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Halal Supply Chain Concept to Support Sustainable Cities

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ABSTRACT

This study aims to analyze the implementation of the halal supply chain concept as a strategic approach to support the realization of sustainable cities. The background of the study is based on increasing urbanization, the growing complexity of goods distribution in urban areas, rising consumer demand for halal assurance, and the need to integrate economic efficiency with environmental sustainability. The research employed a qualitative approach using a library research design. Data were obtained from scientific articles, reports from international institutions, regulations, and relevant documents discussing halal supply chains, urban logistics, and sustainable cities. The analytical technique used was content analysis through the processes of data reduction, thematic categorization, interpretation, and conclusion drawing. The findings indicate that the halal supply chain not only functions to maintain the halal integrity of products, but also contributes to distribution efficiency, increased consumer trust, reduced contamination risks, logistics optimization, and lower environmental impacts through green logistics principles. In the urban context, the implementation of halal supply chains can be strengthened through digitalization, logistics infrastructure development, government regulatory support, MSME empowerment, and integration with the smart city concept. This study concludes that the halal supply chain is a relevant strategic approach to addressing modern distribution challenges while promoting inclusive, competitive, and sustainable urban development

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INTRODUCTION

The development of modern cities requires economic systems capable of meeting societal needs efficiently, safely, and sustainably. Global urbanization has accelerated the demand for food, logistics, and distribution services on an increasingly large scale. This condition has positioned supply chains as a strategic element in maintaining the economic stability of urban areas. At the same time, growing awareness among Muslim consumers has created demands for halal assurance that extends beyond the final product to encompass the entire distribution process. Several studies emphasize that halal integrity must be preserved throughout the value chain in order to maintain consumer trust (Tieman, 2011: 12; Khan et al., 2019: 44). Therefore, the implementation of the halal supply chain concept has become important as an instrument for supporting sustainable city development.

A sustainable city is a development concept that simultaneously balances economic, social, and environmental dimensions. In the urban context, sustainability is measured not only by economic growth but also by resource efficiency and the quality of life of citizens. Poor distribution systems often generate traffic congestion, energy waste, and increased carbon emissions. Research on urban logistics shows that goods distribution activities contribute significantly to air pollution in major cities (Taniguchi et al., 2014: 28; Rodrigue, 2020: 77). Therefore, reforming supply chain systems has become an essential part of the sustainable development agenda. This demonstrates that an efficient halal supply chain model can provide added value for modern cities.

The concept of the halal supply chain has evolved in response to increasing consumer demand for comprehensive halal assurance. To date, many business actors have focused solely on the certification of raw materials and production processes. However, the risk of cross-contamination may also occur during transportation, storage, and product handling. Tieman explains that halal logistics requires segregated facilities, specific procedures, and consistent monitoring systems (Tieman, 2013: 5). Similar findings were also highlighted by Zailani et al., who stated that consumer trust is strongly influenced by certainty in halal distribution processes (Zailani et al., 2017: 63). Thus, the implementation of this concept is increasingly relevant in urban areas characterized by high distribution flows.

The global halal market has shown rapid growth over the past decade. The food, cosmetics, pharmaceutical, and halal tourism sectors have become the main drivers of the global halal economy. International reports indicate that Muslim consumer spending continues to rise in line with population growth and changing lifestyles. A study by DinarStandard noted that the global halal food market has reached trillions of dollars and continues to expand annually (Thomson Reuters & DinarStandard, 2023: 15). Other

studies also emphasize that countries with strong halal logistics systems have greater opportunities to capture export markets (Ab Talib et al., 2015: 91; Tieman, 2011: 18). Therefore, strengthening halal supply chains has become a strategic necessity for developing countries such as Indonesia.

Indonesia has substantial potential to become a global halal industry hub due to its large Muslim population and extensive domestic market. The government has promoted halal certification, the development of halal industrial zones, and the expansion of halal product exports. However, the success of this agenda has not been fully matched by the readiness of the national logistics system. Many cities still face distribution problems, high transportation costs, and limited cold chain infrastructure. Studies indicate that Indonesia's logistics efficiency still lags behind several ASEAN countries (World Bank, 2023: 22; Haryotejo, 2021: 34). Therefore, implementing halal supply chains is crucial for strengthening the competitiveness of cities and national industries.

Previous studies have extensively examined the relationship between supply chain management and firm performance. Information transparency, partner collaboration, and technological integration have been proven to improve distribution efficiency while reducing operational costs. In addition, halal certification has been shown to increase consumer trust and market loyalty. A study by Ali et al. found that halal supply chain practices positively affect corporate reputation and customer satisfaction (Ali et al., 2018: 102). Nevertheless, most studies still focus on the firm level and have not sufficiently linked the issue to sustainable city development (Karia & Asaari, 2016: 56). This gap highlights the importance of further research on the topic.

Logistical problems in urban areas are often characterized by distribution congestion, delivery delays, and high operational costs. These phenomena not only harm business actors but also reduce service quality for the public. Distribution vehicles operating without effective route planning further exacerbate air pollution and fossil energy consumption. Taniguchi explains that optimizing urban distribution can reduce logistics costs while simultaneously minimizing environmental impacts (Taniguchi et al., 2014: 41). Meanwhile, Rodrigue emphasizes that logistics governance is a key component of modern urban sustainability (Rodrigue, 2020: 88). Therefore, integrating halal principles with logistics efficiency represents a relevant solution.

Digital technology has become a critical factor in the development of modern halal supply chains. The use of the Internet of Things, blockchain, and real-time tracking systems enables transparency in product distribution flows. Consumers can obtain more accurate information regarding the origin of raw materials, storage conditions, and delivery routes. Research by Casino et al. demonstrates that blockchain enhances traceability and trust in food supply chains (Casino et al., 2019: 63). Other findings suggest that logistics digitalization can reduce operational errors and accelerate

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distribution services (Ivanov et al., 2020: 112). Therefore, integrating digital technologies with halal principles is highly relevant for supporting sustainable cities.

Beyond technology, collaboration among stakeholders determines the success of halal supply chain implementation. Governments, producers, distributors, certification bodies, and consumers all play interconnected roles. Without effective coordination, halal standards are difficult to implement consistently at every stage of distribution. According to Freeman, successful modern governance depends heavily on synergy among actors within the policy ecosystem (Freeman, 1984: 46). In the halal context, Zailani et al. also stress the importance of regulatory support and organizational commitment in maintaining supply chain integrity (Zailani et al., 2017: 70). Therefore, a collaborative approach serves as the primary foundation for implementing this concept.

From a social perspective, implementing halal supply chains can enhance public confidence and a sense of security regarding products circulating in the market. Public trust is an important form of social capital in urban economic activities. When consumers are confident that products are processed and distributed in a halal manner, purchasing decisions tend to increase. Research by Lada et al. found that the intention to purchase halal products is strongly influenced by consumer trust and belief perceptions (Lada et al., 2009: 72). Another study also confirmed that the credibility of halal labels contributes to customer loyalty (Mukhtar & Butt, 2012: 110). Thus, the socio-economic benefits of this system are highly significant.

From an environmental perspective, halal supply chains can be integrated with green logistics principles. The use of low-emission vehicles, reduction of raw material waste, and optimization of distribution routes are examples of such implementation. Effective storage systems can also reduce product damage, thereby minimizing food waste. Research by Dekker et al. explains that green logistics can reduce emissions while improving operational efficiency (Dekker et al., 2012: 673). Meanwhile, Genovese et al. emphasize that supply chain sustainability is closely related to the circular economy and resource efficiency (Genovese et al., 2017: 349). Therefore, the development of halal supply chains is highly relevant to the environmental agenda of urban areas.

Despite its strong potential, the implementation of this concept still faces various practical challenges. Many micro, small, and medium enterprises (MSMEs) do not yet understand the importance of separating halal and non-halal products during distribution. The investment costs of logistics technology are also still perceived as high by many business actors. Research by Ab Talib et al. identifies limited resources and insufficient knowledge as the main barriers to halal logistics implementation among small enterprises (Ab Talib et al., 2015: 95). Other findings emphasize that the lack of operational standards creates inconsistencies in halal service quality across regions (Khan et al., 2019: 49).

Therefore, realistic and adaptive implementation strategies are needed according to the characteristics of Indonesian cities.

Major cities in Indonesia have high consumption levels and increasingly complex distribution networks. The growth of digital commerce has also accelerated the daily movement of goods. This condition requires logistics systems that are fast, accurate, and trustworthy in order to meet public needs efficiently. According to UN-Habitat, urbanization without effective distribution governance will intensify pressure on urban infrastructure (UN-Habitat, 2022: 38). Meanwhile, the World Economic Forum argues that smart logistics transformation is the key to the competitiveness of future cities (WEF, 2023: 17). Therefore, the adoption of halal supply chains is highly relevant for addressing contemporary urban challenges.

Academically, this research is important because it expands the discourse of halal from product certification issues to the governance of urban distribution systems. This approach offers a new perspective that halal is not merely a matter of religious compliance but also part of urban development innovation. The study connects two fields that have often been treated separately, namely the halal economy and urban sustainability. According to Giddings et al., sustainable development requires integration among economic, social, and environmental systems within public policy (Giddings et al., 2002: 188). On the other hand, Tieman asserts that halal supply chains represent a new paradigm in global logistics management (Tieman, 2011: 21). Thus, this research has the potential to provide both theoretical and practical contributions.

Based on the above discussion, the implementation of the halal supply chain concept has high urgency in supporting the realization of sustainable cities. This system is capable of simultaneously addressing the need for halal assurance, economic efficiency, and environmental protection. The challenges of urbanization and growing consumption require a more innovative, transparent, and integrated distribution model. At the same time, the potential of Indonesia's halal market offers significant opportunities to encourage urban economic transformation. In line with findings from previous studies, the integration of halal principles and sustainability represents a new direction for the development of future cities (Khan et al., 2019: 52; Genovese et al., 2017: 351). Therefore, this research is directed toward analyzing the effective implementation of the halal supply chain concept within the context of Indonesian urban areas.

RESEARCH METHODE

This study employed a qualitative approach using the narrative literature review method. This method was selected because the study focuses on examining, synthesizing, and interpreting various bodies of literature related to the implementation of halal supply chains in supporting sustainable cities. A qualitative approach was used to gain an in-depth understanding of social and conceptual

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phenomena through the analysis of meaning, context, and the relationships among the variables under investigation. Meanwhile, a narrative literature review enables researchers to systematically construct theoretical arguments from various relevant sources (Creswell, 2014: 186). Snyder emphasized that a narrative review is useful for mapping conceptual developments and broadening research perspectives (Snyder, 2019: 335).

The data sources consisted of secondary data derived from national and international journal articles, academic books, conference proceedings, reports from official institutions, government regulations, and relevant documents from global organizations. The literature focused on themes such as halal supply chain, halal logistics, urban sustainability, green logistics, smart city, and sustainable urban development. References were selected purposively by considering topic relevance, source credibility, and publication recency in order to ensure a strong academic foundation for the findings. In qualitative research, the selection of data sources should be based on the depth of information rather than merely the quantity of available data (Moleong, 2018: 224). Ridley also explained that the quality of a literature review is determined by the researcher's ability to select authoritative references that fit the research context (Ridley, 2012: 41).

Data collection was conducted through a systematic literature search across various academic databases, including Google Scholar, Scopus, ScienceDirect, SpringerLink, Taylor & Francis, and nationally accredited journal portals. The keywords used included halal supply chain, halal logistics, urban logistics, smart city, green logistics, and sustainable city. All identified documents were then screened based on their relevance to the research focus, so that only appropriate sources were included in the analysis process. A structured literature search process is essential to ensure transparency and traceability of data sources (Booth et al., 2016: 87). Hart added that a high-quality literature review must clearly demonstrate the processes of identification, selection, and evaluation of the literature (Hart, 2018: 95).

The data analysis technique employed a narrative analysis model that emphasizes interpretation and the construction of scientific arguments from multiple sources. The stages of analysis included: (1) identifying the main issues from each source; (2) classifying themes into categories such as the concept of halal supply chain, economic dimensions, social dimensions, environmental dimensions, and urban implementation; (3) comparing research findings to identify similarities, differences, and research gaps; and (4) conducting narrative synthesis to develop a new framework of understanding aligned with the objectives of the study. Narrative analysis enables researchers to connect diverse findings in a logical and contextual manner (Gall et al., 2003: 291). Snyder explained that the synthesis stage in a

narrative review aims to generate new insights from previous studies (Snyder, 2019: 336).

To ensure data validity, this study applied source triangulation by comparing information from different references. In addition, a critical evaluation was conducted regarding the consistency of findings, theoretical arguments, and contextual relevance of each source used. In qualitative research, validity lies not only in the data itself, but also in the accuracy of the researcher's interpretation of that data. Therefore, the use of multiple sources is important to strengthen the objectivity of the findings (Denzin & Lincoln, 2011: 13). Creswell added that triangulation is a key strategy for enhancing the credibility of qualitative research (Creswell, 2014: 251). Through this approach, the study is expected to produce an in-depth, systematic, and comprehensive analysis of the implementation of halal supply chains as a strategic instrument for supporting sustainable urban development.

RESULT AND DISCUSSION

The Concept of Halal Supply Chain

The concept of the halal supply chain is an extension of supply chain management that emphasizes the preservation of halal status from raw materials until the product reaches the final consumer. This approach emerged because halal certification of the product alone is considered insufficient to guarantee the integrity of the distribution process. In conventional systems, primary attention is often focused on cost efficiency and delivery speed, while halal compliance has not always been prioritized. In fact, contamination risks may arise during storage, transportation, and product handling. Therefore, the halal supply chain integrates Sharia values with modern management principles. Tieman stated that halal integrity must be maintained throughout the entire supply chain (Tieman, 2011: 12). Khan also emphasized that consumers increasingly demand transparency in halal distribution processes (Khan et al., 2019: 44).

Conceptually, the halal supply chain is not merely concerned with the prohibition of non-halal materials, but also with procedures, governance, and quality control systems. Every actor in the supply chain must understand halal standards according to their respective functions. Producers are responsible for materials and production processes, while distributors ensure product safety during delivery. Warehouses must implement clear segregation to prevent the mixing of halal and non-halal goods. Thus, the success of this system depends heavily on coordination among business actors. Tieman explained the importance of facility segregation in halal logistics (Tieman, 2013: 5). Zailani stated that organizational commitment determines the effectiveness of halal supply chain implementation (Zailani et al., 2017: 63).

One of the main dimensions of the halal supply chain is traceability, or the ability to track the origin and movement of products. Modern consumers not only want to know

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the halal label but also the processes products undergo before consumption. This traceability enhances market trust and strengthens corporate reputation. In practice, traceability systems require proper documentation and data exchange among business actors. Without traceability, halal claims are difficult to verify objectively. Casino explained that blockchain technology improves transparency in global supply chains (Casino et al., 2019: 63). Ivanov added that digitalization accelerates the validation of distribution information (Ivanov et al., 2020: 112).

Another important principle in the halal supply chain is the physical segregation between halal and non-halal products. This separation applies to vehicles, warehouses, transport equipment, and storage areas. Its objective is to prevent cross-contamination that could compromise the halal status of a product. In the food industry, even minor contamination may significantly affect consumer perceptions. Therefore, companies need to establish detailed and measurable standard operating procedures. Tieman emphasized that segregation is the core of modern halal logistics (Tieman, 2011: 18). Ab Talib noted that clear SOPs reduce the risk of failure in halal implementation (Ab Talib et al., 2015: 91).

From an economic perspective, the halal supply chain provides benefits in the form of enhanced business competitiveness. Companies capable of guaranteeing halal integrity tend to be more trusted in both domestic and international markets. This trust affects customer loyalty and market expansion. Furthermore, a well-organized system also helps reduce waste and distribution errors. In other words, religious values and business values can operate simultaneously. Ali showed that halal supply chain practices positively influence customer satisfaction (Ali et al., 2018: 102). Mukhtar also found that halal credibility encourages consumer loyalty (Mukhtar & Butt, 2012: 110).

The halal supply chain is also closely related to risk management. In global supply chains, products often pass through multiple parties and across countries, thereby increasing the potential for deviations. Risks may include product mixing, document falsification, distribution delays, or product damage. Through halal monitoring systems, companies can identify critical points and conduct early mitigation. This approach is particularly important for the food and pharmaceutical industries. Khan mentioned that reputational risk becomes a major threat when halal violations occur (Khan et al., 2019: 49). Rodrigue explained that logistics control reduces operational uncertainty (Rodrigue, 2020: 88).

In practice, halal certification serves as a key supporting instrument. Certification functions as a formal standard that connects producers, distributors, and consumers within a framework of trust. However, certification will be more effective when accompanied by distribution audits and periodic supervision. Without post-production monitoring,

halal status may be compromised during the product's journey to the market. Therefore, many countries have begun developing more comprehensive halal logistics standards. Tieman argued that certification should be expanded to logistics and warehousing areas (Tieman, 2013: 7). Zailani noted that regular audits improve organizational compliance (Zailani et al., 2017: 70).

Advancements in information technology have accelerated the transformation of halal supply chains toward intelligent systems. Digital sensors, barcodes, RFID, and mobile applications facilitate monitoring of product location and condition. These technologies enable rapid responses when distribution disruptions occur. For consumers, access to digital information increases confidence in purchased products. On the other hand, companies obtain valuable data for evaluating logistics performance. Ivanov explained that digital supply chains are more adaptive to market changes (Ivanov et al., 2020: 115). Casino emphasized that technology improves data reliability among stakeholders (Casino et al., 2019: 66).

Micro, Small, and Medium Enterprises (MSMEs) hold an important position in the development of halal supply chains, particularly in developing countries. Many halal products originate from small businesses closely connected to everyday community needs. However, limited capital and knowledge often hinder the implementation of halal logistics standards. Therefore, training, assistance, and affordable technological access are necessary. If MSMEs can integrate into the halal supply chain system, the economic impact will be broader. Ab Talib explained that institutional support is crucial for small enterprises in adopting halal systems (Ab Talib et al., 2015: 95). Haryotejo added that strengthening MSME logistics capacity enhances national competitiveness (Haryotejo, 2021: 34).

From the consumer perspective, the halal supply chain increases certainty and convenience in purchasing decisions. Consumers do not need to doubt the distribution process when monitoring systems function effectively. High levels of trust will encourage repeat purchases and word-of-mouth promotion. In competitive markets, psychological aspects such as a sense of security carry substantial economic value. Therefore, companies should view halal supply chains as a long-term investment. Lada showed that the intention to purchase halal products is influenced by consumer beliefs (Lada et al., 2009: 72). Mukhtar emphasized that perceptions of halal quality strengthen market loyalty (Mukhtar & Butt, 2012: 110).

The halal supply chain also supports sustainability principles through process efficiency. Well-planned distribution routes reduce fuel consumption and delivery time. Effective storage systems minimize product damage and waste. The use of appropriate packaging can reduce environmental burdens without compromising product safety. Thus, the halal supply chain does not contradict the sustainability agenda; rather, the two

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are complementary. Dekker explained that green logistics improves efficiency while reducing emissions (Dekker et al., 2012: 673). Genovese stated that sustainable supply chains are closely related to the circular economy (Genovese et al., 2017: 349).

Institutionally, the implementation of halal supply chains requires clear regulations. Governments play a role in establishing standards, monitoring systems, and incentives for business actors. Without consistent policies, adoption in the private sector will proceed slowly and unevenly. Regulation is also important to harmonize perceptions across regions and certification bodies. In the global context, harmonized standards can facilitate cross-border trade. Freeman emphasized the importance of institutional coordination in modern governance (Freeman, 1984: 46). Tieman noted that public policy strongly influences the development of the halal ecosystem (Tieman, 2011: 21).

Although promising, halal supply chains still face implementation cost challenges. Investments in dedicated vehicles, segregated warehouses, digital systems, and human resource training require substantial funds. For large companies, these requirements are relatively easier to fulfill than for small enterprises. However, such initial costs can be viewed as investments in long-term reputation and efficiency. With the halal market continuing to grow, economic benefits may exceed implementation costs. Ab Talib recorded that cost is a major initial barrier in adopting halal logistics (Ab Talib et al., 2015: 95). Ali showed that long-term market benefits are significant for adaptive firms (Ali et al., 2018: 102).

From a global perspective, the halal supply chain has developed into a new competitive standard. Countries such as Malaysia, the United Arab Emirates, and several European nations have begun strengthening halal logistics infrastructure. Competition is no longer limited to product quality, but also includes distribution credibility. This creates both opportunities and challenges for developing countries to enhance their logistics capacity. If left behind, domestic markets may be dominated by imported products with better systems. Thomson Reuters identified the halal industry as a strategic global economic sector (Thomson Reuters & DinarStandard, 2023: 15). Khan added that halal logistics has become a differentiating factor in international competitiveness (Khan et al., 2019: 52).

Based on the above discussion, the halal supply chain can be understood as a distribution system that combines halal integrity, business efficiency, technology, and sustainability. This concept is relevant not only to the food industry but also to pharmaceuticals, cosmetics, and digital trade. Effective implementation requires collaboration among government, business actors, and society. The higher the level of consumer awareness, the greater the need for a trustworthy system. Therefore, the halal supply chain will continue to be an important agenda in the modern economy. Tieman

stated that the future of the halal industry depends heavily on the quality of its supply chain (Tieman, 2013: 9). Zailani emphasized that multi-stakeholder commitment determines long-term implementation success (Zailani et al., 2017: 72).

The Concept of Halal Supply Chain in Urban Areas

Urban areas are the spaces that most require distribution systems that are fast, orderly, and reliable. Population density and high economic activity cause the flow of goods to occur daily in large volumes. Under such conditions, the halal supply chain becomes relevant because it is capable of maintaining both product quality and certainty of halal status. Modern cities must not only provide access to goods, but also ensure safety and compliance with standards. Therefore, the integration of halal supply chains into urban governance has become a strategic necessity. Rodrigue explained that urban logistics is the foundation of the modern city economy (Rodrigue, 2020: 77). Taniguchi added that city distribution requires efficient and coordinated systems (Taniguchi et al., 2014: 28).

In large cities, public consumption patterns tend to be high and diverse. Demand for ready-to-eat food, retail products, pharmaceuticals, and online services continues to increase. This condition expands distribution channels and increases the complexity of halal supervision. Without a sound system, the risks of delays, product mixing, and inaccurate information become greater. Therefore, halal supply chains help organize distribution processes so that they remain controlled. Khan argued that the complexity of urban markets requires higher logistics transparency (Khan et al., 2019: 44). Ivanov stated that distribution complexity can be managed through digital data integration (Ivanov et al., 2020: 112).

One of the major challenges in cities is traffic congestion, which hampers the distribution of goods. Delivery delays increase operational costs and reduce service quality. In the context of sensitive products such as fresh food, delays may also lower product quality. Halal supply chains encourage route optimization, delivery scheduling, and better fleet coordination. In this way, distribution systems become more efficient and responsive. Taniguchi explained that effective route management reduces the transportation burden of cities (Taniguchi et al., 2014: 41). Rodrigue emphasized that efficient freight mobility increases the competitiveness of urban regions (Rodrigue, 2020: 88).

Sustainable cities require reductions in carbon emissions from transportation and logistics sectors. Goods delivery activities are often a significant source of air pollution in densely populated areas. Halal supply chains can be integrated with green logistics concepts through low-emission vehicles and scheduled deliveries. The use of navigation technologies also helps reduce empty trips and energy waste. Thus, halal supply chains

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make a direct contribution to the urban environmental agenda. Dekker stated that green logistics reduces the ecological impact of distribution (Dekker et al., 2012: 673). Genovese emphasized that supply chain sustainability is closely related to resource efficiency (Genovese et al., 2017: 349).

The growth of e-commerce in cities has accelerated the need for adaptive logistics systems. Consumers demand fast delivery, real-time information, and guarantees of product quality. In digital markets, seller reputation depends heavily on customer experience during the delivery process. Halal supply chains provide added value by offering halal assurance alongside modern services. This becomes a competitive advantage for urban business actors. Ivanov explained that digital supply chains improve business resilience in the e-commerce era (Ivanov et al., 2020: 115). Casino added that digital transparency strengthens consumer trust (Casino et al., 2019: 66).

In many cities, the presence of MSMEs is a key driver of the local economy. Most food, retail, and community-based service businesses operate on a small to medium scale. If MSMEs are able to enter the halal supply chain ecosystem, the economic benefits for cities will become more inclusive. However, MSMEs require access to training, financing, and adequate technology. Without such support, capacity gaps among business actors will continue to exist. Ab Talib emphasized the importance of institutional support for halal logistics adoption among small enterprises (Ab Talib et al., 2015: 95). Haryotejo stated that strengthening MSMEs improves regional economic resilience (Haryotejo, 2021: 34).

Urban spatial planning is also related to the implementation of halal supply chains. The locations of warehouses, distribution centers, markets, and industrial zones affect the efficiency of goods flows. Poor placement of logistics facilities may increase travel distance and distribution costs. Conversely, well-planned spatial arrangements encourage faster and lower-emission distribution. Therefore, halal supply chains should be considered in long-term urban planning. UN-Habitat assessed logistics integration as important in sustainable city design (UN-Habitat, 2022: 38). The World Economic Forum stated that smart infrastructure determines the competitiveness of future cities (WEF, 2023: 17).

Urban consumers generally have broader access to information and higher levels of quality awareness. They tend to pay greater attention to product origins, food safety, and the clarity of halal certification. This condition encourages companies to continuously improve distribution standards. Halal supply chains provide an answer to increasingly critical market demands. This system helps build a professional and trustworthy business image. Lada explained that purchasing decisions are influenced by

confidence in halal attributes (Lada et al., 2009: 72). Mukhtar added that brand trust strengthens customer loyalty (Mukhtar & Butt, 2012: 110).

The role of city governments is crucial in determining the success of halal supply chain implementation. Governments can provide regulations, incentives, logistics zones, and integrated monitoring systems. In addition, they can facilitate collaboration among business actors, academics, and communities. Without strong policy leadership, the transformation of distribution systems will proceed slowly. Therefore, urban governance must be directed toward sustainable logistics innovation. Freeman explained that public policy requires coordination among multiple stakeholders (Freeman, 1984: 46). Tieman emphasized that regulatory support accelerates the growth of the halal ecosystem (Tieman, 2011: 21).

In the social context, halal supply chains in urban areas strengthen public confidence in products circulating widely in the market. Consumption safety becomes an important issue in cities because market interactions are rapid and anonymous. Transparent distribution systems reduce consumer uncertainty regarding purchased products. Such trust contributes to local economic stability and positive relationships between business actors and society. Thus, the benefits of halal supply chains are not merely commercial. Ali showed that customer trust increases corporate value (Ali et al., 2018: 102). Zailani stated that halal integrity strengthens business reputation (Zailani et al., 2017: 70).

The urban food sector greatly benefits from the implementation of halal supply chains. Restaurants, supermarkets, catering services, and delivery platforms require strict distribution standards. Perishable products require timely delivery and hygienic storage. When combined with halal principles, service quality improves comprehensively. This is important because the food sector is a daily necessity for urban communities. Tieman noted that food is the most sensitive sector in halal logistics (Tieman, 2013: 7). Khan emphasized that distribution quality affects perceptions of food safety (Khan et al., 2019: 49).

Despite its strong potential, cities in developing countries still face implementation barriers. Logistics infrastructure remains uneven, land costs are high, and inter-agency coordination is often suboptimal. In addition, some business actors still perceive halal merely as a product label. This perspective causes distribution improvements to be frequently neglected. Therefore, education and institutional reform have become urgent needs. Ab Talib stated that low awareness is a major obstacle to halal logistics adoption (Ab Talib et al., 2015: 95). Tieman emphasized that a paradigm shift is necessary to build a comprehensive halal system (Tieman, 2011: 18).

Looking ahead, the smart city concept offers major opportunities for strengthening urban halal supply chains. Traffic sensors, data analytics, and digital

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platforms can be used to manage distribution in real time. Such information helps governments and business actors make more accurate decisions. This integration will improve efficiency while enhancing the quality of public services. In other words, halal supply chains can become part of smart city transformation. Ivanov explained that real-time data increases supply chain agility (Ivanov et al., 2020: 115). The World Economic Forum assessed that smart cities require digitally connected logistics systems (WEF, 2023: 17).

From the perspective of economic development, halal supply chains can become a new identity for competitive cities. Cities that successfully build halal ecosystems have opportunities to attract investment, tourists, and new trade flows. City branding based on halal principles and sustainability also has strategic value in the global market. This is highly relevant for cities with Muslim-majority populations. With effective governance, such an identity can become a new source of growth. Thomson Reuters identified the halal economy as an expanding global market (Thomson Reuters & DinarStandard, 2023: 15). Genovese stated that supply chain innovation drives sustainable regional growth (Genovese et al., 2017: 351).

Overall, the halal supply chain in urban areas is a strategic approach that connects market needs, urban governance, and environmental sustainability. This system is capable of addressing modern distribution challenges while fulfilling the demands of Muslim consumers. Successful implementation requires support from technology, policy, infrastructure, and multi-stakeholder collaboration. The more complex cities become, the greater the need for orderly and reliable distribution systems. Therefore, halal supply chains deserve to be positioned as part of the future urban development agenda. Rodrigue emphasized that the future of cities depends on logistics efficiency (Rodrigue, 2020: 88). Tieman stated that the competitiveness of the halal industry is strongly determined by distribution quality (Tieman, 2013: 9).

CONCLUSION

The implementation of the halal supply chain concept has a strategic role in supporting sustainable urban development because it is capable of integrating economic, social, and environmental aspects within a single distribution system. The halal supply chain not only serves to maintain the halal integrity of products from upstream to downstream, but also improves logistics efficiency, strengthens consumer trust, and enhances the competitiveness of business actors. In the urban context, the complexity of goods distribution, high levels of public consumption, and demands for rapid services make the halal supply chain increasingly relevant. The application of this system can

reduce contamination risks, lower operational costs, support emission reduction through green logistics, and improve distribution governance in urban areas.

The successful implementation of halal supply chains requires support from various stakeholders, including governments, business actors, certification bodies, academics, and society. Digitalization, strengthening logistics infrastructure, empowering MSMEs, and integration with the smart city concept are important factors in accelerating the adoption of this system. Based on the findings of this study, the halal supply chain can be positioned as an innovative approach that not only responds to the needs of the halal market, but also serves as a strategic instrument in realizing cities that are inclusive, competitive, modern, and sustainable. Further research is recommended to examine the empirical implementation of this concept in specific cities or industrial sectors in Indonesia..

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