


## The Development of Library Research Topics in Indonesia During a Decade (2014-2024) on the Scopus Database: Bibliometric Analysis with Vos Viewer

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Article Info	ABSTRACT
<b>Keywords:</b> Bibliometric, Library, Library Information Science	The landscape of library research in Indonesia has undergone significant changes over the past decade, shifting from traditional library practices to embracing digital libraries and modern technologies. This evolution is driven by the need to adapt to technological advancements and the growing demand for digital literacy. The study aims to analyze the development of library research topics in Indonesia from 2004 to 2024, focusing on the integration of artificial intelligence (AI), machine learning, and systematic reviews, particularly in response to the COVID-19 pandemic. Utilizing bibliometric analysis through the Scopus database and VOSviewer software, the research investigates trends, collaborations, and emerging areas in library research. This approach provides a comprehensive view of the evolving research landscape. The findings reveal a pronounced shift towards digital libraries and the incorporation of modern technologies. The study highlights the role of social media as a connector between traditional library services and technological innovations, enhancing user engagement. Future directions emphasize promoting interdisciplinary collaborations and increasing digital literacy among library users.
This is an open access article under the <a href="https://creativecommons.org/licenses/by-nc/4.0/">CC BY-NC</a> license 	<b>Corresponding Author:</b> Awiria Universitas Bhayangkara Jakarta Raya <a href="mailto:mifthakhulzannah@gmail.com">mifthakhulzannah@gmail.com</a>

### INTRODUCTION

The development of library and information science in Indonesia has become an important part in supporting the transformation of knowledge in the digital era. As the public's need for fast, accurate, and relevant information increases, the role of research in the field of libraries in Indonesia is increasingly being considered. As one of the countries with a rich culture and diversity of information, library research in Indonesia requires special attention to understand patterns, trends, and contributions in a global context.

Bibliometric analysis itself is a research method that was born from the womb of library science and is now a trend among world researchers. Bibliometric analysis is a science that provides knowledge about the distribution of information on a research topic by looking at patterns, tendencies, and distribution of research in a scientific discipline. Bibliometric analysis assesses the impact of scientific publications and research through

various indicators, enabling an understanding of patterns, trends, and distribution of Information in a scientific discipline, thus facilitating the management of large-scale research data and identification of gaps Matorevhu. (2024). One of the software for conducting bibliometric analysis is VosViewer. This method is very relevant to understand how the field of library science has developed over time, especially through the analysis of data indexed in reputable databases such as Scopus.

Although research related to library science in Indonesia has been conducted, there are not many studies that specifically explore the trends of this research over the past decade (2014-2024) using a bibliometric approach. Most previous studies tend to focus on limited analysis, such as certain journals or very specific topics, so they do not provide a comprehensive picture of the research ecosystem in the library field in Indonesia.

To address this challenge, this study proposes a bibliometric analysis using Scopus data to identify research patterns, topic trends, and collaborations between researchers in the library field in Indonesia. By utilizing VosViewer, this study will visualize keyword relationships, citation patterns, and research clustering to provide a comprehensive picture. Although several previous studies have used bibliometric approaches in Indonesia, such as general LIS analysis or accredited journal trends, there has been no research that specifically reviews the development of library research in Indonesia with an extended time period until 2024. In addition, the data visualization approach with VosViewer is rarely optimized to provide in-depth analysis of author collaboration and the evolution of research topics.

This study will utilize a bibliometric approach using data from Scopus, a database that is considered to have a wide and representative journal coverage. Data visualization with VosViewer provides advantages in depicting relationships between studies, citation patterns, and topic trends intuitively.

The novelty of this study lies in the long time coverage (2014-2024), a special focus on the library sector in Indonesia, and the use of VosViewer as the main analysis tool to produce in-depth visualizations. Not only identifying trends, this study also seeks to provide strategic insights for the development of library research in the future, both nationally and internationally.

Bibliometrics is a research method used to evaluate and visualize the characteristics of scientific publications, including collaboration patterns, topic trends, and publication distribution. In modern research, software like VOSviewer has been widely used to facilitate visualization analysis, such as the relationships between keywords, co-citations, and collaboration networks among authors. A study by Kamaludin and Prasetyadi (2023) demonstrated that bibliometric analysis is effective in mapping the development of library science in Indonesia through the Scopus database, although the annual growth of this research is relatively low.

### **Research on the Development of Library Science in Indonesia**

Previous research in the field of library science in Indonesia has been conducted using various approaches. A study by Dwiyantoro (2020) employed co-word analysis to map research topic trends in LIS journals accredited by Sinta 2. This research showed that topics such as library and information services dominate, while other fields are underrepresented.

However, this study only covered data up to 2019 and was limited to local journals.

Another study by Sihombing et al. (2023) used an interactive visualization approach to analyze scientific publications in Indonesia, including library science. This study highlighted the need for data updates and enhancements to produce more in-depth analyses using tools like VOSviewer.

### Gaps in Previous Research

Most research in Indonesia on library science has several limitations:

1. Limited Time Coverage: Most studies only cover periods up to 2019 or less than a full decade.
2. Specific Topic Focus: Many studies tend to focus on specific topics, such as library services or library education, without providing a comprehensive overview of overall research trends.
3. Lack of Modern Tools Usage: While some studies have used tools like VOSviewer, their use is still limited to basic analyses, such as co-citation or keyword clustering.

This research aims to fill these gaps by analyzing library science research data in Indonesia over a full decade (2014-2024) indexed in Scopus. Using a modern approach with VOSviewer, this study not only visualizes topic trends and collaboration but also provides strategic insights for future research development.

As a comparative study, research by Ashiq et al. (2021) highlighted the importance of bibliometric analysis for understanding collaboration patterns and research distribution globally. This provides a strong foundation for exploring whether similar patterns are found in local contexts, such as in Indonesia.

Previous literature indicates that bibliometric research on research trends in library fields has begun to increase, but earlier studies only examined specific topics related to libraries and only over the past four to five years. Additionally, the database sources used were not Scopus, which is an internationally recognized research database. Therefore, it can be said that if a scientific article has successfully passed in a Scopus-indexed journal, it can be considered that the article provides an internationally recognized innovative impact.

## METHOD

This study employs a bibliometric analysis approach to examine the development of research topics in the field of library science in Indonesia over the period from 2014 to 2024. The research data were sourced from the Scopus database, selected for its extensive coverage and its reputation as a widely recognized source of scientific data internationally.

### Data Collection

Data were obtained from Scopus using the keywords "Library," "Libraries," and "Library and Information." The search was filtered for documents related to Indonesia and published between 2014 and 2024. Data Retrieval Process, The data retrieval process was conducted on December 20, 2024. A total of 863 relevant documents were found and analyzed.

### Data Analysis

The analysis was conducted using VOSviewer, an effective software tool for visualizing bibliometric data. VOSviewer was utilized to map collaboration networks, identify research trends, and evaluate the impact of scientific works. This tool aids in analyzing the relationships between keywords and citation patterns, enhancing the understanding of publication dynamics within a specific research field (Purnama, 2024).

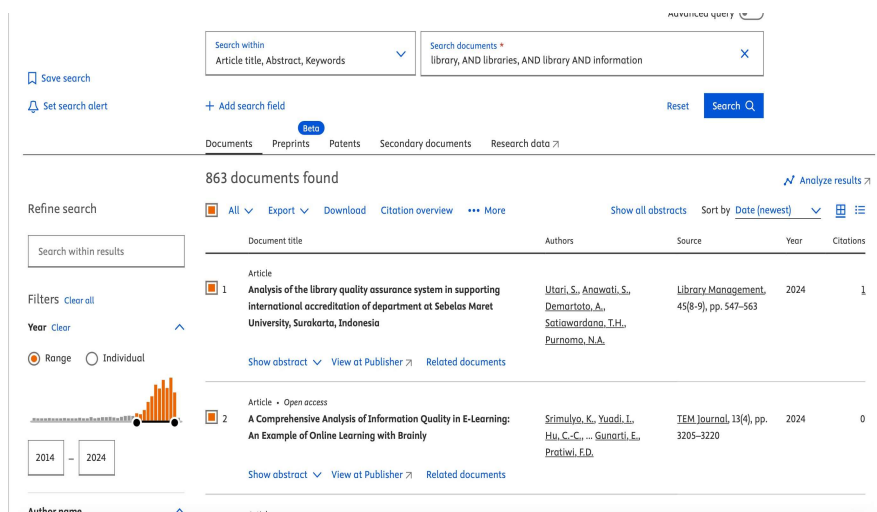
### Analysis Approach

1. Co-occurrence Analysis, Used to identify research topic trends by mapping frequently co- occurring keywords in the analyzed documents.
2. Clustering Analysis, Groups research into clusters based on thematic connections, such as digital libraries, technology, and meta-analysis.
3. Temporal Analysis, Monitors the development of research topics over time to identify shifts in focus and emerging trends.
4. Visualization, The analysis results are visualized in the form of network maps that illustrate the relationships between topics and authors, as well as the density of research in various areas.
5. Validation, To ensure the accuracy and relevance of the data, the analysis results were compared with previous studies and related literature. This validation was conducted to ensure that the findings of this research are reliable and make a significant contribution to the advancement of library science in Indonesia.

This methodology is designed to provide a comprehensive and in-depth overview of the library research landscape in Indonesia, as well as to identify existing opportunities and challenges in this field.

## RESULTS AND DISCUSSION

This research began by extracting data from the Scopus database on December 20, 2024, using the keywords "Library, Libraries, Library and Information" and applying a filter for the publication year range of 2014-2024. In the country section, only "Indonesia" was checked, with no filters applied to other fields. The data from Scopus indicated that from 2014 to 2024, there were 863 research documents containing the keywords "Library, Libraries, Library and Information" originating from Indonesia. The data obtained is as follows.



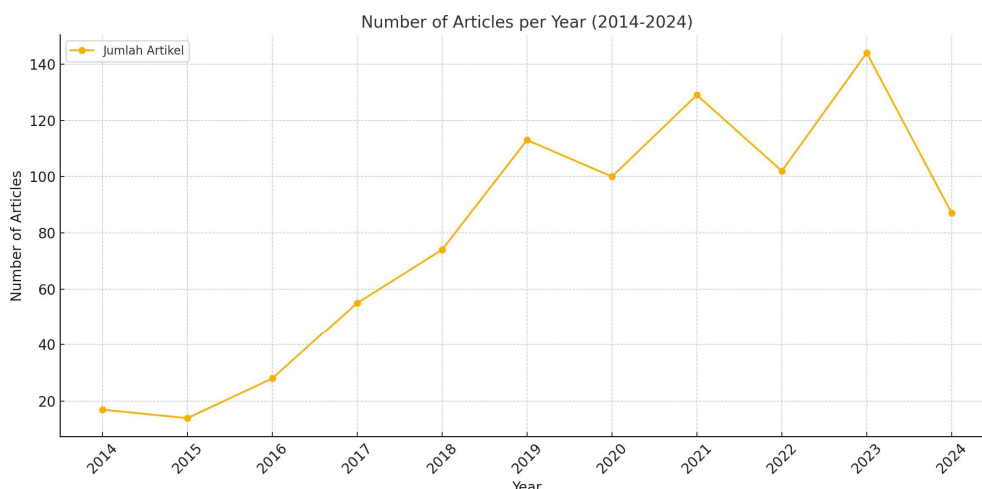
**Figure 1:** search results on scopus database

Subsequently, the 863 data entries were downloaded in CSV format. The following is a breakdown of the data obtained by year.

**Table 1.** Details of the Number of Scopus Indexed Articles per Year

Year	Jumlah Artikel
2014	17
2015	14
2016	28
2017	55
2018	74
2019	113
2020	100
2021	129
2022	102
2023	144
2024	87
Total	863

Based on the table above, Amount of scientific article Based on the table above, it is known that the number of library research articles in Indonesia that have been successfully indexed by Scopus since 2014-2024 is 863 articles. The largest number is in the year in 2024. The following is an analysis of research trends in the field of library science in Indonesia from 2014 to 2024.

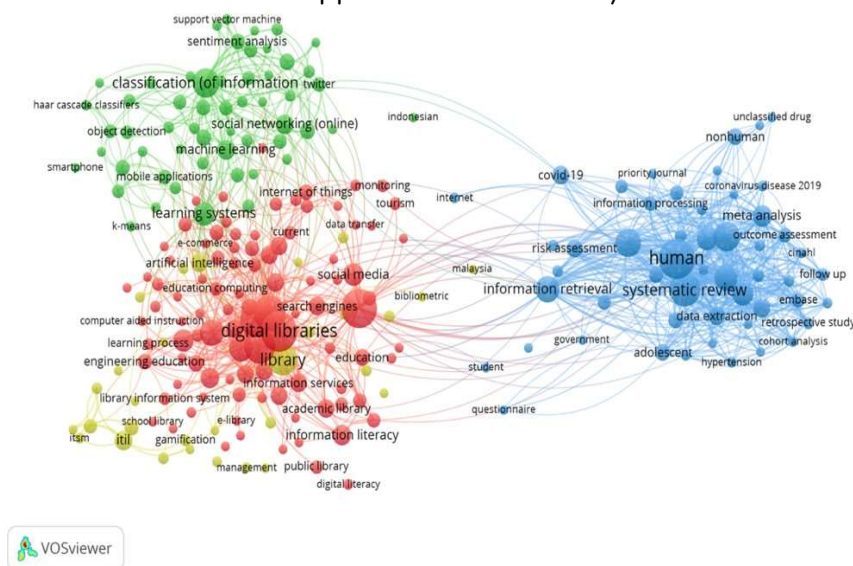


**Figure 1.** Analysis of research trends in the field of libraries in Indonesia 2014-2024

From the diagram, it can be seen that the trend of library research in Indonesia experienced a decline in 2014, 2020, 2022, and there was a significant decline in 2024.

### Co-occurrence Analysis

The next step is to conduct a co-occurrence analysis, which examines research topics that have become trends in the field of library science in Indonesia from 2014 to 2024. The researcher utilized the VOSviewer application for this analysis. The results are as follows.



**Figure 3.** Visualization of Network co-occurrent analysis

The following is the analysis of the co-occurrence mapping of research topics in the field of library science in Indonesia over a 10-year period.

#### 1. Red Cluster (Digital Libraries and Library)

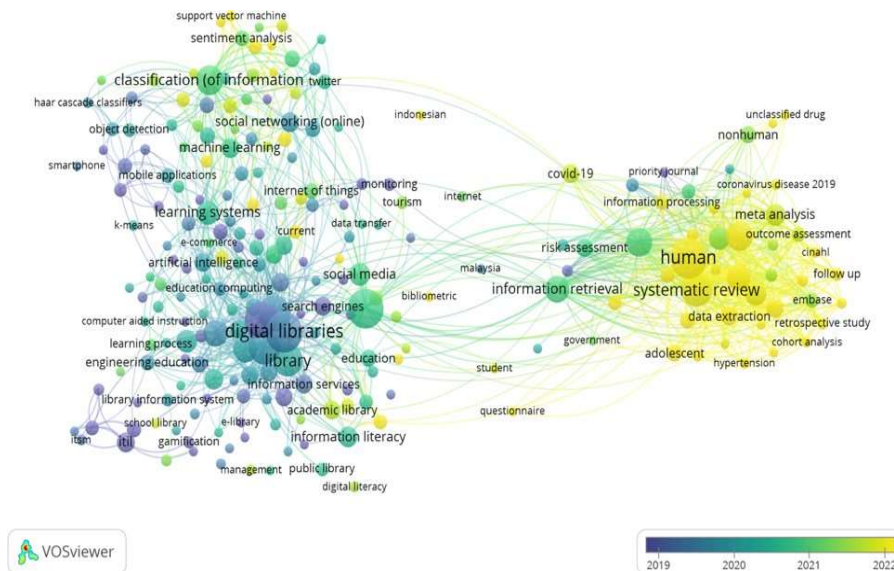
The research focus in this cluster revolves around "digital libraries," "library," and "information literacy."

Keywords such as "academic library," "public library," and "digital literacy" highlight

how digital libraries and information management have become major trends in research.

The connection with terms like "social media" and "education" indicates the influence of technology and social media on library services.

2. Green Cluster (Technology and Artificial Intelligence):  
 Topics such as "machine learning," "artificial intelligence," and "learning systems" demonstrate the adoption of new technologies to support information management. Terms like "classification (of information)," "social networking (online)," and "mobile applications" reflect how libraries are beginning to leverage technology for information management and user interaction.
3. Blue Cluster (Health Studies and Meta-Analysis):  
 This research focuses heavily on "systematic review," "human," and "meta-analysis." The relationship with "information retrieval" and "risk assessment" shows the relevance of digital libraries to health research and medical information systems.



**Figure 3:** Overlay Analysis of co-occurrence

- a. Shift in Research Focus (Temporal Trends) Early Period (2019-2020):  
 Dominance of terms such as "digital libraries," "library," "information literacy," and "academic library."  
 The research focus during this period was on the development of digital libraries and information literacy. This reflects the early stages of digital transformation in libraries in Indonesia.
- b. Intermediate Period (2020-2021):  
 The emergence of terms like "social media," "learning systems," "machine learning," and "artificial intelligence" indicates an increased adoption of modern technology. The association with terms such as "classification (of information)" and "mobile applications" signifies a more technology-driven exploration of digital libraries.
- c. New Period (2022 onwards):

Terms like "systematic review," "meta-analysis," "information retrieval," and "COVID-19" became more dominant, appearing in yellow in the visualization.

The research focus shifted towards the use of digital libraries to support evidence-based research, particularly in the health sector during and after the COVID-19 pandemic.

d. Modern Research Focus "Systematic Review" and "Meta-Analysis":

These terms have become highly dominant in recent years, indicating a focus on literature-based scientific research and digital libraries supporting health research.

The connection with "COVID-19" and "risk assessment" reflects the response to the global pandemic and the need for data-driven analysis.

e. Engagement with Modern Technology:

Terms like "artificial intelligence," "machine learning," "social networking (online)," and "classification of information" demonstrate the use of technology to support information management in libraries.

This trend indicates that digital libraries are not only information providers but also platforms for technological innovation.

f. Main Research Clusters Digital Libraries and Library (Green and Blue Clusters):

Libraries remain central to research, with topics such as "public library," "academic library," "information literacy," and "information services."

The focus is on enhancing information literacy and accessibility of library services.

g. Technology and AI (Light Blue Cluster):

Research related to artificial intelligence, machine learning, and social media indicates increased technology adoption for modern library needs.

h. Systematic Review and Meta-Analysis (Yellow Cluster):

This focus signifies that digital libraries are increasingly used to support evidence-based research, especially in health.

i. Interconnections Between Topics Social Media as a Bridge:

Terms like "social media" and "information retrieval" serve as connectors between the technology cluster (blue) and traditional libraries (green).

Social media is leveraged to support user engagement and information dissemination.

j. COVID-19 and Health Research:

Terms such as "coronavirus disease 2019," "human," and "risk assessment" illustrate how libraries have supported health research during the pandemic.

The following is an analysis of the results of the Vosviewer image of the Density analysis of the results of library research in Indonesia from 2014-2024 in the Scopus database.



These terms have the potential to develop further if integrated with modern technology.

6. Modern Research Focus: Integration of Technology with Libraries:

The presence of terms like "internet of things," "mobile applications," and "e-commerce" indicates a trend of integrating technology into library management.

This research supports the transformation of libraries to be more digital and responsive to the needs of modern users.

7. Relevance in the Health Sector:

Terms such as "COVID-19," "human," and "adolescent" reflect how libraries are used to support health and social research during the pandemic.

## CONCLUSION

Digital Transformation in Libraries, The research focus in Indonesia has shifted from developing digital libraries to the adoption of advanced technologies, such as artificial intelligence and machine learning. Multidisciplinary Collaboration, Libraries now support multidisciplinary research, particularly in the fields of health and technology. Future Research Directions, Library research could further explore the integration of technology with information literacy to create more interactive and data-driven services. Opportunities for Development, Increasing the adoption of new technologies, such as AI and IoT, to enhance library user experiences. Strengthening digital literacy to support library users in utilizing digital resources.

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