Scientific Assessment of the Journal of Informatics

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Abstract

Journal of Informetric is a prominent journal of information science published by Elsevier. In this paper, researcher performed a scientometric analysis of 848 papers published in Infometrics journal between 2013 and 2022 and investigated various aspects, such as year-wise distribution of the publication, contributors and their productivity, geographical distribution, and citation pattern. A study conducted on 848 papers found that the highest number of 95 (11.2%) of papers were published in 2013 and 2021, and the lowest number of 76 (8.96%) of papers were published in 2019.L. Bornmann is the most prolific contributor, with 44 documents (5.29%). A maximum of 5313 citations (24.91%) were recorded in 2022, and a minimum of 89 (0.43%) were recorded in 2013. In fact, 212 of the contributions (24.40%) originated from China, placing the country in first place. In the last decade (2013-2022) research landscape has become more diverse, with "Regression analysis", "Citation networks", "Scientometrics" and "Almetrics" among the latest research frontiers.

Keywords
Scientometric; Citation Analysis; Informetri;, Keyword Analysis

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1. INTRODUCTION

The concept of informetrics was introduced by Professor Otto Nacke in 1979 and is an active and specialized subfield of information technology (Nacke, 1979). The concept of informetrics has gained popularity since the 1987 International Informetrics Conference. An important reason for establishing an informatic discipline is the inability of existing disciplines, such as bibliometrics and scientometrics, to effectively assess the quality of publications., to encompass a relatively comprehensive view of problems in information science from a mathematical perspective. Informatics generally entails quantitative aspects of information, such as records, bibliographies, social groups, and scientists (Das, 2013).

The Journal of Informatics (JOI) is a quarterly peer-reviewed journal published by Elsevier. It was launched on 12 January 2007 by Elsevier Science, UK has impact factor of 3.7. The Journal of Informetrics focuses on publishing high-quality research paper in diverse areas such as computer science, information systems and library and information sciences. The topics covered in this publication include altmetrics, bibliometrics, patentometrics, scientometrics, webometrics. Subject areas covered by the Journal of Informatics include Information Systems, Information Systems and Management, Library and Information Science, and Computer Sciences.It is abstracted and indexed in a number of popular databases, including Scopus, Web of Science, PubMed, SSCI, EBSCOhost, LISA, INSPEC, etc. (Journal of Informetrics, n.d.).

2. REVIEW OF LITERATURE

The Journal of Informatics provides valuable insights into various research topics and trends. A wide variety of topics are covered in the journal, including bibliometrics, scientometrics, webometrics, potentiometrics, and social network analysis. There are many complex mathematical models and statistical analyses published in this journal. It provides a deeper understanding of information flows, dissemination, and impact in a variety of fields, such as academia, health care, library science, and technology. A variety of bibliometric studies have been conducted on scholarly LIS journals. The majority of the literature in the field of information science is devoted to bibliometric studies, which are primarily surveys and citation analyses (Borgman and

Rice, 1992). Despite this, the author considered it appropriate to mention only those factors that are significant in some way. Bibliometric analyses were conducted for a single journal for the first time in 1997 (Tiew, 1997), which identified 40 studies (out of 102) related to journal characteristics. Using Library Quarterly (LQ), Young (2006) identified total publications, ranked list of authors, and most frequently cited LQ authors and articles. Verma et al. (2007) reviewed 131 contributions published in Annals of Library and Information Studies between 1999-2005 to examine the distribution of contributions by year, institution, state, authorship pattern, citation analysis, contribution length, etc. Singh et al. (2007) examined the publication pattern of digital library literature based on over 1000 articles retrieved from LISA plus between 1998 and 2004. They noted that the USA has the most journals and that English is the preferred language for publication.. Bakri and Willett (,2008) updated the earlier work of Tiew et al. (2001) to identify significant changes in the scholarly behavior of the journal. Park, T. (2008) analyzed the authorship characteristics of the top twenty library science journals from Asia and Pacific regions using World of Science data from 1967 to 2005. In 2009, Mukherjee (2009) reviewed JASIST to examine its growth, authorship patterns, collaboration patterns, geographical dispersion, citation patterns and citation references, prolific authors, highly cited authors, etc. According to Halder and Chandra (2009), the IASLIC Bulletin published articles from 2003 to 2007 with the following characteristics: Growth patterns of documents, authorship patterns, subject trends, , amount of illustrations, and geographic distributions of contributor. Kevin et al. (2009) reviewed bibliometric studies on LIS journals. Thanuskodi (2010) found that single authors wrote most articles and that the most prevalent area of research was computer applications in library science. Park (2010) examined various authorship elements of D-Lib Magazine, including the most productive author, their affiliation, geographical distribution, etc.

Tsay and Shu (2011) revisited the Journal of Documentation to explore a variety of bibliometric characteristics. An analysis of the distribution of authorship patterns, content coverage, and subject areas (Das, 2013). Patel et al. (2021a) examined the publication patterns of the Webology Journal from 2006 to 2020. This study produced the most publications (92) and citations (273). With 24 publications and 68 citations in Webology, A. Noruzi was a productive author. The results demonstrate that Webology is a top publication and a pioneer in online technology. Ndahuba and Marais jointly conducted a scientometric analysis of 2078 papers published between 2002 and 2021 in mine closure literature. It is found that 76% of the papers were published in the last decade. The geographic journal dominated with 20% of the articles, while the social science journals focused on the negative repercussions of mine closure (Ndaguba and Marais, 2023).

3. OBJECTIVE

1. To study year-wise distribution of documents,
2. To examine the top ten prolific authors,
3. To study the most productive countries,
4. To find out top ten collaborative institutions, and
5. To examine the co-occurrence network of keywords.

4. METHODOLOGY

This study examined the documents of 'Journal of Informetrics'. The bibliographic data for 2013–2022 was extracted from the Scopus database. The Scopus database's source title was selected in order to conduct the document search. The search string used for retrieving the details is "SRCTITLE (journal ANDof ANDinformetrics) AND (LIMIT-TO (PUBYEAR, 2013) OR LIMIT-TO (PUBYEAR, 2022))". The researchers subsequently gathered the essential bibliographical data as of September 13, 2023. During the selected period, 848 documents in total were collected. All the data obtained was then evaluated and compiled to provide the analysis's results. Also, the network visualisation of the analysed results was performed using the VOS viewer software.

5. FINDINGS

5.1 Year-wise distribution of documents

The distribution of documents published in the Journal of Informetrics by year is shown in Figure 1. 848 documents were published in journals throughout ten years from 2013 to 2022. These included reviews, conference papers, and articles. 85 documents usually get published each year. A minimum of 76 documents (8.96%) were published in 2019, and a maximum of 95 documents (11.2%) were published in 2013 and 2021. Throughout the study period, there was a constant fluctuation in the frequency of the documents.

According to an analysis of citation data, documents published in journals received 20503 citations between 2013 and 2022. Figure 2 displays the trend in journal article citations. The data distribution in figure 2 showed that the document's citation trend was ascending. The most citations, 5313 (24.91%), came in 2022, while just 89 (0.43%), came in 2013.

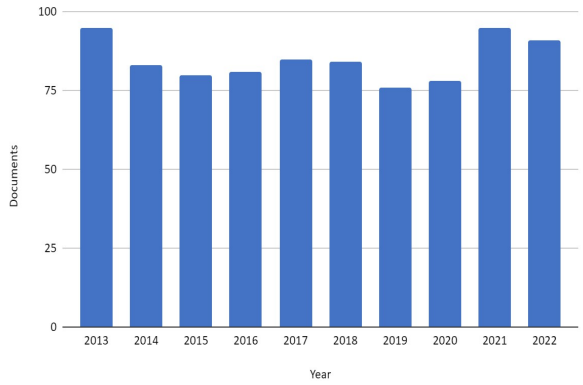


Figure 1: *Year-wise distribution of documents*

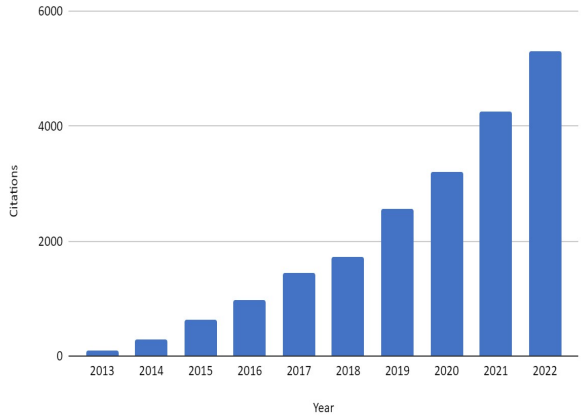


Figure 2: *Year-wise distribution of citations*

5.2 Prolific Authors

The most prolific authors in the journal are shown in Figure 3. Bornmann, L. is the most prolific author, contributing 44 (5.19%) documents. Similarly, Abramo, G. came second with 38 (4.48%) research documents, while D'Angelo, C.A. came third with 36 (4.24%) documents. The top 10 authors in terms of contributions are shown in Figure 3. The remaining documents, covering 69.34% of the total, are provided by other authors.

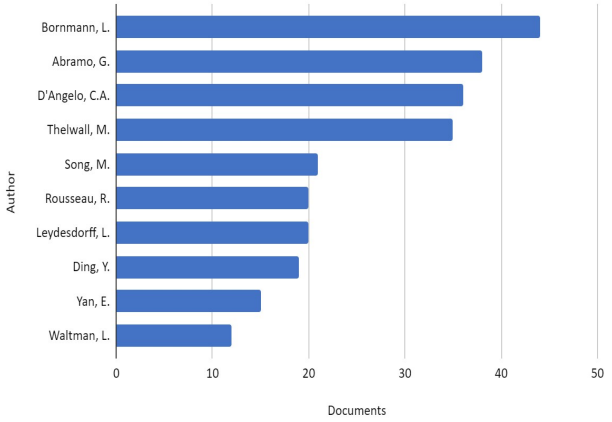


Figure 3: *Top ten prolific authors*

5.3 Most productive countries

The density visualisation of the most productive countries is shown in Figure 4. The threshold was set at 10 for the mapping VOS viewer software, and 24 of the 58 countries were able to be included in the density map. The number of documents is indicated by the yellow circle on this map. In other words, there are more yellow circles in a country that has more documents. As shown in the density map, the countries, including China (212 documents), United States (162 documents), Italy (91 documents), Spain (80 documents), and Germany (74 documents) were considered as the most productive countries in this journal.

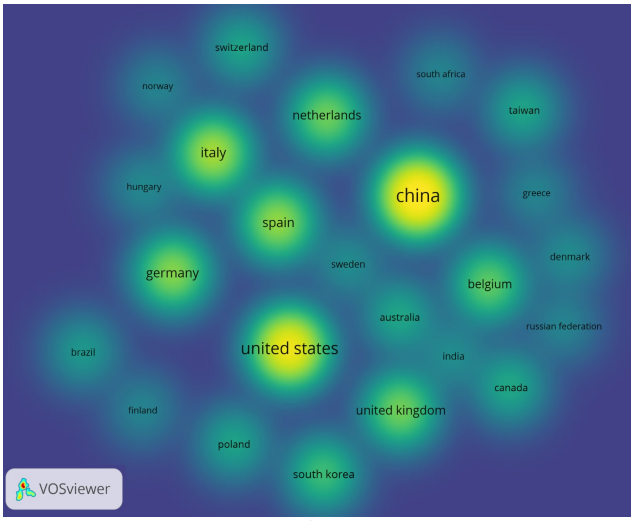


Figure 4: *Most productive countries*

5.4 Most collaborative Affiliations

The collaboration status among institutions for journal research output is shown in Table 1. Administrative Headquarters of the Max Planck Society published a maximum of 44 research documents, following Consiglio Nazionale delle Ricerche's publication of 42 documents. On the other hand, the minimum number 23 was published by Luddy School of Informatics, Computing, and Engineering in top ten affiliation.

Table 1: Top ten Most collaborative Affiliations

S.No.	Affiliation	TP	Country
1.	Administrative Headquarters of the Max Planck Society	44	Germany
2.	Consiglio Nazionale delleRicerche	42	Italy
3.	Universitàdegli Studi di Roma "Tor Vergata"	40	Italy
4.	Wuhan University	39	China
5.	KU Leuven	37	Belgium
6.	University of Antwerp	36	Belgium
7.	University of Wolverhampton	35	United Kingdom
8.	Indiana University Bloomington	34	United States
9.	Nanjing University	30	China
10.	Luddy School of Informatics, Computing, and Engineering	23	United States

5.5 Network Visualization of Keyword Co-occurrence

The academic article's main topic is presented in the keywords (Patel et al., 2021b). Keywords highlight literary works and identify a study's main subject (Mashroofa et al., 2023; Patel et al., 2022). To visualise the keyword co-occurrence network, the authors used the VOS viewer software. 307 keywords were obtained in the VOS viewer as a result of the co-occurrence threshold of keywords being set at five. The following five clusters, indicated in red, green, blue, yellow, and purple in Figure 5, comprise all the terms. Cluster first contains 112 keywords. It is represented by the red colour that addresses concepts like regression analysis (57 occurrences), patents and inventions (53 occurrences), citation networks (37 occurrences). Cluster second contains 61 keywords. It is characterized by a green colour that addresses facet like scientometrics (59 occurrences), impact factor (53 occurrences), and altmetrics (41 occurrences). Cluster third contains 57 keywords. It is characterized by a blue colour that addresses concepts like bibliometrics (118 occurrences), research evaluation (64 occurrences), productivity (40 occurrences). Cluster fourth contains 51 keywords. It is characterized by a yellow colour that addresses concepts like citation analysis (85 occurrences), information analysis (63 occurrences), citation impact (44 occurrences). Cluster fifth contains 26 keywords. It is characterized by a purple colour that addresses facets like computer applications (232 occurrences), scientific collaboration (24 occurrences), co-authorship (19 occurrences).

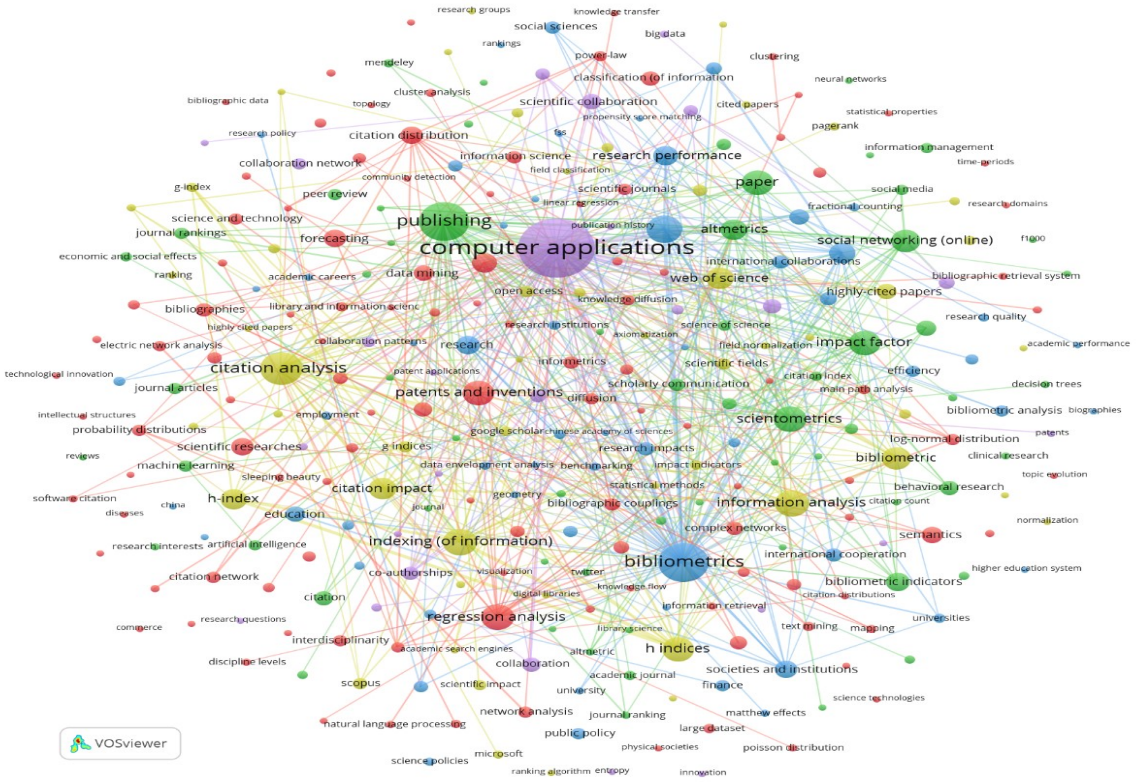


Figure 5: *Visualization of keyword co-occurrence*

6. CONCLUSION

The Informetric Journal publishes a variety of articles for scholarly communication by researchers. It is clear from the study that collaborative research has become increasingly prevalent over the past few years. This study indicates an uneven growth of publications in the journal from 2013 to 2022, with the highest growth occurring in 2013 and 2021 (11.2%) each. It is observed that the Administrative Headquarters of the Max Planck Society, Germany, has written the most research papers, 40 in total.lt is L. Bornmann with 44 (5.19%) documents that is considered the most prolific author in this period. It is worth noting that particular subjects like "Regression analysis", "Citation networks", "Bibliometrics", "Scientometrics" and "Almetrics and computer applications" tend to be the most popular ones among authors for publishing papers in our journal.

7. REFERENCES

[1] Bakri, A., & Willett, P. (2008). The Malaysian Journal of Library and Information Science 2001-2006: A bibliometric study. *Malaysian Journal of Library and Information Science, 13*(1), 103-116.

[2] Borgman, C. L., & Furner, J. (2002). Scholarly communication and bibliometrics. *Annual review of information science and technology, 36*(1), 1-53.

[3] Borgman, C. L., & Rice, R. E. (1992). The convergence of information science and communication: A bibliometric analysis. *Journal of the American Society for Information Science, 43*(6), 397-411.

[4] Das, P. K. (2013). Journal of informetrics: A bibliometric profile. *DESIDOC Journal of Library & Information Technology, 33*(3), 243-252.

[5] Halder, S. N., & Chandra, S. (2009). A Bibliometric Study of Published Literature in Library and Information Science in IASLIC Bulletin: 2003–2007. *Pearl: a journal of library and information science, 3*(2), 4-12. https://www.sciencedirect.com/journal/journal-of-informetrics/about/insights

[6] Journal of Informetrics. (n.d.). *Sciencedirect.com*. Retrieved September 15,

2023, from https://www.sciencedirect.com/journal/journal-of-informetrics/about/aims-and-scope

[7] Kevin, W. U. A., Zainab, A. N., & Anuar, N. B. (2009). Bibliometric studies on single journals: A review. *Malaysian Journal of Library & Information Science, 14*(1), 17-55.

[8] Mashroofa, M.M., Patel, A.K., Singh, K., Thapa, N., Patel, A.K., Singh, M., & Senapathy, M. (2023). Mapping of Global literature on Digital Divide in Education: A Scientometrics Analysis Based on Scopus Database. *Journal of the University Librarians Association of Sri Lanka, 26*(1), 42–71. http://doi.org/10.4038/jula.v26i1.8061

[9] Mukherjee, B. (2009). Journal of the American Society for Information Science and Technology (2000—2007): a bibliometric study. *IFLA journal, 35*(4), 341-358.

[10] Nacke, O. (1979). Informetrie: ein neuer Name für eine neue Disziplin. Begriffsbestimmung, Wissensstand und Entwicklungsprinzipien.

[11] Ndaguba, E., Marais, L. A scientometric analysis of mine closure research. *Environ Dev Sustain* (2023). https://doi.org/10.1007/s10668-023-03785-x

[12] Park, T. K. (2008). Asian and Pacific region authorship characteristics in leading library and information science journals. *Serials Review, 34*(4), 243-251.

[13] Park, T. K. (2010). D-Lib Magazine: its first 13 years. *D-Lib magazine, 16*(1), 5.

[14] Patel, A. K., Singh, K., Parida, D. K., & Patel, A. K. (2022). Visualization of Global Research Output on Disruptive Innovation in Health Care. *Journal of Hospital Librarianship, 22*(4), 311-325. https://doi.org/10.1080/15323269.2022.2124802

[15] Patel, A. K., Singh, M., Singh, K., Patel, A. K., Varma, A. K., & Kuri, R. (2021a). Visualizing Publication Trends in Webology Journal: A Bibliometric Review based on the Scopus Database (2006-2020). *Library Philosophy and Practice (e-journal),* 5995, 1-24. https://digitalcommons.unl.edu/libphilprac/5995

[16] Patel, A. K., Singh, K., Singh, M., & Patel, A., K. (2021b). Publication trends in Financial Inclusion: A Scientometric Assessment and Visualization. *Library Philosophy and Practice (e-journal),* 5115, 1-20. https://digitalcommons.unl.edu/libphilprac/5115

[17] Singh, G., Mittal, R., & Ahmad, M. (2007). A bibliometric study of literature on digital libraries. *The electronic library, 25*(3), 342-348.

[18] Thanuskodi, S. (2010). Bibliometric analysis of the journal Library Philosophy and Practice from 2005-2009. *Library Philosophy and Practice, 1*(7).

[19] Tiew, W. S. (1997). Single journal bibliometric studies: A review. *Malaysian Journal of Library & Information Science, 2*(2), 93-114.

[20] Tiew, W. S., Abdullah, A., & Kaur, K. (2001). Malaysian Journal of Library and Information Science1996-2000: A Bibliometric Study. *Malaysian Journal of Library & Information Science, 6*(1), 43-56.

[21] Tsay, M. Y., & Shu, Z. Y. (2011). Journal bibliometric analysis: a case study on the Journal of Documentation. *Journal of Documentation, 67*(5), 806-822.

[22] Verma, N., Tamrakar, R., & Sharma, P. (2007). Analysis of contributions in 'Annals of Library and Information Studies. http://nopr.niscpr.res.in/handle/123456789/7497

[23] Young, A. P. (2006). Library Quarterly, 1956–2004: An exploratory bibliometric analysis. *The Library Quarterly, 76*(1), 10-18.