environment. A trusting environment allows individuals to take risks by sharing information and working closely with their team members creating a feeling of collaboration.

3. Method

An overview of the research on knowledge sharing that has been done around the world over the past 27 years is given in this review. The study used document search queries to get data from Scopus in November 2020. The study used bibliometric techniques, which involved data visualization and analysis using the VOSViewer tool and Scopus' search result analysis feature [22].

This research identifies keywords related to knowledge sharing to search for publications in the Scopus database. It focuses on 1,391 documents published globally between 1992 and 2019, with data collection extending up to 2019 and excluding 2020. To provide a comprehensive view of the research throughout the year, academic data was collected from January to December annually. TITLE-ABS-KEY ("knowledge sharing") AND PUBYEAR < 2020 AND (LIMIT-TO (ACCESSTYPE(OA))) when obtaining information about academic publications from the Scopus online database during the data mining process, the query input command is used.

In order to create a network of international researcher collaboration, the study uses co-authorship analysis employing authors' analysis units and systematic calculating methodologies through VOSViewer. In order to generate a keyword map network, the research also does a thorough co-occurrence analysis and keyword association analysis using VOSViewer's full systematic calculating approach.

4. Results and discussion

It seems that the number of publications related to Knowledge Sharing is likely to rise each year. The peak year for international publications was in 2019, with 289 documents. Research on knowledge sharing at the global level commenced in 1992.

4.1. Knowledge Sharing Research Most Common Organizational Affiliations

The top research institutions in knowledge sharing research was University of Technology Sydney with 14 papers. Then, with 13 papers, The University of Hong Kong followed. Wageningen University & Research with 12 papers, Universidade de Sao Paulo - USP with 11 papers, University of Toronto with 11 papers, Universidade de Lisboa with 11 papers, and McGill University with 10 papers.

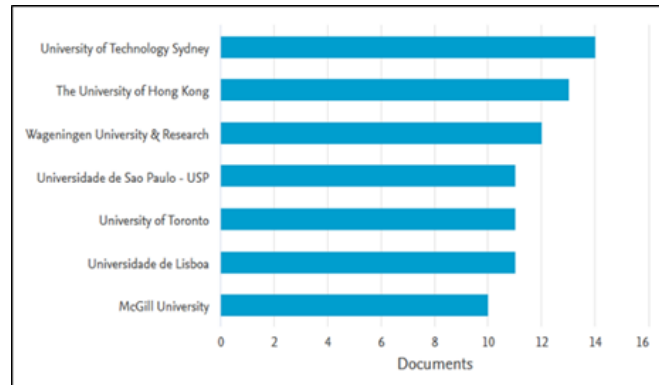


Figure 1 Organizational Affiliation Number of Annual Publication of Knowledge Sharing Research

4.2. Knowledge Sharing Research Most Individual Researcher

The researcher in the area of knowledge sharing to the most writings was Oliveira, M. 6 papers with it. Pursued by Curado, C. with five papers. And followed by Assegaff, S., Eisenhardt, M., Harvey, G., Ikeda, M., Rehman, M., Tsai, S.B., Vogel, A.L., Ziemba, E. with 4 papers.

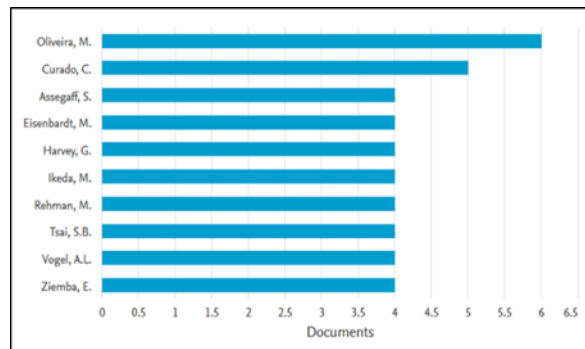


Figure 2 Most individual Knowledge Sharing Researcher

4.3. Nation Number of Annual Publication of Knowledge Sharing Research

In the realm of knowledge sharing research publications, the United States led the way with 197 academic documents. Following closely were China with 155 documents, the United Kingdom with 150 papers, Australia with 85 papers, Canada with 78 papers, Brazil with 66 papers, the Netherlands with 59 papers, Malaysia with 56 papers, France with 52 papers, and Germany with 52 papers.

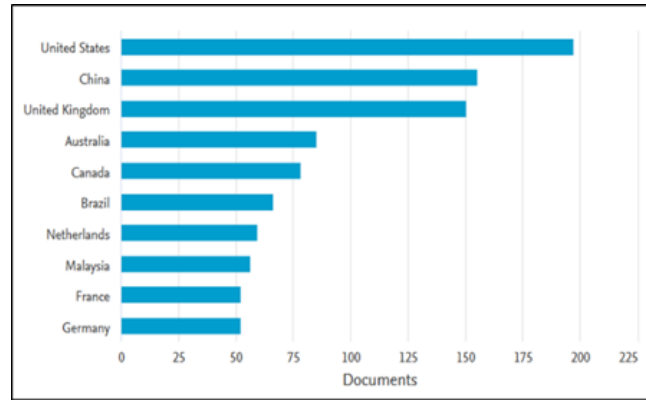


Figure 3 Number of Documents by Nation from the Knowledge Sharing Research

4.4. Number by Funding Sponsor of Knowledge Sharing Research

The primary funding sponsor in knowledge sharing research was the National Natural Science Foundation of China, which supported 36 papers. It was followed by the National Science Foundation with 13 papers, the European Commission with 11 papers, the Conselho Nacional de Desenvolvimento Científico e Tecnológico with 10 papers, the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior with 10 papers, the Fundamental Research Funds for the Central Universities with 10 papers, and the Japan Society for the Promotion of Science with 9 papers.

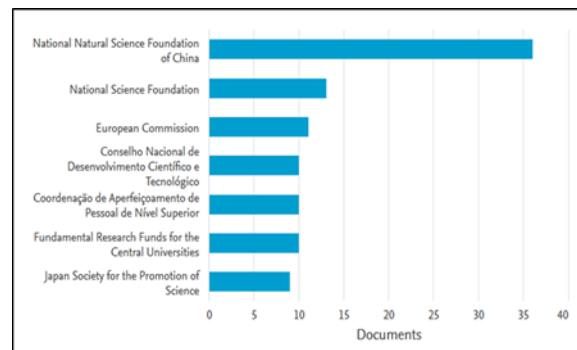


Figure 4 Most Frequency of Knowledge Sharing Research by Funding Sponsor

E. The Largest Frequency of Publication of Knowledge Sharing Research by Subject Area

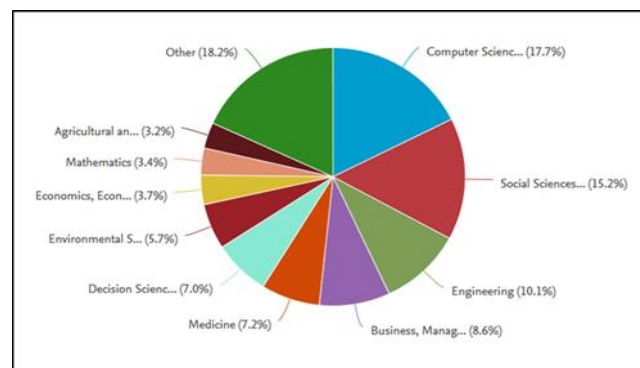


Figure 5 The Largest Frequency of Publication of Knowledge Sharing by Subject Area

Computer Science was the most prevalent subject area in international publications on knowledge sharing Research, accounting for 417 papers (17.7%). Persuades by fields of study in the areas of social sciences (15.2%), with 360 papers, engineering (10.1%), 239 papers, business, management, and accounting (8.6%), 170 papers for medicine, 165 for decision sciences, 134 for environmental science, 87 for economics, econometrics, and finance, 80 for mathematics, and 76 papers for agricultural and biological sciences.

4.5. The Largest Frequency of Publication of Knowledge Sharing Research by Type Document

Among international publications related to knowledge sharing research, the most common document type was "Article," accounting for 941 documents or 67.7 percent. Following that, "Conference Paper" made up 25.1 percent with 349 papers, "Review" constituted 4.7 percent with 65 papers, "Editorial" accounted for 0.7 percent with 10 papers, "Book Chapter" and "Erratum" each represented 0.6 percent with 8 papers, "Note" comprised 0.4 percent with 6 papers, and "Book" and "Data Paper" each contributed 0.1 percent with 1 paper each.

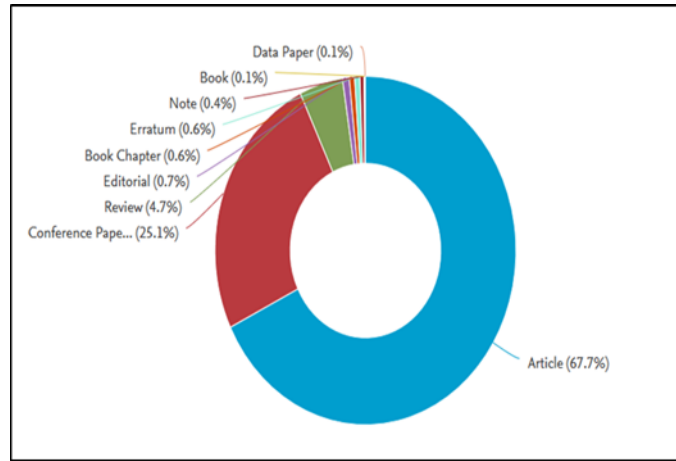


Figure 6 The Largest Frequent Type Document of Knowledge Sharing Research

4.6. Year Documents of Knowledge Sharing Research Publication Sources

In terms of the yearly quantity of knowledge sharing research publication sources, Sustainability Switzerland held the top position with 44 papers. Following closely were IFIP Advances in Information and Communication Technology with 43 papers, Procedia Computer Science with 32 papers, IFIP International Federation for Information Processing with 21 papers, and there are 21 papers in the subseries Lecture Notes in Computer Science, which also contains Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics.

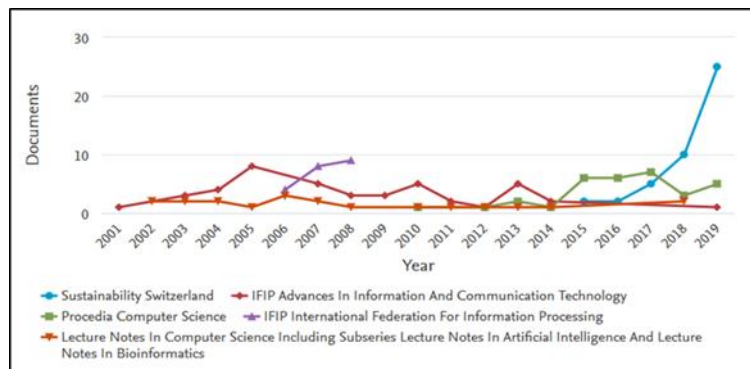


Figure 7 Number of Annual Documents Based on the Knowledge Sharing Research Sources

4.7. Year Number of Annual documents from the Knowledge Sharing Research

The quantity of academic documents addressing knowledge sharing has exhibited a consistent annual increase. Research in the field of knowledge sharing commenced in 1992. The zenith of publication activity was reached in 2019, with 289 articles, while 2018 saw a total of 191 articles published.

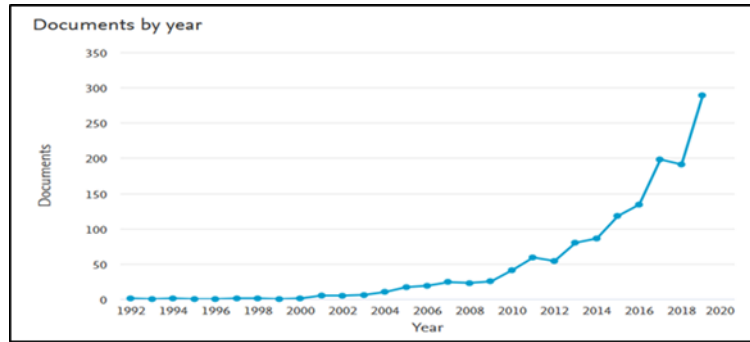


Figure 8 Number of Annual Documents Based on the Knowledge Sharing Research Sources

4.8. The Knowledge Sharing Research Article Cited

The research conducted by Mannix, E., and Neale, M.A. garnered the highest number of citations in the field of knowledge sharing research. Their most cited work, titled "What variations are significant? Diversity in teams: The promise and reality in organizations," received 639 citations in 2005.

4.9. Publication Theme Map

By utilizing the VOSViewer program for analysis and visualization, a framework for knowledge sharing keywords in publication themes was established. The criterion for the minimum number of keyword-related documents was set at five occurrences. Consequently, out of 7,890 keywords, 494 keywords met this threshold.

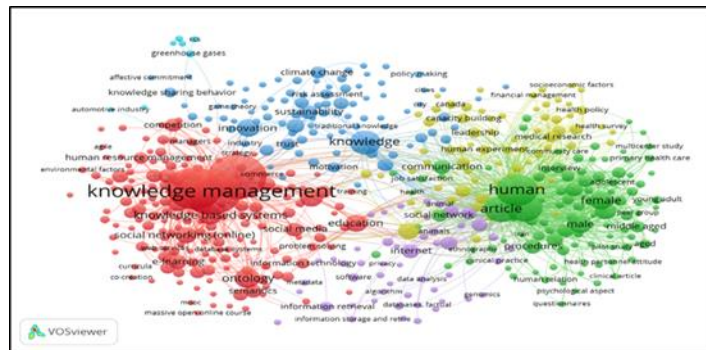


Figure 9 Network of Keyword

According to Figure 9, the international academic publications in knowledge sharing research were categorized into five thematic groups based on the study keywords. These thematic groups are referred to as FSSEF themes, simplifying and abbreviating their representation.

- 1) Knowledge cluster (Red). The keywords knowledge management, knowledge-based systems, education, e-learning, human resource management, social media, and strategy dominated in this cluster. Many of these keywords are linked to themes in knowledge.
- 2) Human cluster (Green). The keywords male, female, human relation, young adult, primary health care and middle aged dominated in this cluster.
- 3) Innovation cluster (Blue). The keywords sustainability, climate change, policy making and motivation dominated in this cluster.
- 4) Research cluster (Yellow). The keywords from research cluster is a medical research, health survey, health policy, human experiment, and leadership.
- 5) Information cluster (Purple). We can find information retrieval, internet, software, data analysis, and metadata and information storage and retry themes in this cluster. This cluster was related by the keyword's information.
- 6) Industry cluster (Blue). The keywords automotive industry and greenhouse gases dominated in this cluster.

4.10. Network of Authorship

Collaboration between implementations working in different contexts can contribute to the development of new and common approaches [12]. Using the VOSViewer program, a framework for knowledge sharing researchers was created to construct an authorship network map. A minimum of three publications per author was one of the criteria for participation. As a result, 70 researchers who met this requirement were found out of 4,405 researchers. As shown in Figure 10, there was a single collaborative network among international researchers in knowledge sharing research publications. The red cluster represented knowledge sharing publications within this network.

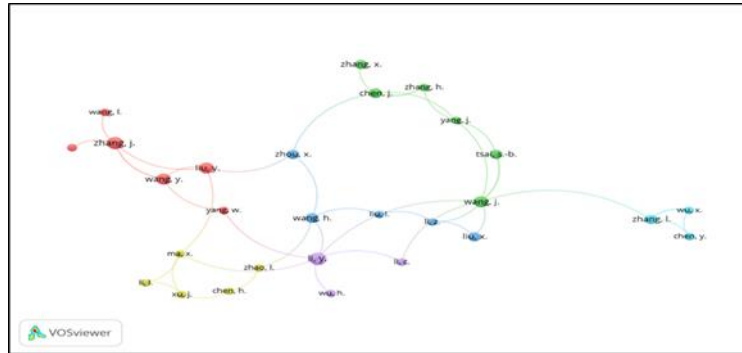


Figure 10 Authorship Network Map

- 1) Red cluster: Wang, I., Zhang, J., Wang, Y., Liu, Y., and Yang, W.
- 2) Green cluster: Zhang, X., Chen, J., Zhang, H., Yang, J., Tsai, S. B., and Wang, J.,
- 3) Blue cluster: Zhou, X., Wang, H., Liu, L., Liu, X., and Liu, Z.
- 4) Yellow cluster: Ma, X., Li, I., Xu, J., Chen, H., and Zhao, I
- 5) Purple cluster: Li, Y., Li, C., and Wu, H.
- 6) Light blue cluster: Zhang, I., Wu, X., and Chen, Y.

4.11. Managerial Implication

Researchers can find out their knowledge for authorship network maps. Namely a group partnership network between international researchers in knowledge-sharing research publications.

5. Conclusion

The findings of this research highlight a consistent yearly increase in international publications related to "Knowledge Sharing," accompanied by the emergence of maps and visual patterns. The University of Technology Sydney was the most active research institution in the publication of knowledge sharing papers, with 14 contributions. In the realm of knowledge sharing research publications, Oliveira, M. emerged as the individual academic researcher with the highest number of publications, totaling 6 papers. The United States played a pivotal role in knowledge sharing research, contributing significantly with 197 papers. Notably, the National Natural Science Foundation of China was the leading funding sponsor in this research, backing 36 papers.

Within knowledge sharing studies, computer science was the most intensively studied field, accounting for 17.7 percent of the publications, while Articles dominated the document types, comprising 67.7 percent of the corpus. Among the sources of knowledge sharing research, "Sustainability Switzerland" led with 44 papers, and the highest global scholarly publication output occurred in 2019, with 289 papers. The works of Mannix, E., and Neale, M.A. stood out with the most citations, particularly their 2005 publication, "What variations are significant? Diversity in teams: The promise and reality in organizations," cited 639 times.

Regarding the knowledge implications, this study suggests the creation of a convergence axis classification, referred to as the KHIRII theme, encompassing Knowledge, Human, Innovation, Research, Information, and Industry. This classification can help organize the body of knowledge accumulated over 27 years of academic publication. Recognizing key themes in knowledge sharing provides practical insights, fostering awareness of research gaps and the need for specialized expertise in various disciplines. These themes often underscore the significant contributions of knowledge sharing to information, innovation, technology, and management.

Compliance with ethical standards

Disclosure of conflict of interest

The Authors wish to declare that none has any interest to disclose.

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