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(AIJBES)www.aijbbs.comEXPLORING THE ADOPTION OF HALAL SUPPLY CHAIN
PRACTICES BY HALAL-CERTIFIED FOOD AND BEVERAGES
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Abstract:

Malaysia's reputation as a global leader in the halal industry has recently been called into question due to concerns over the integrity of halal food products. Muslim consumers are increasingly skeptical about the authenticity of halal certifications and the practices of manufacturers claiming to adhere to halal standards. This has led to a need for greater transparency and accountability in the halal food supply chain. The concept of halal extends beyond just the food itself to encompass the entire process of production, from handling and packaging to storage and delivery. Halal supply chains (HSCs) must comply with strict criteria to ensure the preservation of halal certification standards throughout the supply chain. However, the extent to which halal-certified food and beverage manufacturers in Malaysia are implementing these practices remains unclear. This paper aims to explore the adoption of halal supply chain practices from the perspective of halal-certified food and beverage manufacturers. The primary research question is: why do halal-certified manufacturers adopt HSC practices? Understanding the motivations behind HSC adoption is essential for enhancing consumer trust and ensuring the integrity of halal food products. The findings will provide valuable insights into the current state of the halal industry in Malaysia and offer recommendations for strengthening its position as a global leader in the halal market.

Keywords:

Exploratory Study, Halal Food, Halal Supply Chain

Introduction

The term "halal" refers to anything that is permissible in Islam and beneficial for human beings (Azam and Abdullah 2021). This concept is grounded in Islamic law, which guides Muslims in determining the halal status of products and services. The distinction between halal (permitted) and haram (forbidden) is a fundamental aspect of Islamic practice. Halal also establishes specific guidelines for consumption that align with Islamic values. Consequently, Muslims are required to consume only halal products, while haram items are strictly prohibited, and any products of uncertain status should be avoided (Al-Qaradawi 1999; Azam and Abdullah 2021; Khan and Haleem 2016; Khan, Haleem, and Khan 2018).

Halal food encompasses meat and poultry, and incorporates processed food, dairy products, food ingredients and even non-food products. This industry has been recognized as the new engine of economic growth and is now one of the fastest growing markets globally with projections indicating it could reach approximately USD 4,569.69 billion by 2030, expanding at a compound annual growth rate (CAGR) of 9.33% from 2024 to 2030. As of 2023, the market was valued at USD 2,447.44 billion. This growth is significantly driven by the expanding Muslim population, which is projected to exceed 2.76 billion by 2030, accounting for 29.7% of the global population.(Dinar Standard 2020)

In Malaysia, the halal industry has significantly impacted the national GDP, contributing approximately 7.5% in 2020 and projected to reach nearly 11% by 2030. The halal market is expected to grow to RM523.53 billion (USD 113.2 billion) by 2030, reflecting a robust growth trajectory (Nor, Ahmad, and Ariffin 2023). The domestic halal product market was valued at RM59.46 billion (USD 12.89 billion) in 2022, with forecasts indicating it could reach RM70 billion (USD 15.19 billion) by 2030. The halal food and beverage sector in Malaysia remains highly competitive, featuring a diverse mix of small and medium enterprises (SMEs) alongside local and foreign multinational corporations (MNCs). The largest component of the halal economy is the food services sector, with business revenue in this sector estimated at USD 31 billion in 2021, expected to grow to USD 47.6 billion by 2025 (Dinar Standard 2020). The Malaysian government continues to support the halal industry through initiatives like the Halal Industry Development Corporation and the Halal Industry Master Plan, reinforcing its commitment to making Malaysia a global halal hub (HDC 2020; Times 2020).

Halal supply chain(HSC) refers to the process of managing a halal network with the goal of maintaining halal integrity from the raw material sourcing stage to the point of sale to consumers. The objective is to ensure that halal products are delivered to consumers while adhering to Shariah law throughout the entire supply chain (Tieman 2015, 2020).

The halal supply chain (HSC) is complex and detailed because it required adherence to strict criteria that ensure the preservation of halal certification across all stages of production, from handling and packaging to storage and delivery. The halal concept extends beyond just the food itself; it encompasses the entire process involved in bringing halal products to market (Azmi, Abdullah, Bakri, Musa, et al. 2018; Islam, Ab Talib, and Muhamad 2024; Khan et al. 2018; Rejeb, Rejeb, and Zailani 2021; Rusydiana et al. 2023); the growth of halal market forced force halal producer to extent halal towards the point of customer purchase However, the critical question remains: do halal-certified food and beverage manufacturers genuinely implement halal practices throughout their supply chain activities?

Recent studies indicate that trust is a vital component in halal food production. Muslim consumers expect that halal products not only meet dietary laws but also adhere to high standards of safety, hygiene, and quality. The Malaysian halal certification system, governed by the Department of Islamic Development Malaysia (JAKIM), mandates compliance with the MS1500:2009 standard, which outlines guidelines for the production, preparation, handling, and storage of halal food. Despite these regulations, instances of halal logo misuse and contamination issues, such as the detection of non-halal ingredients, have raised serious concerns about the integrity of halal claims made by manufacturers. This paper aims to explore the adoption of halal supply chain practices from the perspective of halal-certified food and beverage manufacturers. The primary research question is: why do halal-certified manufacturers adopt HSC practices? Understanding the motivations behind HSC adoption is essential for enhancing consumer trust and ensuring the integrity of halal food products.

Research Methodology

The purpose of this study is to investigate the challenges faced in the adoption of halal supply chain practices from the perspective of halal-certified food and beverage manufacturers. This study involved interviews with five halal-certified food and beverage manufacturers, identified through purposive sampling, to gain a deeper understanding of the current landscape. By focusing on the experiences and insights of these key informants, the research aims to shed light on the complexities and challenges associated with implementing halal supply chain practices effectively. Table 1 shows an information about samples of the study. Semi – structured interviews were conducted on the individual, through telephone conversation

Table 1: List of Participants

No.	Company	Participant
A	Halal certified manufacturing company which produces premix beverages	Owner
B	Halal certified food producer - products such as soy sauce, chili sauce, tomato sauce, and oyster sauce	Owner
C	Halal certified manufacturing company which specializes in offering a wide variety of halal brand product like toothpaste, toothbrush, shower gel and Vitamin soft gel	Senior general manager
D	Halal certified retailer and distributor for halal food and beverages products	Operation manager
E	Halal certified food and beverages manufacturer producing sambal belacan paste	Owner

The respondents selected for this study are individuals holding senior positions within their respective companies, chosen for their extensive knowledge and experience in the field of halal supply chain management. During the interviews, these respondents were asked to provide their comments and opinions on various issues and aspects of their businesses related to halal supply chain practices. To ensure the voluntary participation of the study, each participant was

briefed on the purpose of the study and their rights as participants. The interviews ranged in length from 15 to 25 minutes per session. Four key questions were asked during the interviews to elicit deeper and more detailed feedback from the participants:

1. What are the main challenges your company faces in adopting halal supply chain practices?
2. How does your company ensure the integrity of halal products throughout the supply chain?
3. What strategies has your company implemented to maintain halal compliance?
4. In your opinion, what are the critical success factors for effective halal supply chain management?

The responses from these key informants will provide a nuanced understanding of the current state of halal supply chain adoption and help identify areas for improvement and future research.

Analysing Qualitative Data

Data analysis in this study comprised of data transcribing, coding, and analysing. A thematic analysis approach was employed, guided by the six phases suggested by Braun and Clarke (2006):

1. Familiarization with the data through repeated reading of the transcripts
2. Generation of initial codes based on interesting features of the data
3. Collation of codes into potential themes
4. Review of themes to ensure they align with the coded extracts and the entire data set
5. Definition and naming of themes
6. Production of the final report

By following this rigorous data analysis process, the researchers aimed to extract meaningful insights from the interview data and develop a robust thematic structure that captures the key issues surrounding halal supply chain practices in the Malaysian food and beverage industry. Table 2 below showed the Thematic analysis process for this study.

Table 2: Phases of Thematic Analysis

No	Phase	Description of the phase process	Application in this research
1	Familiarizing with data	Transcribing data, reading, and rereading the data, noting down initial ideas.	All the recorded interviews were transcribed. The interview transcripts were read for the first time to get an overview of the halal supply chain implementation.
2	Generating initial codes	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.	Line-by-line coding was conducted by assigning a code to each relevant sentence. This was done by highlighting the relevant sentence or paragraph using a different colour highlighter.

3	Searching for themes	Collating codes into potential themes, gathering all data relevant to each potential theme.	The codes were merged into larger codes which have similar meaning or content. The codes will be merged until there are only a few groups of codes remained.
4	Reviewing themes	Checking if the themes work in relation to the coded extracts	The researcher then incorporates the codes into relevant themes.
5	Defining and naming themes	Ongoing analysis to refine the specifics of each theme and the overall analysis, generating clear definitions and names for each theme	At this stage, the themes were formulated. Three themes were formed in this study: namely the “adoption”, “driving factors” and “benefits”.
6	Producing the report	Selection of vivid, compelling extract examples, final analysis will be relating back to the research question and literature.	The data analysis is completed at this stage. Upon completion, the researcher created the connections between each theme in the report write up of research findings.

All the data analysis in this study was done manually and there were two main categories of themes for this study:

1. Adoption of halal supply chain
2. Factors influencing the implementation of halal supply chain, and

The codes derived from the number of responses calculated. The number is calculated as many times as the word is repeated in all the interviews, for example the number of people who responded to the interview was 5 people, so 5 people could repeat the word more than once and therefore the calculation is done based on how many times the word was repeated, not how many people answered.

The followings are the themes and codes derived from this study as shown in Table 3.

Table 3: Themes and Code Derived from the Study

Theme Category	Themes	Code
Adoption of HSC	HSC Understanding	Whole supply chain
		Halal Certification
		Segregation
		Halal Storage/ Warehouse
		Halal Transportation
		Contamination
Factors Influencing the Implementation of HSC	Role of Consumer	Consumer Awareness
		Consumer Concern
		Consumer Understanding
	Role of Government	Government Initiative
		Government Enforcement

		Audit & Inspection
	Role of Competitors	Competitive pressure
	Role of Supplier	Supporting Role
	Level of Organization Readiness	Financial Factors
		Management support
		Availability of Workers
		Technical Knowledge
		Skills & Competency

Result and Findings

Adoption of Halal Supply Chain

Most participants agreed that a primary motivation for businesses to adopt halal supply chain practices is to gain a competitive advantage over their rivals, enhance overall company performance, and build a positive reputation within society. While their commitment to halal integrity is evident, these manufacturers also recognize the importance of generating profits. The interviews revealed that the strategic direction of these companies is heavily influenced by the needs and preferences of their consumers, as described in the following statement:

From my point of view, one of the drivers for engaging in sustainability strategies especially in supply chains is consumer demand for halal food

(Participant A)

... but also consumers' search for halal, safe and healthy products makes companies interested in adopting halal supply chains, in order to ensure the halal and toyyiban.

(Participant B)

On the other hands, Participant C identified the marketing orientation as one of the benefits of halal supply chain, as described below:

The Power of Marketing .. by announcing that the organization is adopting halal supply chain, the organization will be gaining publicity and good image in other words, we can used in advertising and marketing our products.

(Participant C)

Factors Influencing the Implementation of HSC

There are some barriers impeding halal food and beverages manufacturer to adopt halal supply chain. Table 4 below shows the overview of the factors influencing the HSC adoption identified by the participants in this study.

Table 4: Overview of the Factors Influencing the HSC Adoption Identified by the Study Participants

		PARTICIPANT					SCORE
		A	B	C	D	E	
Role of Consumer	Consumer Awareness			X	X	X	3/5
	Consumer Concern	X	X	X	X	X	5/5
	Consumer Understanding		X	X	X		3/5
	Government Initiative	X	X	X	X	X	5/5

Role of Government	Government Enforcement			X	X	X	3/5
	Audit & Inspection			X			1/5
Role of Competitors	Competitive pressure			X			1/5
Role of Supplier	Supporting role				X		1/5
Level of Organizational Readiness	Financial Factors	X	X	X	X	X	5/5
	Management support	X	X	X	X		4/5
	Availability of Workers	X		X	X		3/5
	IT Infrastructure	X		X	X	X	4/5
	Technical Skills & Competency			X	X		2/5

From the interview, it has been found that each halal food and beverages manufacturer have their own views on which factors that have more influence on HSC. Halal supply chain service providers mentioned that consumer awareness, consumer concern, consumer understanding, lack of competitive pressure and lack of regulation and government support could be a reason why most halal manufacturers adopt halal supply chain services. Some of the factors were highlighted by most of participants and there were also some factors that emphasized by only one or two participants.

a. Consumer Concern

Most of their customers is not looking for halal transportation or halal storage, even they are halal certified manufacturers. Since they have a halal logo from JAKIM, they believe that they are not required those halal supply chain services at the mean time. Currently there is no regulation that enforces them to use those services for their products. This is supported by the following statement from Participant B and Participant D:

The main thing about halal is about halal certification. Since we have our halal logo and certified by JAKIM, we believe that we are not required those halal transportation services at the mean time.

(Participant B)

....there is no urgency to do that, it's costly. Currently JAKIM does not enforce us to use halal transportation or halal warehouse. I would also like to add that, for now, the government regulations not strong enough to force industries to adopt these policies.

(Participant D)

Customers will not ask the manufacturer how they handle their supply chain. Halal or not? They just looking at the Halal label.

(Participant B)

When there is no enforcement and lack of encouragement by the government...the situation is going to be like this.

(Participant E)

If government force us by law, like what they did with halal certification, I believe all of halal manufacturers will look for halal supply chain services and implement HSC

(Participant A)

What other competitors did also will not affect us much in halal industry. Even Nestle, or other multinational companies adopting HSC. We will remain with the same operation because we have our own transport and storage.

(Participant C)

Customer pressure is crucial in shaping the business activities of manufacturers because their survival relies on customers' acceptance of their products or services. Businesses must be sensitive to their clients' needs to ensure continued support from them. Several studies claimed that customer pressure has a positive relationship with the decision to adopt the service (Azmi, Abdullah, Bakri, Musa, et al. 2018; Yunan, Ali, and Alam 2020). The finding is in line with previous literature that claims that customer pressure has a positive relationship with the intention to adopt a technology (Marei et al. 2023; Ngah, Zainuddin, and Thurasamy 2017; Salah and Ayyash 2024). Hence, Muslim consumers should start to play their role in pressuring halal manufacturers to adopt HSC. When customers begin to pressure halal food and beverages manufacturers to practice HSC, the manufacturer are more likely to do it because they fear to lose their customers to competitors.

b. Organization Readiness

Halal supply chain is a new approach, and the cost and technical knowledge are something that need to be consider by halal food and beverages manufacturer. This statement supported by Participant C and Participant D:

Halal logistic certification required high initial cost. We are not ready yet. We need equipment and technical knowledge. The cost is something that we consider.....we don't have sufficient workers and lack of IT support for database and information system

(Participant C)

Several academic studies have found positive outcomes related to organizational readiness. Ngah et al. (2017) found that organizational readiness is an adoption driver of halal manufacturers to adopt halal warehousing services in their business. Azmi, Abdullah, Bakri, & Musa, (2018) added that to adopt halal practices, the organization should be prepared in terms of training, planning, systems, and others to meet all requirements of the halal standards. As such, to adopt halal practices, the readiness of organizations is needed to meet the condition and carry out a strategy for achieving the business purpose (Azmi et al. 2019, 2020; Muhamad, Mohamad, and Nor 2021; Zailani et al. 2017)

c. Role of Government

Generally, governments govern by enforcing sets of rules and regulations for business communities, and society at large. The role of government can be divided into following six broad categories: regulation, financial incentives, taxation, infrastructure, guidance and encouragement and education and labour supply. This statement been highlighted by Participant D:

I believe that the lack of modern technology in some factories, is one of the barriers to implementing halal supply chains within organizations.

In my view, the government must play more important role in pushing not only suppliers of large industries but also suppliers of small and medium enterprises like us to take part. The government's participation in providing direct technical knowledge, financial support with incentives for tax cuts and the development of infrastructure will be some indirect encouragement for us.

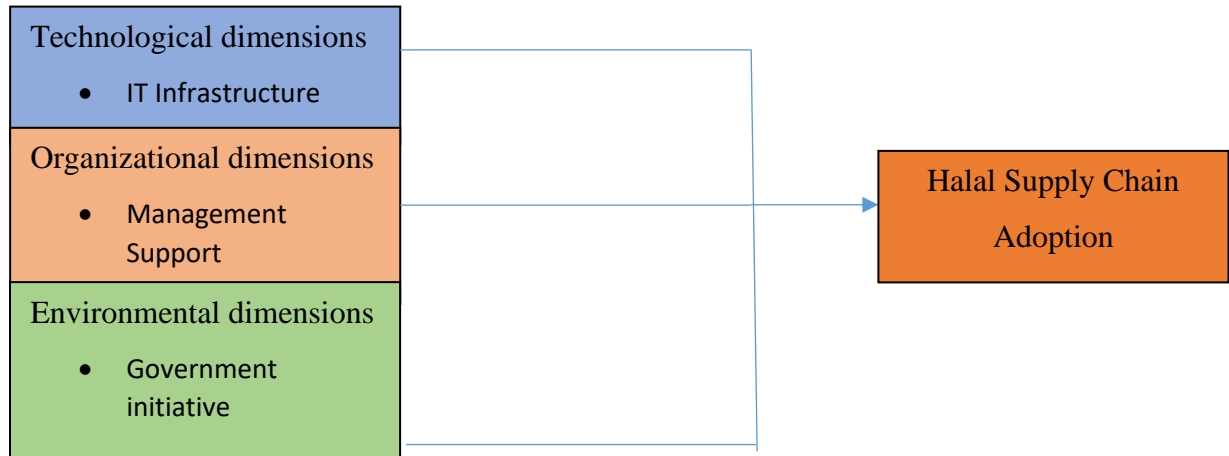
(Participant D)

These suggestions are in line with Ngah et al. (2017) suggestion on the efforts from the government through regulations and enforcement. Government needs to be more assertive in promoting halal supply chain. The role of government in encouraging more logistics firms to offer halal-compliant services is imperative because the push is more symbolic than organisational self-initiatives (Ab Talib, Pang, and Ngah 2020; Marei et al. 2023). Governments should then establish several policy measures to overcome the pressing need for halal trained workforce. Apparently, Tieman (2020) outline the participation of public universities and research institutes to offer structured quality education and vocational training in halal practices and halal logistics because their involvement could tackle the issue of talent deficiencies.

Framework Development

The overall results of this study indicate that the willingness of halal-certified food and beverage manufacturers to adopt halal supply chain (HSC) practices largely depends on both internal and external factors. The effectiveness of an organization is influenced by its alignment with various elements, including the operating environment, organizational size, and strategic direction. Consequently, decision-makers must consider environmental, organizational, and technological factors when determining the adoption of HSC practices. This comprehensive approach ensures that the specific needs and challenges faced by the organization are adequately addressed, ultimately facilitating a more effective implementation of halal supply chain management.

Tornatzky and Fleischer (1990) developed a framework for organizational adoption based on Contingency Theory of Organizations. In this framework, three key determinants were identified that affect organizational adoption: technology, organization, and environment. The TOE framework has become an important model in technology adoption, as it can be applied to different types of organizational innovation adoption (Muhamad et al. 2021; Ngah et al. 2017; Salah and Ayyash 2024; Tarofder et al. 2019). This paper suggests TOE framework to identify the determinants of the adoption of halal supply chain which is in line with Ngah et al., (2017) claimed that researchers should use the TOE framework to identify the determinants in how organizations adopt innovation especially in halal context. Furthermore, as the adoption of supply chain activities is driven by technical features, organizational factors, and environmental factors which are present in the TOE framework will offers a complete view of halal supply chain adoption issues. The TOE framework for the HSC adoption showed in Figure 2 below.

Figure 2: TOE Framework

The Technology-Organization-Environment (TOE) framework specifically addresses the adoption of halal supply chain practices by identifying key factors that influence the decision-making processes of halal-certified manufacturers. Within this framework, three primary contexts are considered: technological, organizational, and environmental.

1. **Technological Context:** This aspect focuses on the technologies relevant to the halal supply chain, including the perceived benefits of adopting halal practices and the compatibility of these practices with existing systems. Manufacturers assess whether the implementation of halal supply chain practices will provide tangible advantages, such as improved efficiency and enhanced product integrity.
2. **Organizational Context:** This context examines the characteristics of the organization itself, including top management support, organizational readiness, and the level of understanding of halal practices among employees. A strong commitment from leadership and a well-prepared workforce are crucial for successful adoption. The framework highlights the importance of organizational culture and awareness of halal principles as significant enablers or barriers to implementation.
3. **Environmental Context:** The external environment plays a critical role in shaping the adoption of halal supply chain practices. Factors such as competitive pressure, customer demand for halal products, and regulatory requirements influence manufacturers' decisions. The framework emphasizes the need for organizations to respond to external market dynamics and consumer expectations to remain competitive in the halal industry.

By utilizing the TOE framework, stakeholders can gain a comprehensive understanding of the enablers and barriers to adopting halal supply chain practices. This holistic approach allows halal-certified manufacturers to identify specific areas for improvement and develop strategies that align with technological advancements, organizational capabilities, and environmental demands, ultimately enhancing the integrity and effectiveness of their halal supply chains.

Conclusion

This exploratory study provides valuable insights into the current state of halal supply chain management from the perspective of key industry players. The findings highlight the importance of considering technological, organizational, and environmental factors when

developing strategies to enhance halal integrity and sustainability in the supply chain. By applying the TOE framework, halal-certified manufacturers can gain a comprehensive understanding of the enablers and barriers to adopting halal supply chain practices. This knowledge can inform the development of targeted interventions and support mechanisms to facilitate the successful implementation of halal supply chain operations and strengthen Malaysia's position as a global halal hub.

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