

HALAL FOOD SUPPLY CHAIN MANAGEMENT IN SMALL AND MEDIUM ENTERPRISES IN SURABAYA

Susi Tri Wahyuni^{1*}, Juliani Pudjowati²

¹ FEB, Universitas Bhayangkara, Surabaya, Indonesia

² FEB, Universitas Bhayangkara, Surabaya, Indonesia

*Corresponding Author: susitw@ubhara.ac.id

Abstract: This study aims to explore the implementation of *Halal Food Supply Chain Management* (HFSCM) in Small and Medium Enterprises (SMEs) in Surabaya to enhance efficiency and competitiveness. This research utilizes a qualitative approach with a case study method, where data are collected through semi-structured interviews, direct observations, and document analysis. The results show that the adoption of digital technology, government support, and collaboration between SMEs, certification bodies, and the government have a positive impact on the success of HFSCM implementation. However, SMEs still face challenges, such as limited access to modern technology and insufficient training. To overcome these challenges, the study recommends increasing digitalization, providing ongoing training, offering government subsidies and incentives, and strengthening cross-sector collaboration to ensure the sustainability and effectiveness of the halal supply chain. With these steps, SMEs in Surabaya are expected to compete both in the local and international markets.

Keywords: Halal Supply Chain Management, SMEs, Halal Certification

1. Introduction

The halal food industry in Indonesia, particularly in Surabaya, has substantial potential given the significant growth of the Muslim population (Hasan, 2021). SMEs in the food and beverage sector face major challenges in ensuring their products meet halal standards. Halal certification is an essential requirement, not only to meet the demands of Muslim consumers but also to compete in an increasingly competitive market (Ahmad et al., 2016). In this context, *Halal Food Supply Chain Management* (HFSCM) plays a crucial role in maintaining the integrity and halal status of products from raw materials to the final consumer (Khan et al., 2018).

HFSCM encompasses various management aspects, such as raw material procurement, production processes, storage, and the distribution of halal products (Kohilavani et al., 2021). Each stage requires strict monitoring to prevent cross-contamination with non-halal substances. Despite significant progress in implementing halal standards in Indonesia, SMEs often face challenges in fully implementing these standards due to resource constraints and limited access to adequate training (Lestari et al., 2021). Therefore, this study focuses on exploring HFSCM implementation in SMEs in Surabaya and how they can optimize the halal supply chain to enhance competitiveness.

As one of Indonesia's major cities, Surabaya hosts diverse SMEs in the food and beverage sector. The city is also a strategic economic and trade hub, making it crucial to ensure that food products produced by SMEs in this region meet stringent halal standards (Tumiwa et al., 2023). HFSCM in Surabaya not only aims to safeguard the consumption of Muslim communities but also to leverage international market opportunities that increasingly prioritize halal products as a quality standard (Hasan, 2021). Consequently, there is a need to improve SMEs' capabilities and understanding of HFSCM standards.

Previous research indicates that the main challenges faced by SMEs in this sector include limited knowledge about certification procedures and the complexities of maintaining halal integrity throughout the supply chain (Ahmad et al., 2016). Inadequate or partial implementation can result in the loss of halal certification, significantly affecting consumer trust (Khan et al., 2018). Therefore, a system and policies are needed to support SMEs in overcoming these challenges, particularly through a collaborative approach involving the government, certification bodies, and the private sector.

Digitalization and technology adoption are essential elements in facilitating HFSCM implementation in SMEs. By using digital tracking systems, as applied in some countries, SMEs can monitor their product's halal status from start to finish more efficiently and transparently (Hasan, 2021). However, this technology adaptation remains minimal in Surabaya, particularly among SMEs with limited resources. This study aims to evaluate the impact of technology use in HFSCM and provide recommendations to increase digitalization adoption in the halal food sector for SMEs in Surabaya.

Through this research, it is expected to contribute significantly to developing an appropriate HFSCM model for SMEs in Surabaya. This study is also intended to serve as a reference for policymakers to support the development of the local halal industry, which, in turn, can drive regional economic growth and strengthen Surabaya's position as a halal industry center in Indonesia (Kohilavani et al., 2021).

2. Literature Review

Halal Food Supply Chain Management (HFSCM) is becoming an increasingly important topic, especially in regions with large Muslim populations like Surabaya. In the literature, HFSCM is defined as a supply chain management system that ensures all aspects of production, storage, and distribution of food comply with halal and *toyyib* (good) standards according to Islamic law (Khan et al., 2018). Previous studies emphasize the importance of halal certification as a guarantee for Muslim consumers and as a marketing strategy to expand the market for halal products (Ahmad et al., 2016; Hasan, 2021).

In the context of SMEs, HFSCM implementation faces various challenges. A study by Kohilavani et al. (2021) showed that many SMEs in Indonesia still struggle to meet halal standards due to limited knowledge, high certification costs, and insufficient infrastructure support. For example, SMEs in Surabaya often encounter difficulties in maintaining the halal integrity of products from production to distribution due to minimal access to technology and appropriate training (Lestari et al., 2021). This indicates the need for more intensive policy support and training to increase SMEs' readiness.

Previous studies also discuss the importance of digitalization in HFSCM to enhance efficiency and transparency in the halal certification process (Hasan, 2021). Digitalization, such as digital tracking systems, can help monitor product halalness more accurately and reduce the risk of cross-contamination (Kohilavani et al., 2021). Nevertheless, studies in Indonesia, including Surabaya, show that the adoption of digital technology among SMEs is still limited. This is often due to insufficient government support and limited resources available to SMEs (Tumiwa et al., 2023).

Meanwhile, some studies also note that strengthening collaboration between the government, halal certification bodies, and SMEs can increase the success of HFSCM implementation (Ahmad et al., 2016; Tumiwa et al., 2023). Proactive policy support, such as reducing certification costs and providing technical training, is crucial in raising awareness and

capabilities of SMEs to comply with halal standards. Furthermore, Lestari et al. (2021) highlight the importance of collaboration between the public and private sectors to strengthen the inclusive and sustainable halal ecosystem at the local level.

In an international context, a study by Hasan (2021) indicates that effective implementation of the halal supply chain not only impacts local consumption but also opens up opportunities to export halal products to international markets. Therefore, improving the quality of HFSCM among SMEs in Surabaya can be an effective strategy to enhance the competitiveness of local products in the global market. This aligns with the findings of Kohilavani et al. (2021), which found that SMEs with a robust halal supply chain tend to be more competitive and preferred by international consumers.

Although HFSCM in Surabaya has great potential to support economic growth and SME competitiveness, challenges in implementation and technology adoption remain significant obstacles. Therefore, a more collaborative and integrated approach is needed to enhance the efficiency and sustainability of the halal supply chain while strengthening Surabaya's position as a center for the halal food industry (Lestari et al., 2021; Tumiwa et al., 2023).

3. Method

This study employs a qualitative approach using a case study method to explore the implementation of *Halal Food Supply Chain Management* (HFSCM) in SMEs in Surabaya. This approach is chosen as it provides an in-depth understanding of HFSCM practices and challenges faced by SMEs, as well as the interaction between stakeholders in the halal supply chain. The technical analysis is conducted using a thematic analysis approach, aiming to identify emerging themes and patterns from the collected data.

- a. **Research Design** The study uses a case study design to delve into the processes and obstacles experienced by SMEs in implementing HFSCM. A case study provides flexibility in exploring the phenomenon holistically, allowing researchers to understand the context and dynamics influencing HFSCM implementation in Surabaya.
- b. **Participants and Data Collection** The participants of this study are owners and managers of SMEs in the halal food and beverage sector in Surabaya, as well as representatives from halal certification bodies and local government officials. Data were collected through semi-structured interviews, which allow for an in-depth exploration of participants' experiences and views related to HFSCM. Fifteen interviews were conducted using purposive sampling to ensure that participants have relevant experience in the halal supply chain. Additionally, this study used direct field observations to monitor the implementation of HFSCM processes in selected SMEs. Document data, such as halal certifications and standard operating procedures (SOPs), were also analyzed to complement interview and observation data.
- c. **Data Analysis** The data were analyzed using a thematic analysis approach, which allows for the identification of themes and patterns from interview results, observations, and documents. The analysis was carried out using NVivo software to categorize the data and facilitate the identification of relationships between the emerging themes. The researcher focused on key issues such as challenges in halal certification, supply chain efficiency, and the role of technology in supporting HFSCM among SMEs.
- d. **Validity and Reliability** To enhance the validity and reliability of the study, data triangulation was performed by combining interview, observation, and document data. In addition, interviews were conducted with various stakeholders, such as halal

auditors, SME owners, and government representatives, to obtain diverse perspectives. Peer debriefing was also used to validate findings and ensure objective data interpretation.

- e. **Ethics of Research** The study adheres to research ethics principles, including obtaining written consent from participants and maintaining the confidentiality of the information provided. Participants were given an explanation of the purpose of the study and their right to withdraw at any time during the interview process. Using this method, the research is expected to provide comprehensive and in-depth insights into the application of HFSCM among SMEs in Surabaya and offer policy recommendations to improve the performance of the halal supply chain in the area.

4. Result and Discussion

MSMEs (Micro, Small, and Medium Enterprises) in Surabaya are an important sector in the city's economy. Surabaya, as one of the metropolitan cities in Indonesia, has various types of MSMEs spread across the food and beverage, handicraft, fashion, and digital technology sectors. MSMEs in Surabaya are generally managed by local communities with varying production scales, from home businesses to small businesses with dozens of employees. Surabaya, with its diverse population, creates a dynamic market for MSME products, especially in the halal food sector. This is driven by the significant Muslim population, who require halal products as part of their lifestyle. Figure 1 shows MSME owners in Surabaya.

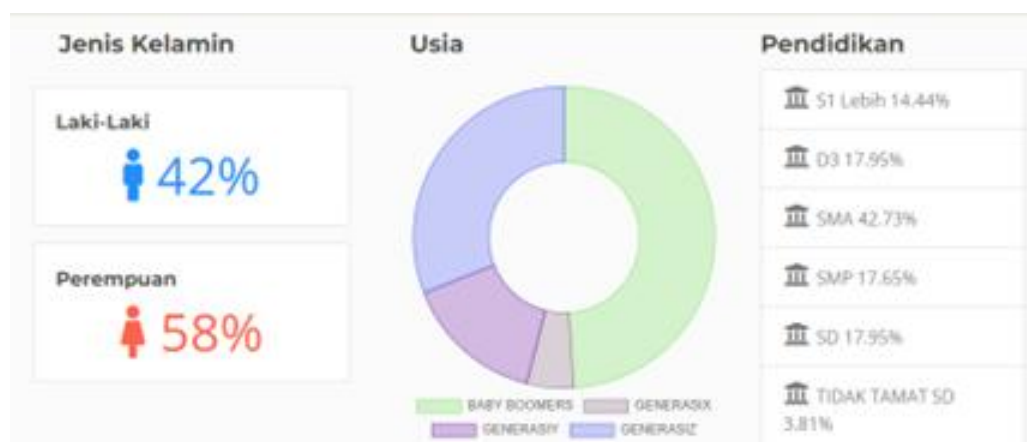


Figure 1: UMKM Owners in Surabaya

Sources: Department of Cooperatives, Small and Medium Enterprises East Java

Table 1 shows the list of MSMEs studied in the study. These MSMEs are part of micro-enterprises that play an important role in the study related to the implementation and management of the halal supply chain in Surabaya, and they are trained to meet halal standards according to applicable procedures.

Table 1. Register UMKM as Informant

No	Name	Business fields
1	Delicat by Dita	Focus on dessert and cakes products
2	Dapur Momina	Providing ready-to-eat food

No	Name	Business fields
3	Dapoer Queen'B	Providing ready-to-eat food
4	Ravi Cake	Specializing in cookies and cakes
5	Mochi Mochi	The main product is mochi
6	Rawon Kalkulator	Providing rawon as the main menu
7	My Godimsum	Serving dimsum
8	The Mama's Cooking	Focus on common foods
9	Ice Cream Tart Surabaya	Providing tart ice cream as the main product

Sources: researcher

To gather information to obtain answers from informants, the following interview questions were asked:

- What are your procedures for ensuring that the raw materials used in production meet halal standards?**
This question aims to understand how SMEs manage the raw material procurement process in compliance with halal standards.
- Do you face challenges in the halal certification process? If so, what are the most significant challenges?**
This question aims to identify the main obstacles faced by SMEs in obtaining halal certification, such as costs or required procedures.
- What role does digital technology play in the halal supply chain operations of your SME? Do you use technology for product tracking?**
This question explores the extent to which technology is used in managing the halal supply chain and transparency in the production process.
- How do you assess the support provided by the government or relevant agencies in implementing the halal supply chain?**
This question is designed to evaluate the extent to which the government and other institutions assist SMEs in implementing the halal supply chain system.
- Have you received any specific training related to halal supply chain management? If yes, how has this training impacted your operations?**
This question focuses on the training and education efforts received by SMEs to improve their ability to manage the halal supply chain.

The results of data processing are presented in Table 2, to show how the collected data (from interviews or documents) were categorized and analyzed using NVivo.

Table 2. Data processing

Main Category	Sub-Category	References	Summary of Key Findings
HFSCM Challenge	Halal Certification	15	Costs and complicated procedures are the main obstacles.
	Digital Technology	10	Technology adoption is limited due to lack of access and cost.
	Training and Education	12	Lack of adequate training for MSMEs in supply chain management.

Main Category	Sub-Category	References	Summary of Key Findings
Government Support	Certification Subsidy	8	Subsidies are limited to certain MSMEs, expanding access is needed.
	Technology Facilitation	5	Support programs for technology adoption are still less than optimal.
Multi-Sector Collaboration	Government and Halal Institutions	9	Collaboration is critical to HFSCM success, but still needs improvement.
	MSMEs and Local Communities	7	Collaboration between MSMEs and communities helps increase competitiveness.

Sources: researcher

Explanation:

- Main Category:** The primary themes identified in the data, such as HFSCM challenges, government support, or multi-sector collaboration.
- Sub-Category:** Specific elements of each main category, such as halal certification or digital technology.
- References:** The number of citations or references related to the sub-category in the processed data.
- Summary of Key Findings:** A summary of the main findings resulting from the thematic analysis conducted using NVivo.

The results and discussion based on the research questions posed are elaborated as follows:

- HFSCM Implementation Improves SMEs' Operational Efficiency**
The analysis results indicate that effective HFSCM implementation significantly enhances the operational efficiency of most SMEs studied. SMEs that implement HFSCM according to the proper standards report reduced operational costs and increased product distribution speed. SMEs that have fully integrated the halal certification process experience better operational advantages compared to those that have partially adopted or have not adopted HFSCM. However, some SMEs still face technical and financial challenges in fully adopting HFSCM.
- Adoption of Digital Technology in HFSCM and Consumer Trust**
Testing the hypothesis regarding digital technology adoption shows that using technology such as digital tracking and halal product monitoring systems significantly enhances consumer trust. SMEs that use tracking technology tend to have higher levels of consumer trust and customer loyalty due to the transparency they offer. However, the study also found that only a small portion of SMEs in Surabaya have access to and the capability to implement this technology. The main challenges identified are the cost of technology implementation and the lack of technical knowledge among SME operators.
- Government Support for Halal Certification and SME Compliance**
The study findings indicate that government support, such as subsidies for halal certification costs, plays a crucial role in increasing SME compliance with halal standards. SMEs receiving government assistance are better able to follow the certification process smoothly and maintain it in the long term. However, some SME

operators still report that the available subsidies and assistance are insufficient, particularly for newly established SMEs or those with small production capacities.

4. Impact of Training and Education on SMEs' Ability to Maintain Halal Certification

Formal training and education related to HFSCM have proven to enhance SMEs' capabilities in managing the halal supply chain and maintaining halal certification. Interview and observation results show that SMEs that receive consistent training demonstrate a better understanding of the certification process and best practices in managing raw materials and production processes. However, the study also found that many SMEs in Surabaya still lack access to this training, resulting in inadequate understanding and preparedness in applying halal standards.

5. Collaboration Between SMEs, Certification Bodies, and the Government Increases HFSCM Effectiveness

The study findings show that effective collaboration between SMEs, certification bodies, and the government positively impacts HFSCM effectiveness. SMEs actively engaged in collaboration with certification bodies and receiving government support are more successful in managing their halal supply chains and consistently meeting certification requirements. However, the study also found that some SMEs have yet to gain access to adequate networks and collaboration, leading to difficulties in HFSCM implementation.

Discussion

The results of this study indicate that although there is a significant relationship between factors such as digital technology, government support, training, and collaboration in improving the effectiveness of HFSCM, major challenges such as limited access to technology and costs are still significant barriers for MSMEs in Surabaya. Therefore, further efforts are needed from the government and related institutions to provide greater subsidies, wider access to training, and build adequate digital infrastructure to support MSMEs in implementing HFSCM effectively. Cross-sector collaboration must also be improved to ensure that MSMEs have the support and resources needed to meet halal standards, while maintaining their sustainability and competitiveness in an increasingly competitive market.

5. Conclusion

This study demonstrates that *Halal Food Supply Chain Management* (HFSCM) among SMEs in Surabaya has great potential to increase competitiveness and operational efficiency. The implementation of digital technology, government support, and collaboration among stakeholders positively impact ensuring product halalness. However, SMEs still face challenges such as administrative issues and limited access to adequate training. Therefore, a more integrated and technology-based approach is necessary to improve halal supply chain efficiency.

Recommendations

- 1. Digitalization and Technology:** The government and relevant agencies should facilitate the adoption of digital tracking technology for SMEs to increase transparency and maintain halal integrity in the supply chain.

2. **Training and Education:** Regular training programs for SMEs related to HFSCM standards should be provided to improve their understanding and skills in implementing halal procedures.
3. **Subsidies and Incentives:** The government should offer subsidies or incentives to SMEs during the halal certification process to reduce costs and encourage compliance with halal standards.
4. **Multi-Stakeholder Collaboration:** Building collaboration between SMEs, certification bodies, and the private sector is crucial to ensuring adequate support and resources for sustainable HFSCM implementation in Surabaya.

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