

A systematic literature review of halal transportation in logistics studies

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Abstract: This article examines how halal transportation supports the integrity of material and information flows in the halal supply chain by systematically reviewing the international scientific literature indexed in the Scopus database. The study addresses the fragmented knowledge of halal logistics transportation, particularly regarding contamination risks, logistical constraints, lead times, and infrastructure quality, which hinder the design of robust halal logistics systems. Using a Systematic Literature Review (SLR) approach guided by the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) framework, 13 relevant articles were selected from an initial set of 28 publications. The findings show that research on halal transportation is still limited and concentrated in a few countries, with Malaysia as the main contributor, and that four critical challenges dominate the discussion: the risk of cross-contamination along logistics flows, the limited availability of halal-certified transport alternatives, delays in delivery time, and inadequate transport infrastructure. In scientific terms, this article offers a structured synthesis of these challenges from a logistics perspective and clarifies how halal transportation influences the performance of supply chain flows. In practical and pedagogical terms, the study provides guidance for logistics managers, policymakers, and educators in designing logistics networks, infrastructure, and learning materials that better support the implementation of halal transportation.

1 Introduction

In the era of increasingly advanced globalization, the number of people seeking halal products has grown dramatically. Along with increased purchasing power supported by Islamic finance [1] and recognition of the importance of selecting items that adhere to Islamic principles, Muslim consumers are increasingly inclined to seek Halal products [2,3]. Not only does this desire for halal comprise food, but it also encompasses a wide range of other items that adhere to the rules of sharia. In response to this need, the concept of halal logistics emerged as an essential component of supply chain management [4,5].

Islam recorded an annual growth rate of 1.5%, making it the fastest-growing religion in the world. It is estimated that by 2030, the Muslim population will reach 26.4% of the total projected global population of 8.3 billion people [6]. This expansion has substantial repercussions across a variety of industries, including the halal industry and halal logistics. Within this framework, halal logistics transportation is of utmost importance in order to ensure that halal products are supplied efficiently and securely from producers to customers [7]. Halal logistics not only includes the storage and transportation of goods but also ensures that the entire process meets strict sharia standards. With increasing awareness among Muslim consumers of the halal status of products, the need for a logistics system that ensures product integrity and halal status is becoming urgent.

In Indonesia, the implementation of halal integrity is an obligation regulated by government regulations. The rule mandates segregation of halal product operations by location, slaughter site, methodology, storage, packaging, distribution, sale, and presentation of non-halal items. This rule mandates that, to preserve the integrity of halal logistics, halal items must not be stored in the same containers or trucks as non-halal products to prevent cross-contamination [8].

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In the absence of halal logistics, it is impossible to ensure that consumers receive trustworthy halal items. What is surprising, however, is that a significant number of halal food manufacturers remain reluctant to include halal transportation services in their operations [2]. Halal value creation in logistics refers to the innovative ability of halal-based logistics service providers to offer products or services that comply with halal standards [9].

Despite extensive research on halal logistics, there remains a significant knowledge gap regarding the difficulties and opportunities logistics service providers encounter when adopting halal transportation systems. Findings from several studies indicate an immediate need to construct suitable infrastructure and raise awareness among various stakeholders of the significance of halal certification in the context of logistical operations [10]. Additionally, clear regulations and government support are necessary to encourage the adoption of halal logistics practices in the private sector.

Despite the growing body of research on halal logistics, there remains a significant gap in understanding how halal transportation specifically affects logistics flows, risk management, and the performance of halal supply chains. Existing studies tend to focus on partial aspects, such as certification, consumer behaviour, or isolated case studies, and thus do not provide a comprehensive overview of the main logistical problems encountered in halal transportation. This article seeks to address that gap by conducting a Systematic Literature Review (SLR) of studies on halal logistics transportation indexed in the Scopus database, with two main objectives: first, to clearly identify and classify the key logistical challenges in halal transportation, namely the risk of cross-contamination, the limited availability of halal transport alternatives, delivery time issues, and the quality of transport infrastructure; and second, to explain what is new in terms of logistics theory, supply chain management practice, and pedagogy derived from these findings. In doing so, this study contributes to the logistics and halal supply chain literature by providing an integrated scientific synthesis and by formulating practical implications for the design and management of halal transportation systems.

2 Literature review

The bibliometric study revealed that the development of halal supply chain research is relatively new but has continued to develop in the last decade [11]. During the course of the investigation, it was discovered that, out of a total of 104 articles on the halal supply chain taken from the Scopus database for the years 2008-2018, more than 60% were published between 2015 and 2018. This research also identifies four main themes in halal supply chain research, namely Halal Foundation, Implementation, Preparing and Processing, and Concept Development. It is interesting to note that the research focuses more on the final product (the Halal Foundation) and, at the very least, analyzes the preparations and procedures involved in various activities along the halal supply chain [11].

In another bibliometric research study, a bibliometric technique was used to analyze literature publications associated with Halal Supply Chain Management (HSCM) [12]. The analysis included 149 articles retrieved from the Scopus and Web of Science databases and covered the period from 2011 to 2021. The analysis reveals that HSCM's research can be grouped into five main groups: Halal Food Industry, Halal Logistics Challenges and Opportunities, Halal Food Integrity Assurance, Halal Logistics Integrity Assurance, and Halal Logistics Performance. The findings of this study represent a major addition to the knowledge base on the growth of Halal Supply Chain Management research and the identification of future research prospects, notably in the service industry, which remains underexplored.

Halal transportation is an essential element of halal logistics, designed to preserve the integrity of halal products throughout the supply chain. Research demonstrates that manufacturers' adoption of halal transportation is minimal, with several constraints, such as complexity, elevated costs, and the restricted availability of halal transportation service providers, posing considerable challenges [13]. Additionally, physically separating halal and non-halal items during transportation is a crucial step in preventing cross-contamination, which is a significant risk in halal logistics [14]. In 2017, an event occurred in which halal meat and pork were mixed in the same container. This occurrence highlighted the significance of halal transportation [15]. In addition, halal transportation is an essential component of the halal tourism business, as it enables the fulfillment of the transportation requirements of Muslim visitors in terms of transportation [16].

Research by [17] proposes a framework for assessing risks in halal logistics. Nonetheless, it fails to properly gather and analyze the current material to present a thorough overview of the issues encountered in halal transportation. Their research used qualitative analytical approaches, such as interviews and surveys, to ascertain the factors influencing firms' preparedness to implement halal logistics. This work seeks to address this gap by conducting a systematic literature review, enabling a more thorough identification and categorization of halal transportation concerns.

In this study, the method used to conduct a systematic literature review of halal logistics transportation studies differs significantly from previous studies [18]. This study aimed to explore the factors influencing the adoption of halal logistics. This study focuses on collecting and synthesizing data from various literature sources to identify risks associated with halal logistics transportation.

In addition, the SLR approach used in this study also distinguishes it from previous studies, which are often limited to specific geographic contexts or industry sectors. As a result, this study not only gives fresh perspectives on the dangers associated with halal transportation, but it also provides direction for practitioners and other researchers who are interested in comprehending the intricacies of halal logistics in a variety of settings.

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3 Methodology

To conduct an in-depth investigation of halal logistics transportation, the approach used in this study is a Systematic Literature Review (SLR). This topic has never been explored before through a systematic literature review. Using the Scopus database as the primary source, the systematic literature review (SLR) method was chosen because it provides a systematic, structured framework for collecting, evaluating, and synthesizing information from relevant literature, thereby producing an in-depth understanding and generating new findings in the field of halal transportation logistics.

By using the Systematic Literature Review (SLR), the research can provide a comprehensive overview of the state of the art in the field of halal transportation logistics, as well as identify existing research gaps for future development [19]. In this study, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) diagram was used as a framework to manage and evaluate the literature [20] systematically. This diagram serves as a structured guide that assists researchers in carrying out a series of stages, from the initial identification of the literature through screening to the selection of final articles that meet the quality standards for analysis in this study. Researchers ensured that only high-quality, relevant papers were included in this systematic review by using the PRISMA methodology, which structured and made the selection process more transparent [21].

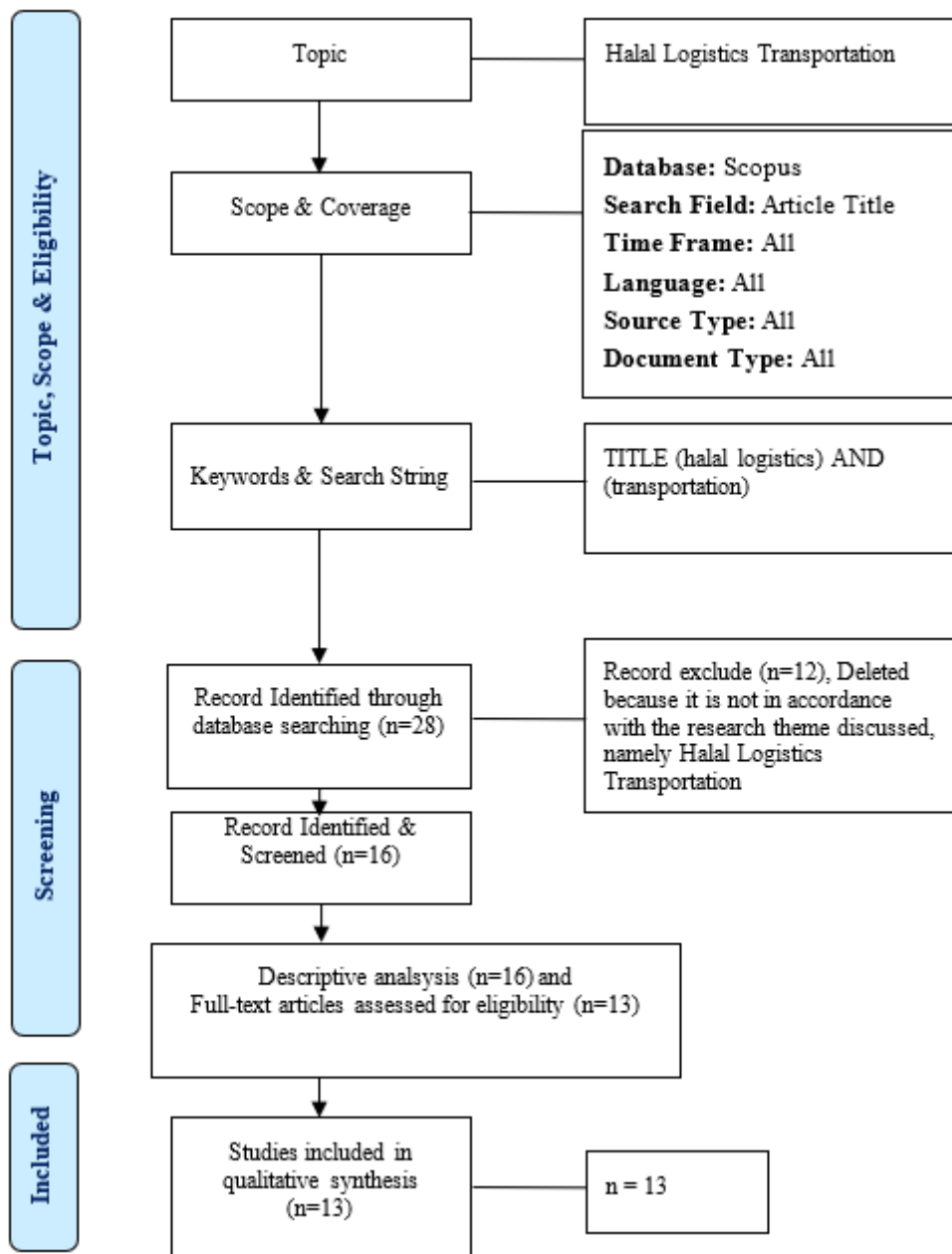


Figure 1 The flow diagram of the search technique

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This study processed documents through a series of systematic, detailed selection stages, using primary data obtained directly from the Scopus database. The research flow is illustrated in Figure 1. The research process begins with determining the focus of the topic to be studied, followed by an in-depth evaluation of the selected articles. The selection of articles is carefully made, with content suitability and relevance to the analyzed topic in mind. The literature search in this study was conducted using the following keywords: "TITLE-ABS-KEY (Halal logistics) AND (Transportation)" in the Scopus database. The initial search results, as of October 19, 2024, yielded 28 articles, which were then subjected to two screening stages. The first stage involved content-relevance analysis, resulting in 16 articles that fit the research topic. Furthermore, in the second stage, a screening was conducted based on the availability of full-text articles, which ultimately resulted in 13 articles that became the primary sources in this systematic literature review.

In addition, the relatively small number of articles included in this review reflects the limited body of research on halal logistics, particularly studies with a specific focus on halal transportation. This condition arises not from a narrow selection process alone but from the scarcity of empirical and conceptual works that explicitly address halal transport within the broader halal logistics system. Even with this limitation, transportation is treated in this study as a crucial element of halal logistics, so the available articles were retained and examined in depth to capture, classify, and interpret the key logistics issues related to halal transport flows as comprehensively as possible.

4 Results and discussion

4.1 Publications regarding halal logistics transportation by year

The "Total Publication" graph in Figure 2 shows the trend of publications on halal transportation, logistics, and supply chains from 2012 to 2024. At the beginning of the period, the number of publications was relatively low, with only one publication in 2012. An increase was observed in 2014, with two publications, but it declined again in 2016. A significant increase began in 2019, reaching its peak in 2022 with these five publications. However, this number has again decreased to three publications in 2023. This trend reflects fluctuating interest and attention to this topic among academics and researchers, suggesting that despite the increase in awareness and research, there is still instability in the number of annual publications.

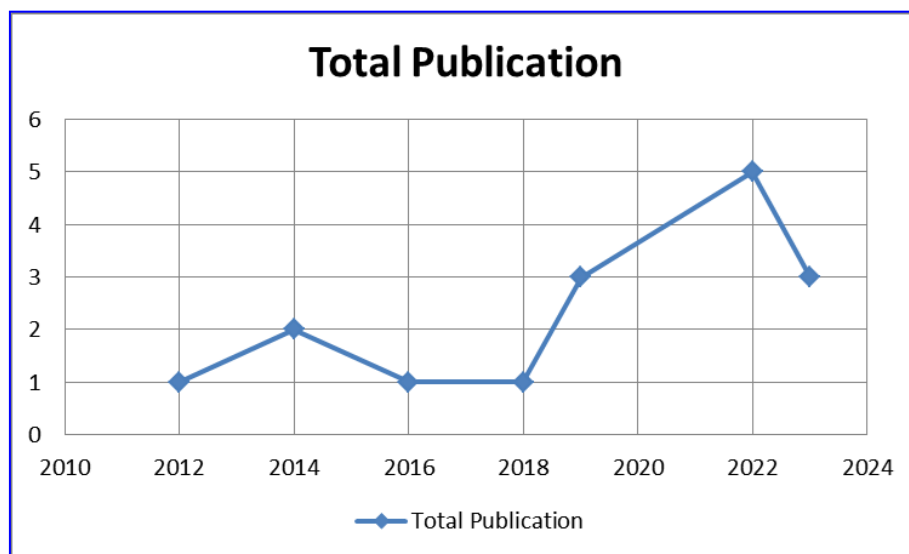


Figure 2 Publication trends by year

4.2 Publications by subject area

Table 1 presents an analysis of the research subject area on halal logistics transportation, showing that the field of Business, Management, and Accounting dominates with 12 publications, accounting for 40% of the total publications. This data highlights the importance of the managerial aspect in developing a halal logistics system. Computer Science accounted for five publications (16.67%), emphasizing the role of technology in logistics process optimization. The fields of Decision Sciences and Economics, Econometrics, and Finance each have four publications (13.33%), indicating a focus on decision analysis and economic aspects. Other fields, such as Arts and Humanities, Chemistry, Engineering, Materials Science, Mathematics, and Social Sciences, each accounted for one publication (3.33%), indicating that although the contribution was small, a multidisciplinary approach was still needed to enrich research in these areas.

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Table 1 Publications by subject area

Subject Area	Total Publication	Percentage
Business, Management, and Accounting	12	40.00%
Computer Science	5	16.67%
Decision Science	4	13.33%
Economics, Econometrics, and Finance	4	13.33%
Arts and Humanities	1	3.33%
Chemistry	1	3.33%

4.3 Publications by country

According to Table 2, Malaysia is the nation that has made the most significant contribution to halal transportation, logistics, and supply chain. The country has produced 14 publications, accounting for 58.33% of the total. This result suggests that Malaysia has significant attention and development in the sector, likely driven by government policies that support the halal industry and by adequate infrastructure. Despite having the largest Muslim population in the world, Indonesia accounts for only two publications, or 8.33%. This phenomenon may reflect challenges in implementing a more structured halal logistics system or a lack of documented research compared to Malaysia. Other countries, such as India, Jordan, the Netherlands, Oman, Saudi Arabia, and Singapore, each contributed one publication (4.17%). This data shows that, despite global interest in halal logistics, its implementation remains limited to a few regions. The participation of non-Muslim nations, such as the Netherlands, illustrates the potential for a globally appealing halal industry. This data indicates that, despite global recognition of the significance of halal logistics, considerable disparities in research and development exist among nations. Malaysia has the potential to serve as a paradigm for other nations in establishing an efficient halal logistics framework.

Table 2 Publications by country

Country	Total Publication	Percentage
Malaysia	14	58.33%
Indonesia	2	8.33%
India	1	4.17%
Jordan	1	4.17%
Netherlands	1	4.17%
Oman	1	4.17%
Saudi Arabia	1	4.17%
Singapore	1	4.17%

4.4 Publications based on journal source titles

Table 3 of the analysis of journal sources concerning Transportation Halal Logistics indicates that the Journal of Islamic Marketing is the predominant source, accounting for 25% of publications, followed by Halal Logistics and Supply Chain Management Recent Trends and Issues and the International Journal of Supply Chain Management, each at 19%, underscoring the significance of halal logistics management. Other publications, such as the International Journal of Innovation, Creativity, and Change and the Journal of Global Operations and Strategic Sourcing, offer novel insights despite their limited contributions (6%). This research demonstrates the substantial advancement and importance of halal logistics in response to global concerns.

Table 3 Top 5 publications based on journal source titles

Source Titles	Total Publication	Percentage
Journal of Islamic Marketing	4	25%
Halal Logistics and Supply Chain Management: Recent Trends and Issues	3	19%
International Journal of Supply Chain Management	3	19%
International Journal of Innovation, Creativity, and Change	1	6%
Journal of Global Operations and Strategic Sourcing	1	6%

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4.5 Publications based on citation performance

Table 4 of the citation performance analysis in the study on Halal Logistics reveals that the article "Principles in Halal Supply Chain Management" dominates with 190 citations (66% of the total), indicating the significant influence of this topic in the academic literature. The study on "Halal Transportation Adoption Among Food Manufacturers in Malaysia" received 30 citations (10%), reflecting the growing concern about the adoption of halal practices in the food sector. Other articles, such as "Halal Logistics: Practices, Integration and Performance of Logistics Service Providers" and "Factors Behind Third-Party Logistics Providers' Readiness Towards Halal Logistics," have 24 (8%) and 20 citations (7%), respectively, highlighting the importance of logistics service providers' practices and readiness. Overall, this data demonstrates the evolution of halal logistics and supply chain research, with a focus on best practices and the integration of technology to enhance industry performance.

Table 4 Top 3 publications based on citation performance

Article Titles	Total Citation	Percentage
Principles in Halal Supply Chain Management	190	66%
Halal transportation adoption among food manufacturers in Malaysia: the moderated model of technology, organization, and environment (TOE) framework	30	10%
Halal Logistics: practices, integration, and performance of logistics service providers	24	8%

4.6 Publications by the university

The analysis in Table 5 on Halal Logistics Transportation, based on university data, indicates that Universiti Sains Malaysia, Universiti Kuala Lumpur, and Universiti Malaysia Terengganu each published 3 papers (17%), highlighting the substantial contributions of these institutions to halal research. Simultaneously, Universiti Kebangsaan Malaysia, Universiti Teknologi Malaysia, and Universiti Putra Malaysia each own two publications (11%), demonstrating their engagement in this domain, but with lesser contributions. Furthermore, entities such as the Malaysian Institute of Economic Research, the National Space Agency, and Universiti Teknologi MARA each produced one paper (6%), suggesting that research on halal logistics extends beyond universities to encompass diverse institutions. Overall, this data illustrates the extensive collaboration among various educational and research institutions in Malaysia in developing knowledge and practices related to halal logistics.

Table 5 Publications by university

Affiliation	Total Publications	Percentage
Universiti Sains Malaysia	3	17%
University of Kuala Lumpur	3	17%
Universiti Malaysia Terengganu	3	17%
National University of Malaysia	2	11%
Universiti Teknologi Malaysia	2	11%
Universiti Putra Malaysia	2	11%
Malaysian Institute of Economic Research	1	6%

4.7 Tree map analysis in halal logistics transportation research

The analysis in the image below is a tree map, also commonly referred to by this name, which is a data visualization technique [22]. The NVivo application is a data visualization tool that helps in mapping and analyzing the relationships between concepts, themes, or categories in textual data. Using the NVivo application, key concepts can be identified and analyzed using a tree map, which facilitates classification of terms by frequency of appearance (Table 6), with more frequently occurring terms displayed in larger columns. In Figure 3, the five terms with the large columns are visible, indicating a high level of importance or interest based on their frequency of occurrence relative to the research theme. The five terms with the enormous columns are "halal," "logistics," "supply," "transportation," and "chain."

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Table 6 Classification of research themes on halal logistics transportation

Aspects of the Synthesis of research on halal logistics transportation	Key points	Source
Potential contamination during transportation	<ul style="list-style-type: none"> • Contamination • Significant risk • Halal logistics • Cross-contamination 	[2,9,15,23,24]
Lack of Halal Transportation Alternatives	<ul style="list-style-type: none"> • Transportation alternatives • Halal products • Halal-certified transportation • Limited availability • Supply chain 	[2,8,13,25]
Lead Time	<ul style="list-style-type: none"> • Distribution Management • Delivery Timeliness 	[9,17,25]
Quality of Transportation Infrastructure	<ul style="list-style-type: none"> • Road quality • Risk of failure • Shipping requirements • Halal product quality • Infrastructure impact 	[8,14,17,25,26,27]

4.8 Classification of research themes on halal logistics transportation

4.8.1 Risk of contamination during transportation

In order to adhere to the fundamental concept of halal transportation, it is necessary to maintain a physical distinction between halal and non-halal items throughout the transit process [24]. The risk of cross-contamination arises when halal products come into contact with non-halal items or substances that do not comply with halal guidelines during transit. Consequently, the distribution of halal items must be conducted independently to ensure and safeguard the product's halal integrity [15]. This separation must be carried out thoroughly throughout the logistics chain, from the shipping terminal through storage in the warehouse to the product reaching the customer's hands [9].

The maintenance of a product's halal status from the beginning of the production process through to the point of consumption is the feature of halal products that customers consider most significant. When it comes to the expansion of the halal food business worldwide, the role of the halal logistics system is an essential component in ensuring its success. Due to the possibility of cross-contamination throughout the packing process, it is vital to implement more stringent monitoring in order to examine essential items that may be contaminated with unlawful, filthy, or dangerous chemicals. Cleaning the container regularly is also required in order to eliminate any and all signs of past shipments with a status that was either non-halal or uncertain. This cleaning mechanism helps ensure the product's halal status is preserved (Ngah, Thurasamy et al., 2022).

Because of the nature of halal goods, whose halal status cannot be validated after consumption, halal food manufacturers are required to establish trust with their suppliers and rely on the integrity of their suppliers in order to provide raw materials that are in accordance with Sharia standards. It is thus necessary for the entire supply chain to comply with the standards and halal regulations established [23].

4.8.2 Lack of halal transportation alternatives

The availability of halal-certified transportation service providers remains limited, particularly in rural areas, creating a significant challenge for producers to ensure compliance with halal standards throughout the supply chain [25].

Additionally, the high costs of halal certification for vehicles and transportation facilities pose a significant barrier to logistics providers seeking to provide halal standards-compliant services [18]. As a result, only a small percentage of manufacturers use halal transportation services, even though these services are important to maintain the quality and halal status of products during delivery.

The adoption of halal transportation is also affected by the lack of awareness and support from halal goods manufacturers. For example, only 15% of manufacturers use halal transportation services due to service providers' limitations and a lack of understanding of the benefits (Ngah, Thurasamy et al., 2022). Therefore, collaboration is needed between governments, logistics providers, and industry players to increase the number of halal transportation alternatives available to support the growth of the global halal ecosystem.

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4.8.3 Lead time

Delivery time, or lead time, is an important aspect of halal logistics that affects operational efficiency and customer satisfaction. In the context of halal logistics, inappropriate delivery times can compromise the product's halal integrity, as delays increase the risk of contamination or damage during transportation [9].

In addition, the quality of roads and transportation infrastructure also contributes to the risk of delivery delays. Poor road conditions in certain areas can delay delivery times, thereby impacting the quality of halal products being transported [17]. To overcome these risks, a more effective route-planning process and information system are needed to ensure on-time delivery while adhering to halal principles. Therefore, optimizing logistics networks and leveraging GPS-based tracking technology are crucial solutions to improve delivery efficiency in halal logistics [25].

4.8.4 Quality of transportation infrastructure

The quality of transportation infrastructure is one of the important factors that affect the successful implementation of halal logistics. Poor infrastructure, particularly in rural areas, often poses a significant obstacle to ensuring the timely delivery of halal products and maintaining their quality during transportation [17]. Inadequate road conditions can increase the risk of failing to meet delivery requirements and compromise product quality, ultimately jeopardizing the halal integrity of the product [14].

The lack of adequate transportation infrastructure, including poor road conditions and limited logistics facilities, can hinder the efficient distribution of halal products. This condition leads to longer delivery times and an increased risk of contamination during transportation [26]. Additionally, the limitations of transportation infrastructure affect the availability of halal-certified transportation services. The limited number of halal-certified vehicles poses challenges for logistics providers in meeting demand for specialized halal products. This limitation often forces manufacturers to share vehicles with non-halal products, thereby increasing the risk of halal integrity violations [8]. Limited transportation infrastructure also hinders overall adoption of halal logistics, particularly in developing countries where supporting infrastructure, such as roads and logistics terminals, is inadequate [25]. To address this problem, some studies recommend developing technology-based transportation systems, such as GPS tracking and geofence algorithms [27].

4.9 Further discussion on contribution and future research suggestions

This study presents a systematic literature review of halal logistics transportation and identifies four main interrelated challenges in implementing halal transportation systems. This study offers an analytical synthesis of how the main challenges in halal transportation jointly affect logistics performance and supply chain flows [17,28,29]. The four central issues—contamination risk, limited halal transport alternatives, delivery time constraints, and inadequate transport infrastructure—are treated as mutually reinforcing bottlenecks that reduce the reliability, traceability, and efficiency of halal logistics networks [30,31]. The contribution of this article lies in structuring these problems into an integrated perspective on logistics risks and management implications, rather than only restating individual findings from prior studies on halal food logistics and halal supply chain risk [28,32]. The synthesis presented here indicates, for example, that the lack of halal-certified transport options not only creates compliance challenges but also amplifies lead-time variability and the probability of cross-contamination along transportation and storage nodes [17,29,33]. By indicating which elements are directly drawn from previous research and which reflect our interpretation of their combined effects on logistics flows, the discussion aims to provide additional scientific value to researchers and more actionable insights to managers and policymakers who design and manage halal transport systems [34–36].

The risk of contamination during transportation is a significant concern because the physical separation between halal and non-halal products remains difficult to implement consistently, especially during transportation and storage in warehouses. Additionally, the availability of halal-certified transportation service providers remains limited, with only 15% of manufacturers utilizing halal transportation services [2]. This condition is exacerbated by poor infrastructure quality and delivery time issues that can increase the risk of contamination and product damage during transportation [26].

The subsequent research can focus on several important aspects of halal logistics transportation development. First, the development of an integrated technology system combining GPS tracking and geofence algorithms to monitor halal status during transportation. Second, a study on an efficient model for halal transportation infrastructure development, particularly in rural areas, includes a feasibility analysis of constructing a specialized terminal for halal products. Third, research on harmonizing halal transportation standards and regulations across regions to facilitate the growth of the global halal ecosystem, as well as on the economic and operational impacts of implementing halal transportation systems at various industrial scales, is warranted.

This article positions halal transportation as a specific yet illustrative case within the broader field of logistics, particularly in relation to traceability, contamination risk management, transport quality control, and supply chain resilience. Beyond summarizing prior studies, the paper contributes to logistics theory by organizing the diverse findings into a coherent set of four interrelated logistics risk domains—contamination risk, scarcity of certified transport alternatives, lead time instability, and infrastructure limitations—and by explaining how these domains jointly affect the reliability and integrity of logistics flows in value chains that must comply with stringent product requirements. On the

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practical side, the article derives implications for logistics managers and policymakers by outlining how integrated monitoring technologies, cleaner and segregated transport configurations, and targeted infrastructure improvements can be used to manage these risks more proactively, not only in halal transportation but also in other logistics contexts where product integrity, chain-of-custody, and regulatory compliance are critical. In this way, the study's originality lies in translating fragmented evidence on halal transportation into a more universal logistics perspective relevant to designing traceable, contamination-aware, and resilient supply chains in both Muslim-majority and non-Muslim markets.

5 Conclusions

This article explores how halal transportation supports the integrity of logistics flows in halal supply chains by systematically reviewing international scientific literature indexed in the Scopus database. The study addresses the still-limited, fragmented research base on halal logistics transportation and responds by critically comparing the available evidence rather than merely summarizing it. Using a Systematic Literature Review (SLR) approach guided by the Preferred Reporting Items for Systematic Review and Meta-analysis (PRISMA) framework, 13 relevant articles were selected from an initial set of 28 publications. Publication trends indicate fluctuating growth from 2010 to 2024, with a peak of 5 publications in 2022, followed by a decrease to 3 publications in 2023. The thematic analysis revealed that Business, Management, and Accounting dominated with 40% of publications, Malaysia was the most significant contributor with 58.33% of publications, the *Journal of Islamic Marketing* was the primary source with 25% of publications, and the article "Principles in Halal Supply Chain Management" was the most cited with 190 citations. This study makes a significant contribution in identifying four main challenges in the implementation of halal transportation: the risk of contamination during transportation, limitations of halal transportation alternatives, delivery time issues, and the quality of transportation infrastructure. These findings underscore the complexity and interconnectivity of various factors that influence the successful implementation of halal transportation systems. For future development, investment in integrated technology, such as GPS tracking and geofence algorithms, is necessary for halal status monitoring, the development of adequate transportation infrastructure, especially in rural areas, and the harmonization of standards and regulations across regions. At the academic level, further research is needed on the economic and operational impacts of implementing halal transportation systems on various industrial scales, as well as studies on models for developing efficient halal transportation infrastructure.

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Review process

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