

Recent Trends in Big Data Research: A Bibliometric Study

Prof. Veena A. Prakash¹ Ms. Jyotsna N. Wakude(Moon)²

¹Information Scientist R. T. M. Nagpur University, Nagpur

Email Id:-sh_veena@hotmail.com

²PhD Scholar Dept. of LISc, R.T.M. Nagpur University Nagpur

ABSTRACT

This bibliometric study analyzes 4,481 e-journal articles from the Scopus database to find out current trends in Big Data research between 2021 and 2025. With 1,232 papers, the research peaked in 2022, with Applied Mathematics and Nonlinear Sciences emerging as the top journal. With 2,492 pieces, China led the field geographically, followed by the United States and India. The most prolific contributor was author Luo, X. The study shows an erratic but steady research trend influenced by interdisciplinary applications in AI, healthcare, and IoT, despite its primary focus on computer science. The study highlights how quickly big data technologies are developing. This study determines the direction for future research.

Keywords: Bibliometrics, Big Data, Research Productivity

INTRODUCTION:

Big Data has become a significant area of research due to the rapid growth of data generated through social media, cloud computing, IoT, digital platforms, and scientific activities. The increasing volume, velocity, and variety of data have expanded research into areas such as data analytics, artificial intelligence, machine learning, cloud computing, data mining, and data security.

The rapid evolution of Big Data technologies has created new research themes, methodologies, and interdisciplinary collaborations. Bibliometric analysis provides a systematic approach to examine these developments by analysing publication trends, citations, influential authors, institutions, countries, journals, keywords, and research collaborations.

The present study, "Recent Trends in Big Data Research: A Bibliometric Study," examines scholarly research published during the period 2021–2025. It aims to identify recent research trends, emerging themes, influential contributors, and collaboration patterns in Big Data research. The study provides an overview of the research landscape during this period and highlights potential directions for future research.

REVIEW OF LITERATURE:

Adarsh, T., & KP, H. S. (2025). This bibliometric study on Nature Based- Solutions is based on Web of Science and Scopus database. The study investigated emerging research trends. The study reveals significant growth in the field of selected research. The study explored thematic areas, leading institutions, most productive authors, and global collaboration networks. Ruswinarsih, S., Budimansyah, D., Wahyu, W., Sauri, S., & Arofah, L. (2025), in their study of culture and character trend found growing academic interest. Vosviewer software is used for analysis and presentation. Shirani, M. (2025), in his AI model in dentistry research based on Web of Science found that use of AI is increased in clinical decisions. VoSViewer software is to use to present correlations. 2810 records were studied for this research and they found increasing trend in the study. Yao, L., Liu, Y., Wang, T., Han, C., Li, Q., Li, Q., ... & Wang, Y. (2025), this bibliometric study on Health Research studied technological changes in medical management and challenges in data integration. This study revils Java based Vosviewer software is widely used in medical field including surgery. They also use CiteSpace tool to detect knowledge Structure. Rani, R., Vasishta, P., Singla, A., & Tanwar, N. (2026) this study is conducted to find out the publication trend most productive authors and countries, and most productive source in the field of ESG and CSR Literature. Study found growth in the area. Highest publications found from developed countries such as USA, China and UK. They also found gaps in previous studies. Luo, X., Li, J., Guo, S., Yu, H., Zeng, X., Zhou, Z., & Qin, Y. (2025), in his study nano-agricultural application found European and Asian countries are actively involved in this research. The study was conducted on 2626 articles collected from Web of Science Core collection. In this bibliometric study future research perspectives are also suggested.

SCOPUS:

Scopus is the largest and trusted “abstract citation database” in the world. It covers almost all fields/Subjects of Arts, Science and Technology. It includes research articles, conference papers, and Book chapters, conference proceedings, Review articles, Conference Review, Erratum, Notes, Editorial, Short Survey, Letters, Business articles, Data Papers and reports too. It was established in 2004 by Elsewhere Publication. Now it has more than 27000 journals with more than 8000 publishers. This database is useful for citation tracking, author profiling.

Objectives Of The Study:

The major objectives of the study are as follows.

To identify recent trend and yearly growth of Big Data

To Identify Most Productive Journal and Most Productive Country.

To identify Most Productive Aauthor and identify Subject Area

Scope and Limitations of the study:

e-Journals available in Scopus database.

Only e-Journals of computer science are selected for the study.

The study covers the period from 2021 to 2025.

Only those research articles are considered which have “Big Data” in their titles.

Study is conducted on 4481 articles from e-Journals available on computer Science.

ANALYSIS AND RESULTS:

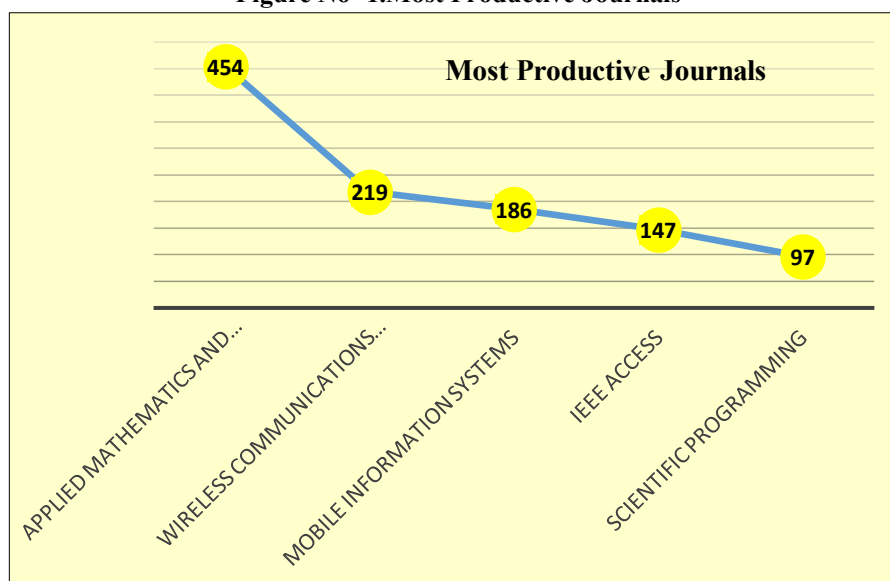
To understand the current state of research and recent trend in the subject, a bibliometric analysis of the recent trends (2021–2025) is carried out by following way.

Table No.-1 Production of the last five years (Yearly Growth)

Year	Documents
2025	468
2024	1072
2023	796
2022	1232
2021	913

According to Table No. 1 the trend of publication patterns in big data studies during 2021–2025 reveals 4481 published articles. The year 2025 is the lowest in publication with 468 articles, and the year 2022 is at the highest level with 1232 publications in the recent period.

Figure No- 1. Most Productive Journals



The figure No- 1 shows that the study of Recent Productive Journals on Big Data. Applied Mathematics and Nonlinear Sciences is on Top position with 454 Publications. Wireless Communications and Mobile Computing scores second position with 219 Publications, Journal Mobile Information Systems is on third position with 186 Articles, and IEEE Access which was on top in main study is on fourth position with 147 articles. Scientific Programming is on fifth position with 97 articles.

Figure No.-2 Countries Scientific Production

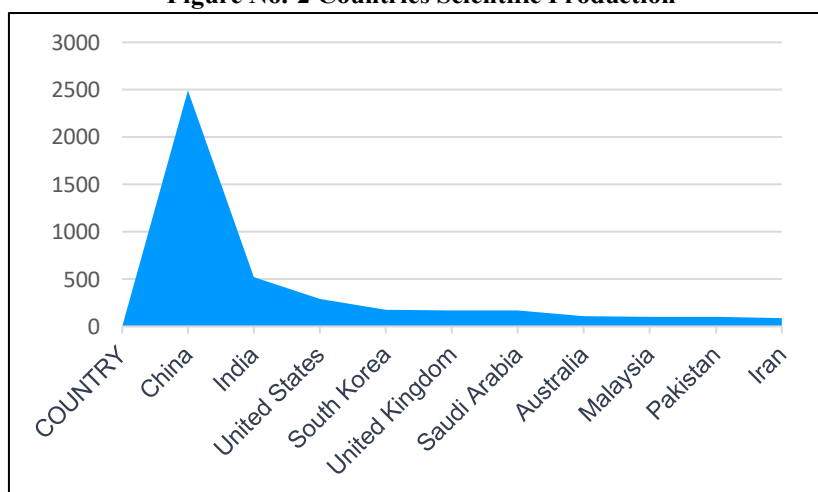


Figure No. 2 shows Countries Scientific production in which data demonstrates that China has the greatest number of publications in the Big Data Research in Recent Trends period, having 2492 article published. India is on second position with 518 articles. United States is on third position with 239 articles.

FINDINGS:

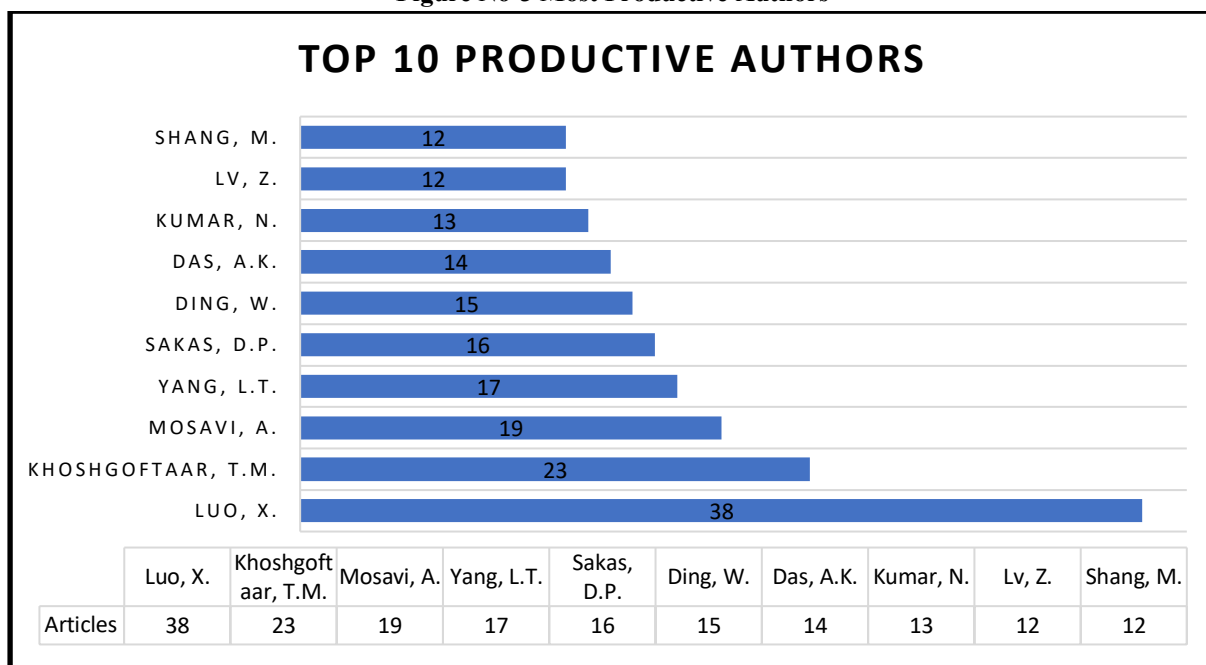
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on fourth position with 147 articles. Scientific Programming is on fifth position with 97 articles in Big Data Research.

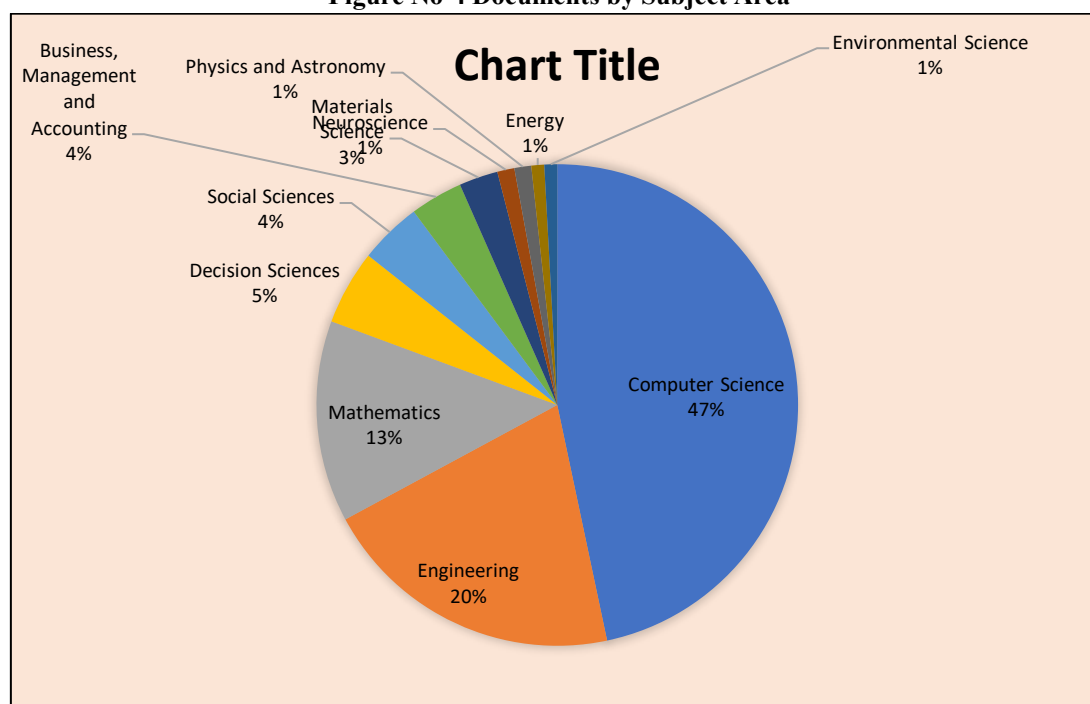
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Figure No-3 Most Productive Authors



Above Figure No. 3 provides top 10 most prolific authors with number of articles published. For the selected period Luo, X. is on top position with 38 articles, Khoshgoftaar, T. M. is on second position with 23 publications and Mosavi, A. is on third position with 19 articles for the selected period.

Figure No-4 Documents by Subject Area



Above Figure No. 4 shows that computer science Subject is on top in research in Big Data Followed by Engineering and Mathematics. Increasing trend for Big Data in computer science field is found. Computer Science is on top in producing articles on Big Data.

Role of Libraries and Librarians:

A library plays an important role in research. It provides essential infrastructure for Big Data research by providing access to e-journals, research databases, digital repositories, and research resources. They support researchers in providing all required information in digital formats and expert guidance for their studies too. Librarians help researchers in providing authentic top resources, identifying emerging trends, top publications, and research gaps.

CONCLUSIONS

“The publication output in Big Data research exhibited a fluctuating trend during 2021–2025. The variations may be attributed to the rapid emergence of new technologies, changing research priorities, interdisciplinary applications. The increased research activity during certain years may also reflect growing interest in applications of Big Data in areas such as artificial intelligence, healthcare, cloud computing, and the Internet of Things..

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