Biblioshiny Application to Map Halal Logistic Research

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This study aims to observe the development of halal logistics topics through the analysis of scientific literature registered in the Scopus database during the period 2007-2023 using the bibliometric method. The research method used is biblioshiny-R. The results showed that the number of publications on halal logistics fluctuated and showed an increasing trend, reaching its peak in 2023 with a total of 36 documents. Malaysia leads in author participation, reaching 417 documents. The average citation analysis highlighted 2011 as the period with the highest average citation, which is about 7.5 citations per year. "Journal of Islamic Marketing" was identified as the main journal with the highest amount of literature. Muhammad Hasmi Abu Hassan Asaari was recognized as the most prolific author in publishing articles on halal logistics in Scopus. In addition, this study revealed significant keyword trends during the study period and grouped them into research clusters.

Keywords: Halal Logistics; Halal Supply Chain; Biblioshiny-R

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INTRODUCTION

Logistics refers to the process of managing the acquisition, storage, and transportation of resources in a way that is efficient, cost-effective, and meets customer needs in a timely manner. Logistics involves organizing the movement of goods from the point of origin to the point of consumption, and plays an important role in integrating functional entities across the enterprise and connecting suppliers with customers. On the other hand, halal logistics refers to the process of planning, implementing, and managing the efficient flow and storage of halal raw materials, semi-finished goods, and finished goods from source to point of demand, ensuring full compliance with halal standards throughout the supply chain. It covers all logistics activities from end-to-end, including procurement, handling, warehousing, transportation, and retail sales, and must comply with Sharia principles. Key principles of halal logistics include avoiding contamination, avoiding errors, and ensuring consistency with the expectations of Shariah and Muslim customers. The goal of halal logistics is to separate halal products from non-halal products to maintain their integrity in the supply chain until they reach consumers (Ziegler et al., 2022). This is especially important in Muslim-majority countries and also increasingly important in non-Muslim-majority countries due to the increasing global demand for halal products.

The fundamental principles of halal logistics are important guidelines that ensure proper management and handling of halal products throughout the supply chain. These principles are designed to maintain the integrity of halal products and fulfill sharia principles. Tieman (2013) explains one of the main principles in halal logistics is to avoid contamination. This principle aims to prevent the mixing of halal and non-halal products or ingredients during the supply chain process. This involves separating the storage, transportation and handling areas of halal and non-halal products to minimize the risk of cross-contamination. This is in line with the sharia-compliant approach of ensuring that halalness is guaranteed throughout the halal logistics process, protecting halal products from elements that can tarnish their halal status (Gunardi, 2023).

The fundamental difference between halal logistics and logistics in general lies in the adherence to Shariah principles and specific requirements in handling halal products. Halal logistics follows strict principles, such as the separation of halal and non-halal products in all logistics activities to avoid cross-contamination, and the need to ensure consistency with Shariah and Muslim customer expectations (Jaafar et al., 2013; Jaafar et al., 2016). In contrast, logistics in general does not have specific requirements regarding halal compliance. While both types of logistics involve the management of procurement, movement, storage and handling of products, halal logistics places particular emphasis on ensuring that the entire supply chain complies with halal standards to maintain the halal integrity of the product throughout the entire process (Jaafar et al., 2016).

Halal logistics is very important in the global halal industry for several reasons. Ahmed (2023) explains one of the main reasons for the importance of halal logistics is to ensure that halal products are handled, stored, and transported in accordance with halal requirements, which is important to maintain the integrity and trust of the halal industry. Then, halal logistics service providers play an important role in driving the growth and development of the halal industry by working with suppliers and manufacturers to develop new products and services that meet the unique requirements of halal consumers. Furthermore, the implementation of halal logistics practices can improve operational efficiency by minimizing risks and costs and reducing waste and errors (American Halal Foundation, 2023). In addition, the trend of halal products is increasing, and the demand for halal products is expected to increase in the next few years, making halal logistics an important aspect of the supply chain to meet this growing demand.

In line with this, the implementation of halal logistics can bring several benefits. One of the main benefits is to maintain the transparency and integrity of the halal food supply chain so that it can benefit consumers. Halal logistics can also help the industry, particularly in the livestock sector, by ensuring that halal control points are identified and managed at each step or process involved in the supply chain. This can help reduce the risk of introducing non-halal elements into the supply chain and ensure that the end product is truly halal. In addition, the implementation of halal logistics can help increase the market for halal products, as more and more consumers are aware of the importance of halal certification and seek halal products (Ghazali et al., 2015).

Ahmed (2023) also stated that the implementation of halal logistics offers several benefits, especially for businesses engaged in the halal industry, including halal logistics service providers can help businesses improve their logistics operations, thus leading to increased efficiency and cost savings. By simplifying the logistics process and reducing waste,
businesses can lower costs and increase profits. Halal logistics service providers can provide end-to-end solutions and improve supply chain transparency, ensuring that halal products are handled, stored, and transported in accordance with halal requirements, and verifying the halal status of products. Furthermore, halal logistics service providers play an important role in driving the growth and development of the halal industry. They work closely with suppliers and manufacturers to develop new products and services that meet the unique requirements of halal consumers, thus helping to drive demand for halal products and expand the reach of the halal industry. In summary, the implementation of halal logistics can result in increased efficiency, cost savings, supply chain transparency, and overall growth of the halal industry (Ahmed, 2023).

However, on the other hand, challenges and various problems still overshadow the development of halal logistics. Zailani et al (2017) explain among the challenges the lack of unity in halal certification, which can cause confusion and inefficiency in the halal logistics process and the cost of implementing halal processes can be high, and demand for halal logistics services may be low, making it difficult for businesses to justify their investments. Ab Talib et al (2013) added that the absence of a centralized halal certification authority may lead to difficulties in ensuring the halal integrity of products and processes, and there are also challenges related to the transparency of the halal logistics process, which may impact the integrity of the halal supply chain. In addition, there are concerns regarding the traceability and traceability of halal products along the supply chain, which can affect the assurance of halal status (Tarmizi et al., 2014). Segregation of halal and non-halal products, as well as contamination prevention, are important issues in halal logistics that require careful management (Aziz & Zailani, 2016). Therefore, addressing these challenges is critical to the successful implementation of halal logistics and the growth of the halal industry.

Based on this explanation, it can be concluded that halal logistics has potential and will continue to develop along with the development of the industry, especially the halal industry globally. Therefore, the need for more in-depth research related to halal logistics is needed at this time. One of the research methods that can be utilized to deepen research related to halal logistics is bibliometrics with Biblioshiny R. Bibliometric analysis with Biblioshiny R can identify various elements related to research articles, including keywords used, authors, publishing journals, and topics discussed. Furthermore, the Biblioshiny R analysis tool is a tool that is widely used to conduct bibliometric studies and produce reliable results (Alshater et al., 2022).

A number of relevant studies include Ab Talib & Hamid (2014) identifying SWOT in the halal logistics environment and to uncover strategies to capitalize on strengths and opportunities and improve weaknesses as well as overcome existing threats. This study concluded the SWOT category consisting of SWOT generated from the literature review and supported by the views of respondents and vice versa. Examples of SWOT analysis carried out are strengths (strong government support), weaknesses (inconsistent definition of Halal), opportunities (growing Muslim population) and threats (no uniformity of Halal standards). Zailani et al (2017) investigated the challenges and opportunities for logistics companies in Malaysia to adopt halal logistics. The results showed that future market demand and competitive opportunities related to halal services are the main motivators for first movers in halal logistics. Early adopters of halal logistics face several challenges such as ambiguous halal guidelines, lack of international halal certification, lack of collaboration between government agencies (i.e. logistics service providers (LSPs), Jabatan Kemajuan Islam Malaysia (JAKIM) and Halal Industry Development Corporation), lack of cost-effective standards, overly competitive transportation sector, lack of demand, lack of halal logistics imperatives, financial challenges and general misconceptions regarding halal practices.

Aziz & Zailani (2016) expand knowledge and understanding of the role of halal ports in halal logistics. The results concluded that halal control and assurance activities carried out in transportation, terminals, and warehouses must be clearly examined in maintaining the halal status of the product, thereby improving the performance of the halal supply chain. These activities include having dedicated halal warehouses and transportation, the use of tertiary packaging in shipping as well as the separation of halal products from non-halal products to avoid contamination. Susanty et al (2022) explain the impact of internal and external factors on the implementation of halal logistics. This study concluded that for internal factors, the results of the study confirmed that CRE, SRE and HIN had a significant positive effect on HHL. For external factors, the results confirmed that DCP, GOV and COP have a significant positive effect on HHL. Then, the results also confirm that COP can make the impact of a good CRE on IHL even stronger. This is not the case for other internal factors.

Based on a number of these studies, there is no research that specifically examines halal logistics using biblioshiny analysis. Therefore, the purpose of this study is to conduct a thorough literature review by identifying gaps in research and helping academics and practitioners to further explore research on "halal logistics" in the future.

**METHODOLOGY**

This research is a qualitative research with bibliometric analysis with the analysis tool used, namely R Biblioshiny from various publications on Halal Logistics. The data source of this research uses secondary data in the form of books, articles, or other publications published in various journals with research topics on Halal Logistics indexed by Scopus. The search results found 213 research publications which later became the sample in this study. Bibliometric analysis identifies various elements associated with research articles, including keywords used, authors, publishing journals, and topics discussed. In bibliometric analysis, bibliometric mapping is a frequent research topic, with at least two different bibliometric elements, namely, the construction of bibliometric maps and their graphical representation. Most bibliometric literature focuses on the construction of bibliometric maps (Marlina et al., 2021).

Furthermore, the R Biblioshiny analysis tool is a widely used tool for conducting bibliometric studies and produces reliable results (Alshater et al., 2022). The bibliometric mapping was analyzed using R Biblioshiny software which is freely available at: https://bibliometrix.org/. Graphical representation of bibliometric maps has received less attention. Although there are some researchers who seriously study issues related to graphical representation, most articles published in the bibliometric literature rely on simple graphical representations provided by computer programs (Assalafiyah et al., 2022; Rusydiana, 2021; Antonio et al., 2020; Marlina et al., 2021).

**RESULT AND DISCUSSION**

The analysis in this study applied bibliometric methods using data from Scopus and biblioshiny. The biblioshiny version used in this study is biblioshiny 4.1. A total of 213 documents from 2007 to December 01, 2023 were used for the analysis. The table below presents key information related to halal logistics metadata.

<table>
<thead>
<tr>
<th>Table 1. Main Information</th>
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<tbody>
<tr>
<td><strong>Description</strong></td>
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<tr>
<td><strong>MAIN INFORMATION ABOUT DATA</strong></td>
</tr>
<tr>
<td>Timespan</td>
</tr>
<tr>
<td>Sources (Journals, Books, etc)</td>
</tr>
<tr>
<td>Documents</td>
</tr>
<tr>
<td>Annual Growth Rate %</td>
</tr>
<tr>
<td>Document Average Age</td>
</tr>
<tr>
<td>Average citations per doc</td>
</tr>
<tr>
<td>References</td>
</tr>
<tr>
<td><strong>DOCUMENT CONTENTS</strong></td>
</tr>
<tr>
<td>Keywords Plus (ID)</td>
</tr>
<tr>
<td>Author's Keywords (DE)</td>
</tr>
<tr>
<td><strong>AUTHORS</strong></td>
</tr>
<tr>
<td>Authors</td>
</tr>
<tr>
<td>Authors of single-authored docs</td>
</tr>
</tbody>
</table>
Based on the table above, the total number of documents in this study is 213, which were registered in the Scopus database during the period 2007 to December 1, 2023. These documents come from 105 different journal sources, showing the diversity in the sources of information used in the study. By involving a total of 560 authors, this study provides a broad contribution to scientific publications related to halal logistics.

Furthermore, the types of documents identified in this study include 122 journal articles, 4 books, 28 book chapters, 39 conference papers, 6 conference reviews, 1 editorial, 1 retracted document, and 12 reviews. This data illustrates the diversity in publications related to halal logistics, with journal articles dominating as the main document type used in the sample. Using this data, the research can provide in-depth insights into the trends and contributions of publications in the halal logistics domain during the period under investigation.

The eight types of documents are accepted in the research as objects of study that will be processed and analyzed to produce bibliometric visualizations. The use of these various types of documents has the aim of expanding and increasing the scope of research results in tracking trends and sentiments related to halal logistics. This is due to the diversity of publication formats related to the topic; not all information related to halal logistics is available in the form of journal articles, but also in book chapters, conference papers, reviews, and others.

However, journal articles are the main focus of this study due to their dominant number and stronger scientific nature. Journal articles go through a review process by experts at the relevant publishing house, giving them a higher scientific validity. These strict qualification criteria make journal articles more widely used and the main reference point. In this context, it is important to note that all documents used in this study were from journals indexed in the Scopus database, confirming the level of qualification and credibility of the information sources used.

![Figure 1. Annual Scientific Production](image)
The graph above provides an overview of the number of scientific publications indexed in Scopus related to halal logistics by year. From the graph, it can be seen that the trend in the number of publications with the theme of halal logistics fluctuates and tends to increase, reaching its peak in 2023 with a total of 36 documents. It should be noted that this research was conducted before 2023 ended, so it does not reflect the overall number of documents on the topic of halal logistics for that year. This research has a dynamic nature, and the number of scientific publications on halal logistics may change until the end of 2023. Therefore, the final results for that year may still fluctuate as new Scopus-indexed documents are added during the remaining time period of the year.

The graph illustrates that the topic of halal logistics has received more attention and wide acceptance in recent years. The increase in the number of scientific publications can be interpreted as an indication of the increasing need for information and understanding related to halal logistics among academics, researchers and practitioners. This data provides a perspective on the dynamics of knowledge growth in the field of halal logistics during the time period studied. This increase can also reflect the relevance and importance of halal logistics issues in the context of industry developments and related policies. Thus, it can be considered that this topic has become a major focus in scholarly research, with the expectation that the knowledge generated will make a positive contribution to the further development and understanding of halal logistics.

The graph above provides an overview of the distribution of documents or scientific publications related to halal logistics indexed in Scopus based on research contributors from various countries or regions. From the data presented, Malaysia leads with the number of scientific publications reaching 417 documents, indicating a significant contribution from Malaysian authors in the development of research on halal logistics. Indonesia follows in second place with 151 documents, and the United States (USA) is in third place with a contribution of 23 documents. The number of documents produced by authors from each country indicates active involvement in the development of knowledge related to halal logistics.

This distribution provides an overview of the geographical spread of research contributions in the field, with several countries playing a key role in generating scientific publications. This information can provide further insight into the diversity of research and academic interest related to halal logistics at a global level. The conclusion from this data is that certain countries, such as Malaysia and Indonesia, have a dominant role in research contributions in the field of halal logistics, reflecting a particular focus and interest in the development of related knowledge.
The figure illustrates the graph of average citations per year on scientific publications with the topic of halal logistics indexed in Scopus. Analysis of the graph shows fluctuations in the average citations from year to year. It can be seen that the average number of citations in these documents tends to vary throughout the observation period. However, it is interesting to note that 2011 reflects the year in which these documents received the highest average number of citations over the period, at around 7.5 citations per year. This suggests that scholarly publications on halal logistics in that year received greater attention and recognition compared to other years. The focus and relevance of the research at that time may be a factor that supports the high average citation of scientific publications in the field of halal logistics during that particular period.

Figure 3. Average Citations per Year

Figure 4 visualizes three interrelated elements, namely the names of the journal publications, the author list, and the themes used. The relationship between these three elements is shown by the gray lines. The sequence...
starts with the journal names, which then displays the authors who consistently contribute to these journals. These authors, in turn, are associated with themes that are often the focus of their research on halal logistics. The size of each rectangle reflects the number of publications associated with each of these elements.

From the figure, it can be seen that in the first element, there are eleven Scopus-indexed journals in the Three Fields Plot that publish papers on halal logistics. One of the main journals that has the highest number of papers on halal logistics is the "Journal of Islamic Marketing." This journal is shown by the red rectangles connected to the authors.

Turn to the second element in the center of the image, which contains the names of the authors. Some authors are linked to previous journals. Each author is associated with their frequently used keywords and topics, which are displayed on the right of the image. In this study, the top 20 researchers were involved in this visualization. The size of each rectangle reflects the number of research publications of each author. In this context, Muhammad Hasmi Abu Hassan Asaari, represented by the light orange rectangle, is the most prolific author in publishing articles on halal logistics indexed in Scopus.

The third element on the right of the image depicts research topics. Each topic is linked to authors who are actively writing about the relevant topic. From the figure, there are 15 keyword topics listed. Among all the topics, the words "halal logistics" appear with high frequency, indicated by the light green rectangle.

The figure above illustrates the topic trends in halal logistics-focused publications indexed in Scopus. This visualization provides a view into the evolution of topics over the years with clustering by research year, allowing the identification of topics that have been in focus for a long period of time and topics that have recently emerged. These topic trends also consider the frequency of occurrence of each word, indicated by lines and circles in the graph. In addition to examining annual trends, topic occurrence is also taken into account based on how often the words appear in research focusing on halal logistics. Thus, the figure provides a comprehensive picture of the dynamics of the development of the topic of halal logistics. Based on the visualization, it can be seen that the words listed in the graph are words that have a high frequency and are closely related to the topic of halal logistics. This reflects the diversity and intensity of research in certain aspects of halal logistics and related issues during the period under study.
The keyword network visualization seen in the figure above presents clusters that represent the relationship between keywords in article publications with the theme of halal logistics. In this visualization, clusters are formed based on the relevance between keywords, and there are four clusters that can be identified through the use of different colors. Each cluster is connected through a network with other keywords, and each cluster carries a specific theme that corresponds to the associated keywords.

This network visualization provides a clear view of the structure of interrelated research topics in the halal logistics literature. These clusters help researchers and scholars to understand and identify patterns of relationships between keywords, making it easier to organize and group research that has a similar focus or theme. Through this visual analysis, similarities and differences between clusters can be found, enabling a deeper understanding of the dimensions and variability of research topics in the context of halal logistics. The following table contains the research clusters.

### Table 2. Research Cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th>Keywords</th>
<th>Relevant journals</th>
</tr>
</thead>
</table>
| Halal logistics management in halal supply chain | - Halal logistics  
- Supply chain management  
- Halal supply chain management  
- Logistics management  
- Halal industry  
- Halal food  
- Halal certification  
- Halal market  
- Halal product  
- Halal integrity  
- Logistics performance  
- Beverage and ingredient companies  
- Sustainability  
- Transportation  
CONCLUSION

The biblioshiny-R analysis of halal logistics provides an in-depth understanding of the trends, contributions, and topic structure in the related scientific literature. The findings show that the number of publications on halal logistics fluctuates and shows an increasing trend, reaching a peak in 2023 with a total of 36 documents. Malaysia leads as the country with the most author participation, reaching 417 documents. Analysis of the average citations highlighted 2011 as the period with the highest average citations, which is about 7.5 citations per year. "Journal of Islamic Marketing" was identified as the main journal with the highest amount of literature. Muhammad Hasmi Abu Hassan Asaari was recognized as the most prolific author in publishing articles on halal logistics in Scopus. The study also revealed significant keyword trends during the research period and categorized them into research clusters. Overall, the biblioshiny-R analysis provides a comprehensive overview of the development and dynamics of research on halal logistics. It provides valuable insights for researchers and practitioners to gain a deeper understanding in this domain.

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