

Mapping Knowledge Diffusion: A Network Analysis

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This diffusion of knowledge through co-authorship, organizational collaboration and country collaboration networks from 2004 to 2023 has been studied in this paper. Utilizing a dataset of 1,349 documents from 830 sources, the research investigates the structure and dynamics of knowledge dissemination. Key metrics such as total link strength, citation counts, and co-authorship patterns are used to identify influential authors, organizations and countries. Thematic focus and trends are explored through author and index keyword analyses, while citation relationships among various entities are examined to map the intellectual structure and collaborative interactions within the field. The results highlight significant contributors like Yi Bu, Ying Ding and Wei Lu in the co-authorship network, with the United States, the United Kingdom, and China leading in international collaborations. The study also identifies prevalent themes such as knowledge diffusion and innovation and emphasizes influential sources like *Scientometrics* and *Journal of Informetrics*. Through bibliographic coupling and co-citation analysis, the research uncovers emerging areas and potential interdisciplinary intersections, enhancing the understanding of global knowledge flow. This comprehensive network analysis highlights the crucial role of knowledge diffusion efforts in fostering research, education and informed decision-making within society.

Keywords: Knowledge Diffusion, Bibliometrics, Citation Analysis, Research Trends, Scholarly Networks, VOSviewer Software

Introduction

Knowledge diffusion refers to the process by which knowledge is spread and shared across different individuals, organizations, or communities. Knowledge diffusion plays a crucial role by ensuring that valuable information and resources are effectively spread and accessible to a wide audience¹. Libraries act as hubs for knowledge dissemination, utilizing various channels such as digital repositories, databases, publications, and community programs to share information. Effective knowledge diffusion in this context supports research, education, and lifelong learning by making curated information readily available to students, researchers, and the public. It also fosters collaboration and informed decision-making by connecting users with the latest knowledge and advancements in various fields. Through structured and strategic diffusion efforts, libraries enhance their role as vital information centres in society²⁻³.

Objectives

➤ To analyse and visualize the structure and dynamics of knowledge diffusion networks, including

co-authorship, organizational collaboration and country collaboration using VOSviewer software.

➤ To identify significant authors, organizations and countries by assessing metrics such as total link strength, citation counts and co-authorship patterns.

➤ To trace the thematic focus and trends within knowledge diffusion research

➤ To evaluate citation relationships among various entities.

➤ To find out emerging areas of interest and potential interdisciplinary intersections through bibliographic coupling and co-citation analysis⁴.

Literature Review

Price⁵ explored the network structure of scientific papers and introduced the early concept of citation analysis. His study offers foundational insights into the diffusion of scientific knowledge through citation networks, paving the way for later developments in bibliometric mapping. Garfield⁶ introduced citation indexing, revolutionizing the search and analysis of scientific literature. His work is crucial for understanding the origins of citation networks. Waltman, Van Eck, and Noyons⁷ utilized VOSviewer

to integrate mapping and clustering techniques for analysing bibliometric networks. They demonstrated the utility of this approach in identifying research fronts and knowledge diffusion patterns across various disciplines, providing valuable insights into scientific collaboration and influence. Boyack, Klavans, and Börner⁸ mapped the core structure of scientific knowledge using citation data. By identifying the backbone of science, their study reveals key areas of knowledge diffusion and influential research papers, offering a comprehensive overview of how scientific fields evolve and interconnect over time. Milojević, Sugimoto, Yan, and Ding⁹ analysed the cognitive structure of Library and Information Science (LIS) through article title words, uncovering thematic trends and knowledge diffusion within the field. Their use of VO Sviewer to visualize these patterns provides insights into the evolution and interdisciplinary connections of LIS research. Van Raan¹⁰ detailed overview of advanced bibliometric techniques for measuring scientific impact. He discusses the principles and applications of these techniques, highlighting the role of tools like VOSviewer in visualizing scientific networks and trends. Zitt and Bassecoulard¹¹ combined lexical and citation methods to delineate the complex field of nanoscience. By mapping the knowledge within this interdisciplinary field, they illustrate how different research areas intersect and evolve, providing a nuanced view of scientific collaboration and influence.

Methodology

The researchers collected bibliographic data on knowledge diffusion from the Scopus database on April 14, 2024, using the keyword 'Knowledge Diffusion' and the query (TITLE-ABS-KEY ('Knowledge Diffusion') AND PUBYEAR > 2003 AND PUBYEAR < 2024), resulting in 1,349 publications from 2004 to 2023. They analysed the data using a spreadsheet application to meet the study's objectives. Scientometric and visualization data analysis was conducted with R Studio (BiblioShiny) and VOSviewer software to examine address-based and citation-based performance and citation networks. VOSviewer visualizes network-based maps, while RStudio offers tools for data analysis and visualization.

Results

Key Information About Collected Data

In this study, Table 1 shows the dataset spans from 2004 to 2023, comprising 1,349 documents from 830

sources, with an annual growth rate of 8.89%. On average, documents are 8.52 years old and receive 19.17 citations each, referencing a total of 58,621 sources. The dataset includes 4,215 Keywords Plus and 3,223 authors' keywords. It involves 2,801 authors, with 230 contributing single-authored documents. There are 263 single-authored documents, and the average number of co-authors per document is 2.66. International co-authorships account for 22.31% of collaborations. Document types are diverse: 935 articles, 14 books, 75 book chapters, 236 conference papers, 15 conference reviews, 9 editorials, 1 erratum, 2 letters, 4 notes, 3 retracted papers, 54 reviews, and 1 short survey.

Co-authorship network visualization

The co-authorship network visualization depicts collaborative relationships among authors through shared publications, with nodes representing authors and edges indicating co-authored works. This visualization facilitates the identification of key collaborators and influential researchers, enriching

Table 1 — Key information about data

Description	Results
Timespan	2004:2023
Sources (Journals, Books, Etc)	830
Documents	1349
Annual Growth Rate %	8.89
Document Average Age	8.52
Average Citations Per Doc	19.17
References	58621
Document Contents	
Keywords Plus (Id)	4215
Author's Keywords (De)	3223
Authors	
Authors	2801
Authors of Single-Authored Docs	230
Authors Collaboration	
Single-Authored Docs	263
Co-Authors Per Doc	2.66
International Co-Authorships %	22.31
Document Types	
Article	935
Book	14
Book Chapter	75
Conference Paper	236
Conference Review	15
Editorial	9
Erratum	1
Letter	2
Note	4
Retracted	3
Review	54
Short Survey	1

understanding of research communities and fostering interdisciplinary collaborations¹². Out of 2,971 authors contributing at least one document to knowledge diffusion, the top 1,000 authors are included based on the strength of their co-authorship links. Although not all authors are connected, the largest connected group comprises 27 authors. Notable contributors include Yi Bu (5 documents, 49 citations, total link strength 22), Ying Ding (3 documents, 37 citations, total link strength 12), and Wei Lu (2 documents, 14 citations, total link strength 10), along with Jinqing Yang, noted twice (3 documents, 26 citations, total link strength 10). Figure 1(A) presents the Co-authorship network visualization in knowledge diffusion.

Co-authorship organisation visualization

The co-authorship organization visualization illustrates collaborative relationships between authors and organizations within a specific field or dataset. It maps how authors are interconnected through shared publications, revealing the dynamics of academic collaboration. Out of 2,546 organizations contributing at least one document to knowledge diffusion, the top 1,000 are included based on their co-authorship links' strength. While not all organizations are connected, the largest connected group comprises 18 organizations. This visualization highlights a highly collaborative network, with each institution contributing one document, receiving 16 citations, and having a total link strength of 17. Notable contributors include departments from the University of Oxford, various tropical medicine research units, and institutions from the UK, Kenya, Laos, Thailand, the Netherlands, the US, and Vietnam. Figure 1(B) presents the Co-authorship organisation visualization in knowledge diffusion.

Co-authorship countries network visualization

Figure 1(C) illustrates the co-authorship countries network visualization in knowledge diffusion, depicting collaborative relationships among different countries based on shared authorship of research publications. This visualization delineates international research collaborations, providing insights into countries' contributions to the global knowledge landscape. Among 101 countries contributing to knowledge diffusion publications, each country's total co-authorship link strength with others is calculated. The United States leads with 253 documents and 8189 citations, with a total link strength of 156. Following are the United Kingdom (111 documents, 3384 citations, total link strength 107), and China (310 documents, 3774 citations, total link strength 99). Other notable contributors encompass Italy, France, the Netherlands, Germany, South Korea, Tunisia, and Canada.

Author Keywords network visualization

The Author Keywords network visualization in knowledge diffusion graphically portrays the interconnections among keywords in research publications within this field. It depicts how various keywords intertwine through shared usage across diverse documents, shedding light on thematic focus and evolving trends¹³. Among the 3,224 keywords analyzed, each with a minimum occurrence of 5, their total co-authorship links' strength with other keywords was computed. From these, the keywords with the greatest total link strength were identified. While not all 108 keywords are connected, the largest connected group comprises 104. The visualization highlights knowledge diffusion as the most prevalent theme, with 413 occurrences and a total link strength of 385. Innovation follows with 84 occurrences and a

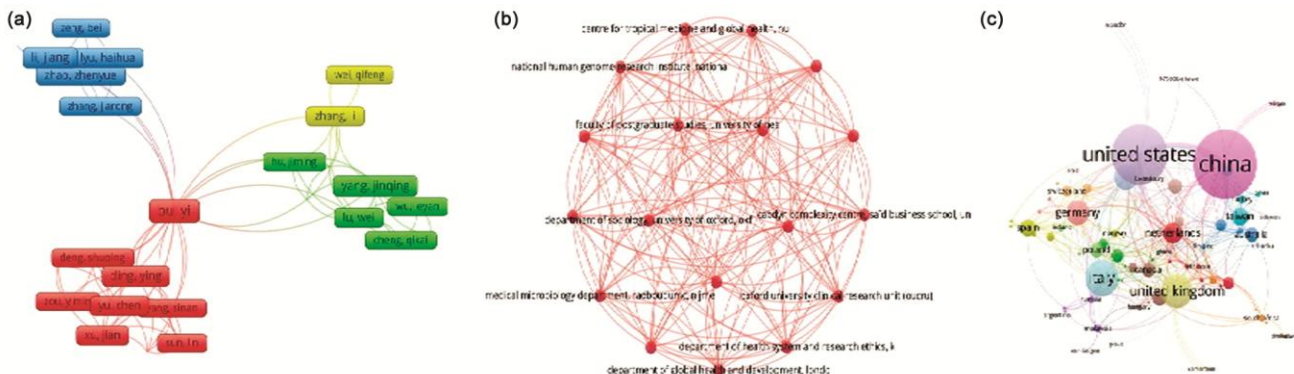


Fig. 1(A) — Co-authorship network visualization, Figure 1(B): Co-authorship organisation visualization, Figure 1(C) Co-authorship countries network visualization

link strength of 140, while knowledge management has 53 occurrences and a link strength of 63. Other notable keywords include social network analysis, diffusion, citation analysis, and knowledge spillovers. Figure 2(A) presents the Authors' keyword network visualization in knowledge diffusion.

Index Keywords network visualization

The Index Keywords network visualization in knowledge diffusion illustrates the connections among index keywords used in research publications within this field. This visualization helps researchers identify pivotal topics, emerging areas of interest, and potential interdisciplinary intersections. Among the 4,215 index keywords examined, each with a minimum occurrence of 5, their total co-authorship links' strength with other keywords was calculated. The keywords with the highest total link strength were determined, with all 268 keywords interconnected in this network. From Figure 2(B) the visualization highlights knowledge diffusion as the predominant theme, with 365 occurrences and a substantial total link strength of 1639. Diffusion follows with 223 occurrences and a link strength of 1136, while knowledge management has 127 occurrences and a link strength of 726. Other noteworthy keywords include innovation, knowledge, and human.

Citation document network visualization in knowledge diffusion

The citation document network visualization in knowledge diffusion graphically represents the

citation relationships between research publications in the field. This visualization shows how documents cite each other, revealing the flow of information and the influence of specific works within the domain¹⁴. Among the 1,349 citable documents analysed, each with a minimum of 5 citations, the total strength of their citation links with other documents is calculated. The documents with the greatest total link strength are identified. While not all 673 documents are connected, the largest connected group comprises 267 documents. From Figure 3(A) the visualization highlights Singh (2005) as the most cited, with 755 citations. Following closely are Cowan (2004) with 670 citations and Breschi (2009) with 608. Notable mentions include Chen (2004) and Morone (2004a). Interestingly, Chen (2017) and Yang (2015) have fewer documents but relatively high citations.

Citation sources network visualization in knowledge diffusion

The citation sources network visualization in knowledge diffusion graphically depicts the relationships among various sources, such as journals, conference proceedings, and books, based on their citation patterns within the field. This visualization reveals how sources cite each other, highlighting influential publications and the flow of knowledge across different platforms. Among the 830 citable sources analyzed, each with a minimum of five citations, the total strength of their citation links with other sources is calculated. From these, the sources with the highest total link strength are identified.

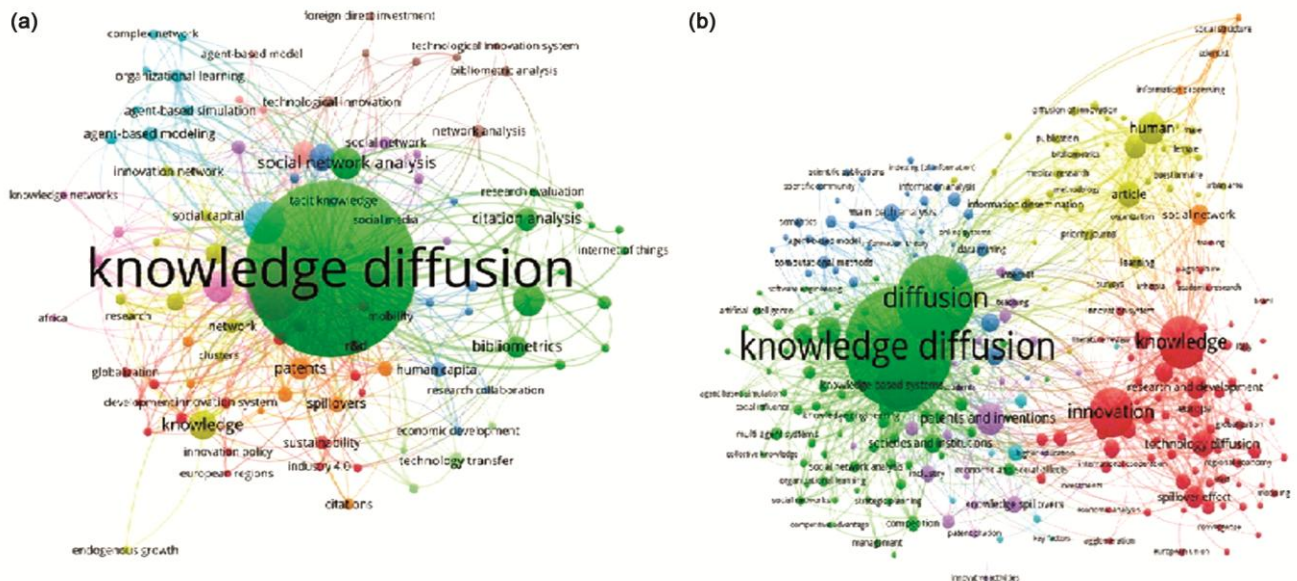


Fig. 2(A) — Author Keywords network visualization, Figure 2(B): Index Keywords network visualization.

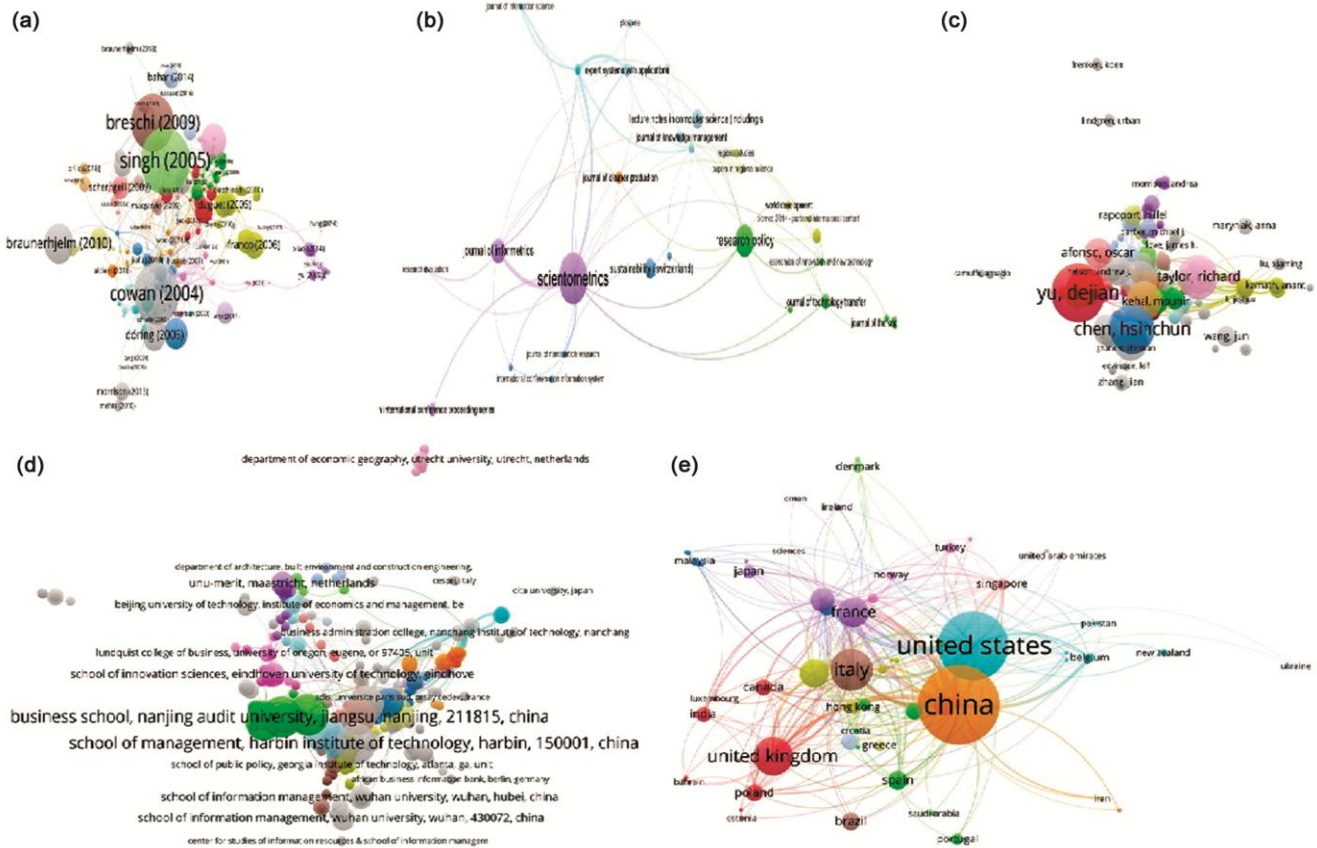


Fig. 3(A) — Citation document network visualization in knowledge diffusion, Figure 3(B): Citation sources network visualization in knowledge diffusion, Figure 3(C): Citation author network visualization in knowledge diffusion, Fig. 3(D) — Citation organisation network visualization in knowledge diffusion, Figure 3(E): Citation country network visualization in knowledge diffusion

While not all 34 sources are connected, the largest connected group comprises 29 sources. Notably, Scientometrics emerges as the leading source with 55 documents and a substantial citation count of 997. Following is the Journal of Informetrics with 22 documents and 912 citations, while Expert Systems with Applications ranks third with 10 documents and 328 citations. Other noteworthy sources include Research Policy and the Journal of Technology Transfer. Figure 3(B) presents the Citation sources network visualization in knowledge diffusion.

Citation author network visualization in knowledge diffusion

The Citation Author network visualization in knowledge diffusion visually depicts the citation relationships among authors within the field, illustrating how authors cite each other's work and showcasing influential researchers and the flow of ideas across the academic community. A total of 2,971 authors with at least one citation in knowledge diffusion were analysed, with the first 1,000 meeting the inclusion threshold. For each of these 1,000

authors, the total strength of their citation links with other authors was computed, and the author with the greatest total link strength was identified. Not all of these 1,000 authors are interconnected; the largest connected group comprises 893 authors. Notably, Yu, Dejian and Taylor, Richard emerge with relatively few documents but high citation counts, indicating significant impact. Chen, Hsinchun leads in document count with 14 documents but fewer citations compared to Singh, Jasjit, who has 3 documents but a high citation count of 907. Figure 3(C) presents Citation author network visualization in knowledge diffusion.

Citation organisation network visualization in knowledge diffusion

The Citation Organization network visualization in knowledge diffusion graphically illustrates the citation relationships among different organizations, including universities, research institutes, and companies, based on their publications in the field. This visualization unveils how organizations reference each other's work, spotlighting influential

institutions and the exchange of knowledge within the academic and research community. A total of 2,546 organizations with at least one citation in knowledge diffusion were examined, with the first 1,000 meeting the inclusion criteria. For each of these 1,000 organizations, the total strength of their citation links with other organizations was computed, and those with the highest total link strength were identified. While not all 1,000 organizations are interconnected, the largest connected group comprises 868 organizations. Figure 3(D) displays the visualization of this citation organization network. Noteworthy in the citation organization visualization are CNRS (CREA, Ecole Polytechnique, France) and MERIT (University of Maastricht, Netherlands), each with a citation impact of 670. INSEAD in Singapore closely follows with 755 citations. The Georgia Institute of Technology demonstrates moderate impact with 193 citations spread across 2 documents. Despite lower citation counts, institutions like Jining Medical University and the University of Shanghai exhibit significant linkage strength.

Citation country network visualization in knowledge diffusion

The Citation Country network visualization in knowledge diffusion graphically represents relationships between countries based on citations of research publications in the field. This visualization shows how countries cite each other's work, highlighting influential nations and the global flow of knowledge. Among 101 countries analysed, each with at least one citation, the total strength of their citation links with other countries was calculated. The countries with the greatest total link strength were identified, with the largest connected group comprising 29 countries. From Figure 3(E), China leads with a total link strength of 712 from 310 documents and 3,774 citations. The United States follows with 409, France and Italy each have 258, and the Netherlands has 210. The United Kingdom, Germany, Taiwan, Singapore, and South Korea also show notable link strengths.

Bibliographic coupling sources network visualization

The bibliographic coupling sources network visualization graphically represents the connections between different sources, such as journals and conference proceedings, based on shared references in their publications¹⁵. This helps identify influential sources and thematic overlaps, providing insights into the structure of academic literature within a specific field. Among the 830 sources analyzed, each with a

minimum of five documents, the total strength of their bibliographic coupling links with other sources was calculated. From these, the sources with the greatest total link strength were identified. While not all 34 sources are connected, the largest connected group comprises 33 sources. Figure 4(A) presents Bibliographic coupling sources network visualization. In this visualization, Scientometrics has the highest total link strength (3416) from 55 documents and 997 citations. Research Policy follows with 2737 from 31 documents and 1963 citations. The Journal of Informetrics has 1717 (22 documents, 912 citations). Other significant sources include Regional Studies (1163), the Journal of Technology Transfer (1077), and Technological Forecasting and Social Change (975), highlighting their strong influence in the network.

Bibliographic coupling author network visualization

Bibliographic coupling author network visualization maps the connections between authors based on shared references in their publications. This visualization highlights collaborative relationships and intellectual influence among researchers, offering a deeper understanding of how authors are interconnected within a particular academic domain. A total of 2,971 authors, each with a minimum of five documents in knowledge diffusion, were analyzed. The total strength of their bibliographic coupling links with other authors was calculated, identifying the author with the greatest total link strength. Not all of these 2,971 authors are connected; the largest connected group consists of 26 authors. In the bibliographic coupling author network visualization, Yu, Dejian leads with the highest total link strength (3013) from 18 documents and 286 citations. Sheng, Libo (1952), Rejeb, Abderahman (1910), and Rejeb, Karim (1910) also show strong links. Significant contributions include Xu, Zeshui (1273), Chen, Hsinchun (1148), and Liu, John S. (1133), indicating their prominent roles in the network's scholarly interactions and influence. Figure 4(B) shows the visualization of this bibliographic coupling author network.

Bibliographic coupling documents network visualization

Bibliographic coupling documents network visualization illustrates the connections between individual research documents based on shared references. By mapping these relationships, this visualization reveals the intellectual structure of a field, showing how different studies are interconnected and identifying clusters of related research. Among the 1,349

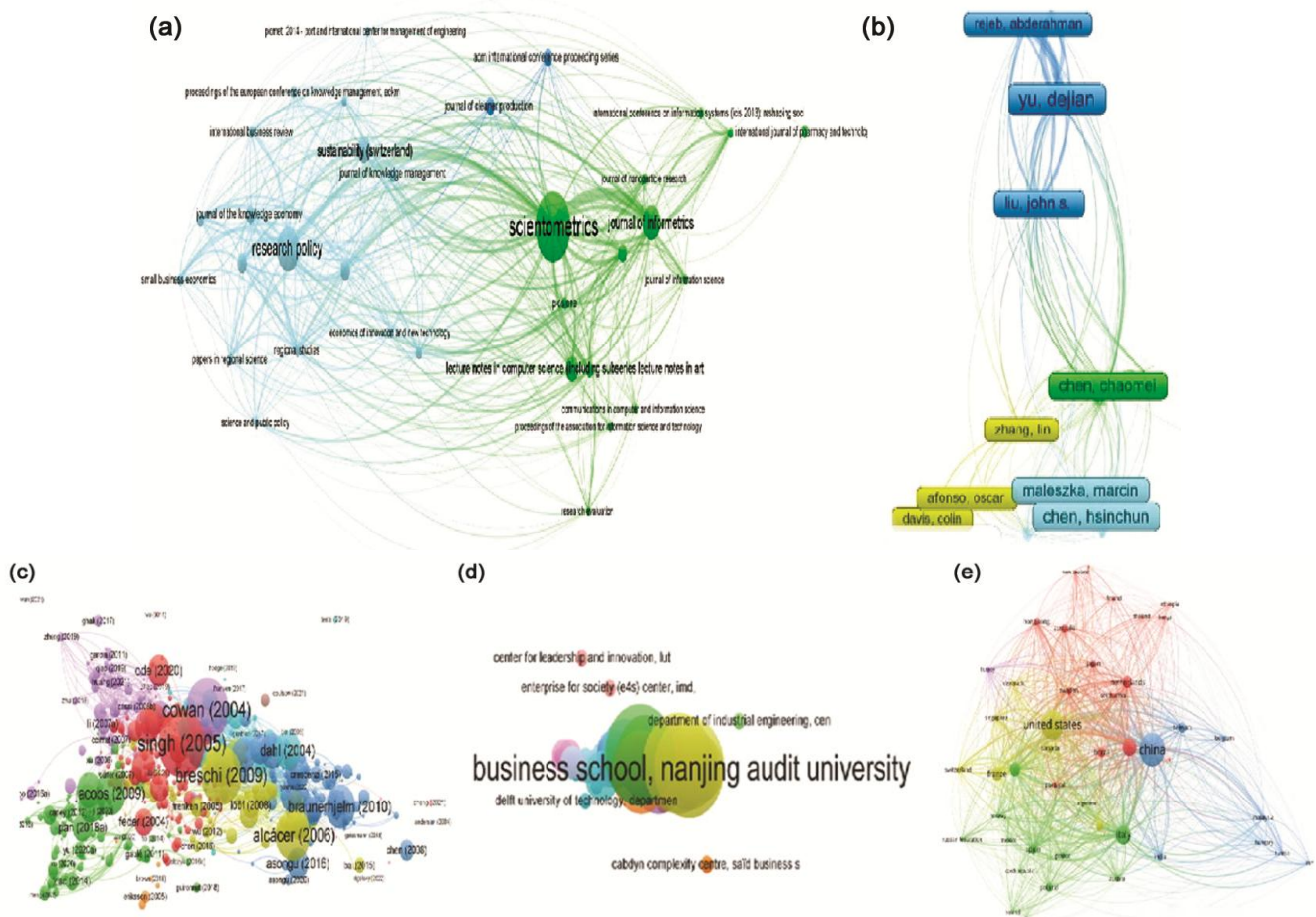


Fig. 4(A) — Bibliographic coupling sources network visualization, Figure 4(B): Bibliographic coupling author network visualization, Fig. 4(C) — Bibliographic coupling documents network visualization, Figure 4(D): Bibliographic coupling organisation network visualization, Figure 4(E): Bibliographic coupling country network visualization

documents analyzed, each with a minimum of 5 citations, the total strength of their bibliographic coupling links with other documents is calculated. From there, the documents with the greatest total link strength are identified. While not all 673 documents are connected, the largest connected group comprises 624 documents. From Figure 4(C), the bibliographic coupling documents network visualization, Singh (2005) leads with 755 citations and a total link strength of 525, followed by Cowan (2004) with 670 citations and 279 link strength. Breschi (2009) has 608 citations and 402 link strengths, and Döring (2006) stands out with 260 citations and 813 link strengths. Other significant documents include Alcácer (2006) (472 citations, 137 link strength) and Braunerhjelm (2010) (366 citations, 186 link strength).

Bibliographic coupling organisation network visualization

Bibliographic coupling organization network visualization visually depicts the connections between

various organizations, including universities, research institutes, and companies, based on shared references in their research publications. This visualization provides insights into collaborative relationships and intellectual interactions within a specific field, highlighting influential institutions and thematic intersections. Among the 2,546 organizations analyzed, each with a minimum of one document, the total strength of their bibliographic coupling links with other organizations was calculated. Among these, the first 1,000 met the threshold for inclusion. For each of these 1,000 organizations, the total strength of their bibliographic coupling links with other organizations was calculated. The organizations with the greatest total link strength were selected. Not all of these 1,000 organizations are connected; the largest connected group consists of 987 organizations. Figure 4(D) shows the visualization of this bibliographic coupling organization network. The bibliographic coupling organization network

visualization, based on total link strength, highlights notable contributions from various institutions. The business school at Sichuan University leads with 3270 link strength from 43 citations across 6 documents. Nanjing Audit University's business school follows closely with 3096 link strength, also with 6 documents but 39 citations. Harbin Institute of Technology's School of Management has 2246 link strength. Jining Medical University's schools exhibit significant impact with a combined link strength of 9160 across 10 documents.

Bibliographic coupling country network visualization

Bibliographic coupling country network visualization graphically represents the connections between countries based on shared references in their research publications. This visualization highlights international collaboration and the flow of knowledge across borders, showing which countries are closely linked in terms of shared research interests and influence. Among the 101 countries analysed, each with a minimum of 5 documents, the total strength of their bibliographic coupling links with other countries is calculated. From these, the countries with the greatest total link strength are identified. While not all 101 countries are connected, the largest connected group comprises 45 countries. The bibliographic coupling country network visualization, based on total link strength, reveals the United States as the leader with 50760 link strength from 8189 citations across 253 documents. China follows with 44072 link strength from 3774 citations in 310 documents. Italy stands out with 35554 link strength from 3090 citations across 124 documents. Other notable countries include the United Kingdom, France, and Germany, with link strengths of 26071, 22579, and 20366, respectively. Figure 4(E) presents the bibliographic coupling country network visualization.

Co-citation cited authors' network visualization

Co-citation authors' network visualization maps the relationships among authors based on their co-citations in research papers. This visualization identifies influential researchers and reveals intellectual connections, indicating how authors are related within a particular academic field¹⁶. A total of 61,132 authors, each with a minimum of twenty citations in knowledge diffusion, were analysed. The total strength of their co-citation links with other authors was calculated, identifying the author with the greatest total link strength. Not all of these 694 authors are connected; the largest connected group consists of 693 authors.

Figure 5(A) shows the visualization of this co-citation network. The co-citation cited authors' network visualization by total link strength shows Trajtenberg M. at the forefront with a link strength of 18269 from 367 citations. Jaffe A.B. follows with 16231 link strength and 317 citations. Other notable authors include Lissoni F. (14066 link strength, 230 citations), Breschi S. (13619, 214), and Cowan R. (11923, 266). Henderson R. and Audretsch D.B. also have significant influence, with over 10000 link strengths each.

Co-citation cited sources network visualization

Co-citation sources network visualization graphically depicts the connections between sources, such as journals and conference proceedings, based on their frequency of co-citations. This aids in identifying significant publications and thematic intersections, offering insights into the structure of academic literature. A total of 22,189 sources, each with a minimum of twenty citations in knowledge diffusion, were analyzed. The total strength of their co-citation links with other sources was calculated, identifying the sources with the greatest total link strength. Not all of these 321 sources are connected; the largest connected group consists of 320 sources. In Figure 5(B) the co-citation cited sources network visualization by total link strength identifies Research Policy as the leading source with a link strength of 59141 from 1565 citations. Scientometrics follows with 41430 link strength and 1519 citations. Other significant sources include Strategic Management Journal (29342 link strength, 624 citations), Management Science (21783, 530), and American Economic Review (20222, 527). Administrative Science Quarterly and Organization Science also show notable influence, with link strengths of 19206 and 19631, respectively.

Co-citation cited references network visualization

Co-citation documents network visualization illustrates the relationships among individual research documents based on their frequency of co-citations. This visualization unveils the intellectual structure of a field, demonstrating how studies are interconnected and identifying influential research papers and clusters of related work¹⁷. A total of 58,276 references, each with a minimum of twenty citations in knowledge diffusion, were analysed. The total strength of their co-citation links with other sources was calculated, identifying the sources with the greatest total link strength. Not all of these 11

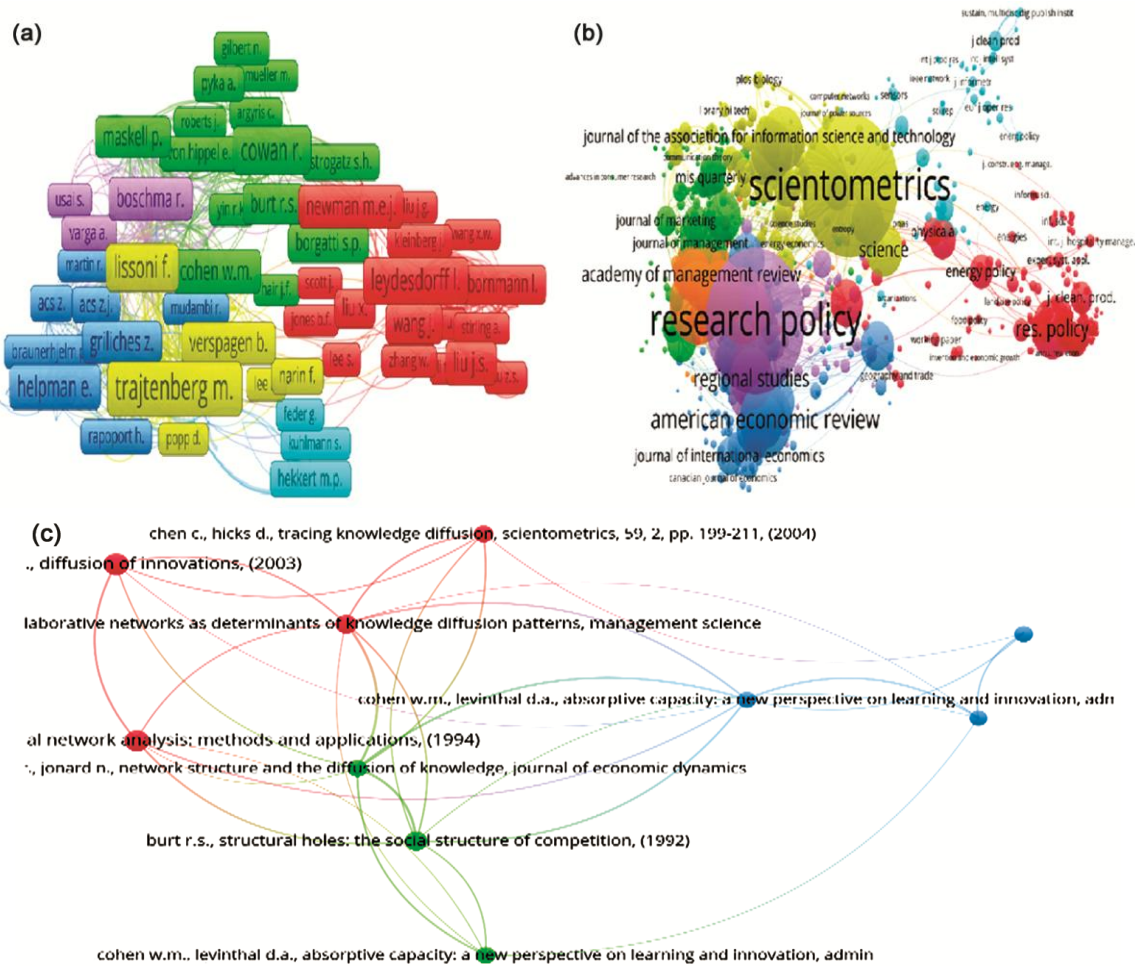


Fig. 5(A) — Co-citation cited authors network visualization, Figure 5(B): Co-citation cited sources network visualization, Fig. 5(C) — Co-citation cited references network visualization

references are connected; the largest connected group consists of 10 references. Figure 5(C) displays the visualization of this co-citation network. The co-citation cited references network visualization by total link strength highlights key influential works. Cowan R., Jonard N., Network Structure and the Diffusion of Knowledge (2004) leads with a link strength of 26 from 25 citations. Cohen W.M., Levinthal D.A., Absorptive Capacity (1990) has notable entries with link strengths of 24 and 8 from 23 and 25 citations, respectively. Burt R.S.'s Structural Holes (1992) and Singh J.'s Collaborative Networks (2005) also show significant impact, with link strengths of 22 and 23.

Discussion

This study is a comprehensive analysis of knowledge diffusion through various network visualizations using VOSviewer. The analysis spans co-authorship, organizational collaboration, and country collaboration

networks from 2004 to 2023, leveraging a substantial dataset of 1,349 documents from 830 sources. By examining metrics such as total link strength, citation counts, and co-authorship patterns, the study identifies significant contributors and trends in the field¹⁸. The major Findings are:

1. The analysis highlights notable contributors such as Yi Bu, Ying Ding, and Wei Lu, emphasizing their significant roles in the co-authorship network. These authors' positions suggest they are central figures in the knowledge diffusion discourse, potentially driving major research directions and collaborations.
2. The United States, the United Kingdom, and China emerge as leaders in international collaborations. This finding underscores the importance of these countries in the global knowledge network,

reflecting their substantial contributions and influence in knowledge diffusion research.

3. The study identifies prevalent themes like knowledge diffusion, innovation, and knowledge management through author and index keyword analyses. These themes indicate ongoing research interests and evolving trends in the field, guiding future research directions and highlighting areas of high scholarly activity.
4. Journals such as *Scientometrics* and the *Journal of Informetrics* are identified as key sources. Their prominence in the citation and bibliographic coupling analyses points to their critical role in disseminating research on knowledge diffusion, serving as primary platforms for scholarly communication in this domain.
5. Bibliographic coupling and co-citation analyses reveal emerging research areas and potential interdisciplinary intersections. This insight is crucial for identifying nascent topics and fostering interdisciplinary collaborations, enhancing the overall understanding of knowledge diffusion.

Limitations

The study relies solely on the Scopus database, which, while comprehensive, may not capture all relevant literature; including other databases such as Web of Science or Google Scholar could provide a more holistic view. Additionally, the dataset spans from 2004 to 2023, potentially overlooking earlier foundational works that may influence current research trends, so extending the temporal coverage could provide a more complete historical perspective. Furthermore, the analysis focuses on documents with the keyword knowledge diffusion, which might exclude relevant studies using synonymous terms or different phrasings; thus, a broader keyword strategy could encompass a wider range of relevant literature.

Future Directions

Future studies should incorporate multiple databases to ensure a more comprehensive coverage of the literature, reducing potential biases from relying on a single source. Including a longer temporal span can help capture the evolution of knowledge diffusion over a more extended period, providing deeper insights into its development and trends. Employing a more inclusive keyword strategy could enhance the breadth of the dataset, capturing a wider array of relevant studies and thematic areas. Additionally, integrating more sophisticated bibliometric techniques and

machine learning approaches could uncover deeper patterns and insights, advancing the field of knowledge diffusion analysis.

Conclusion

This study successfully maps the diffusion of knowledge in the field of knowledge organisation using VOSviewer, highlighting significant contributors, global collaborations, thematic trends, and influential sources. The insights gained from this analysis provide a valuable foundation for future research, offering a roadmap for exploring emerging areas and fostering interdisciplinary collaborations. The methodological approach and findings contribute to a deeper understanding of global knowledge flow, emphasizing the critical role of strategic diffusion efforts in fostering research, education, and informed decision-making in society.

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