

A Study on the Improving the Competitiveness through Analysis of Advanced HALAL Logistics Management Status*

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Abstract

The global halal market is forecast to grow at an annual average of 5.2 percent from 2017 to \$3.07 trillion in 2023 due to the high growth rate of the world's Muslim population, the spread of halal-certified food consumption and the economic growth of the Muslim world. Through this study, the difficulty of obtaining halal certification can be overcome through accurate understanding of the general supply chain and other halal supply chain. Also, by examining the trends and requirements of halal logistics standards in countries with advanced halal logistics systems, halal logistics certification agencies, and halal port logistics, we can help establish our own halal logistics system by finding areas that can be benchmarked in Korea and differentiated from those that can be found. For the safe supply chain management of halal products between logistics Supply Chain, an integrated logistics system shall be developed to manage customs and customs as one-stop, while maintaining a complete halal condition on a series of logistics processes such as storage, transportation, customs clearance, etc. Korea, entry into the halal logistics market through halal integrity guarantee solution or platform development can also be considered, taking advantage of the strength of IT and packaging.

Keywords: Halal Logistics. Halal certification, Halal integrity

Major classification: Environmental Safety and Engineering, Other Hospitality Related Areas.

1. Introduction

Thomson Reuters. According to the States of the Global Islamic Economic Report 2018/19, the global halal market is forecast to post an annual growth rate of 5.2 percent from \$2.17 trillion in 2017 to \$3.07 trillion in 2023, except for the financial sector due to the high growth rate of the world's Muslim population, the spread of halal-certified food consumption and Islamic economic growth.

The food sector, which accounts for about 61.8 percent of the Halal market, among others, has seen a significant improvement in the market, with demand also rising as consumers are increasingly interested. In response, global Muslim halal food and beverage consumption is expected to increase from \$1.03 trillion in 2017 to \$1.863 trillion in 2023.

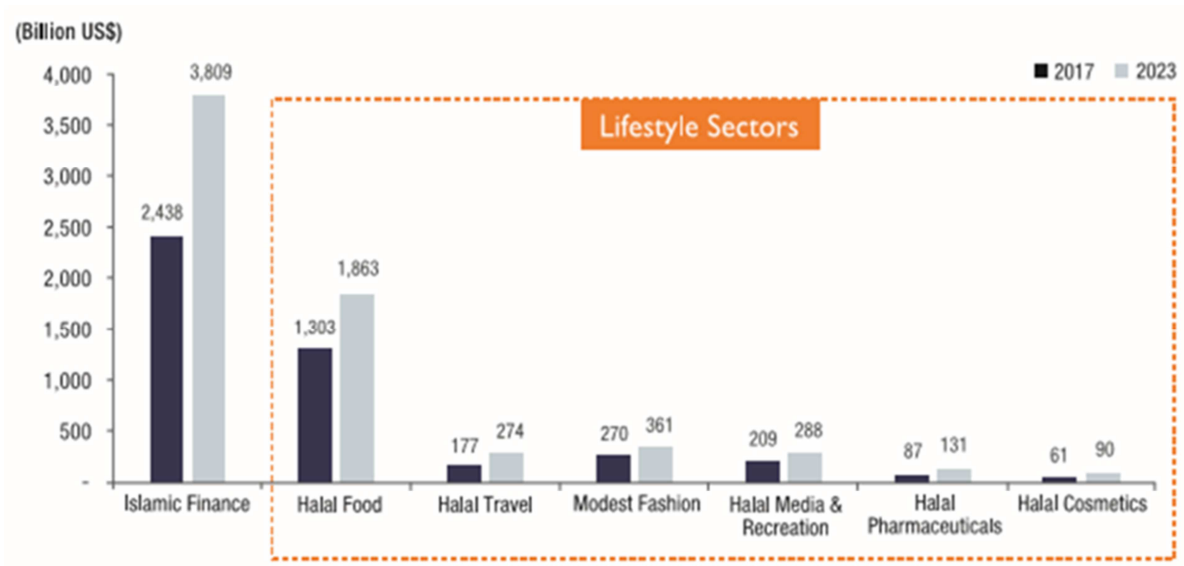
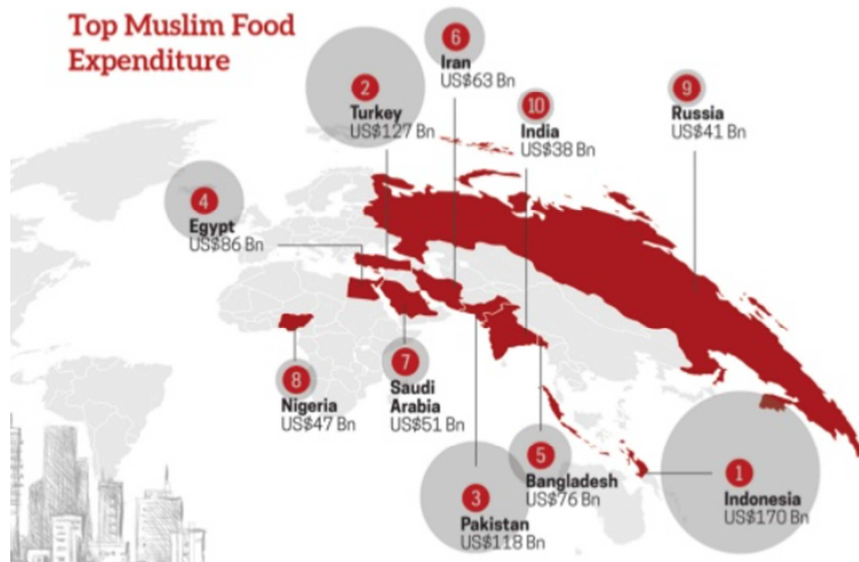


Figure 1: Global Islamic Market Size by Sector

As such, the halal market is seen as a new export market as the growth of the Islamic economy and the scope of the market are expanded to a wide range of sectors such as food, cosmetics, fashion, medicine and tourism, resulting in the expansion of the global halal logistics industry as well as the trade of halal certification products.

Korea has made progress by steadily increasing the number of halal certification items on the back of active support from the government, but it is not enough in terms of international credibility due to lack of infrastructure such as halal lab and lack of halal logistics authentication base.

Under these circumstances, we would like to explore ways to compete in the halal logistics industry by analyzing the status of logistics management in advanced countries that foster the halal logistics industry.



Source: Thomson Reuters (2018)

Figure 2. Halal food consumption market size

Looking at the top Muslim countries with halal food consumption as of 2017, Indonesia is the largest consumer

market with \$ 17 billion. Since then, Turkey, Pakistan, Egypt and Bangladesh have the largest scale, and all five countries have increased their consumption compared to 2016. Considering that the Muslim population is large in the order of Indonesia, Pakistan, India, Bangladesh, and Nigeria, the large number of Muslim populations does not indicate that the halal food consumption market is large.

2. A Study on Theoretical Background and Pre-Research

2.1. Concept of Halal Supply Chain

A common supply chain is to manage the flow of goods and services across a network of customers, businesses and suppliers. Consists of the movement of materials and products from origin to consumption point.

Halal supply chain is a supply chain aimed at preserving the integrity of halal products, which differs from traditional supply chains aimed at minimizing costs and maximizing profits. The halal supply chain makes it a rule that all activities related to the supply chain network must be incorporated into the halal standard. For example, direct contact with non-halal products is strictly prohibited in halal supply chains, and complete separation between halal and non-halal within is mandatory to promote supply chain network halal integrity(Mitrans.2017).

Halal supply chain management includes all aspects and activities that occur along the supply chain network from country of origin to consumer As a key part of the halal project, the halal supply chain includes participants in all supply chains, including vendors, manufacturers, dealers, sellers and end consumers. In addition, the halal supply chain comes within all activities (such as logistics, purchasing, information management, value added, etc.) on the supply chain. (Bahruddin, Illlyas and Desa.2011,7)

Table 1: SCM and Halal SCM

Sortation	SCM	Halal SCM
Definition	Ability to efficiently and effectively plan, implement, and control forward and reverse flow and storage of goods and services and related information between the start and the time of consumption to meet customer requirements	Process for managing the procurement, movement, storage and handling of food, non-food, relevant information and documents through organizations and supply chains in Syria according to general principles.
Goal	Minimum cost, maximum utility	Halal Integrity of Halal Products for End Consumers
Cross-contamination potential	Possible cross-contami	Cross-contamination is the goal of halal supply chain management, so there should be no possibility.
need for separation	No need to separate various products	The need to separate halal products from non-halal products

2.1. Concept of Halal Integrity

Halal integrity's "integrity" means a property with strong moral principles and moral rigidity as being true. Integrity is synonymous with solidarity, consistency, high ethics, integrity and reliability. Halal integrity in halal supply chain means that halal of food and cargo is maintained, safety is guaranteed in the handling and delivery of food and cargo across the entire supply network, and that those who perform the work activities and systems of halal industry are ethical, sincere and trustworthy. The guarantee of halal integrity is a key factor for the development of a reliable halal food supply chain. (Noorsiah et al. 2016).

2.2. Halal Logistics Standards and Requirements (CI-IHI Standard Center)

The International Halal Integrity (IHI) has published 10 ICCI-IHI integrated halal standards with the Islamic Chamber of Commerce and Industry (ICCI), including logistics and refrigeration, food services, cosmetics and toilet paper, drugs, non-meat processed foods, animal welfare methods, and so on. (IHI Alliance homepage)
Manage processes for management related to procurement, transportation, storage and material handling, inventory

of parts, livestock or food and non-food finished products, or flow of documents and information through supply chains and organizations that comply with the general principles of semi-finished products and sharia.

The purpose of the standards is to establish halal standards as international standards that can be recognized in any country as standards made to make international supply chains completely consistent and consistent, which was launched by the World Hal Forum 2010 in Kuala Lumpur.

ICCI-IHI is already used worldwide by local and international operational logistics service providers and is expected to increase further over the next few years as large brand owners (food manufacturers, restaurant chains and retailers) develop an integrated halal supply chain, and has been certified by SchenKer (Malaysia).

The logistics unit is the IHIAS 0100:2010 standard, which provides the needs and procedures for the management of transport, storage and food, livestock and non-food materials through supply chains and operation that comply with Sharia and International Food Safety Management, and this standard is applicable to the operation of storage, transportation, and terminals, but the IHIAS 0600:2010 (Food Culling and Processing) and IHAS 0IAS10.

The IHIAS 0100:2010 Logistics Standard guarantees the physical separation of halal cargo and halal cargo from halal warehouses, transport, terminals and packaging, the basic concept of halal logistics, and represents the concept and treatment for halal assurance.(Tiaman et al, 2014)



3. Advanced Halal Logistics Management Status Analysis


3.1. Malaysia

The basis of Malaysia's Halal logistics system is a policy that confirms the company's commitment to establishing a halal logistics/supply chain management system, which addresses the responsibility of the organization to protect integrity along the supply chain, the scope of the organization's halal certificates, guarantees to consumers, halal committees and methods of assurance management in such aspects as halal audit and inspection.

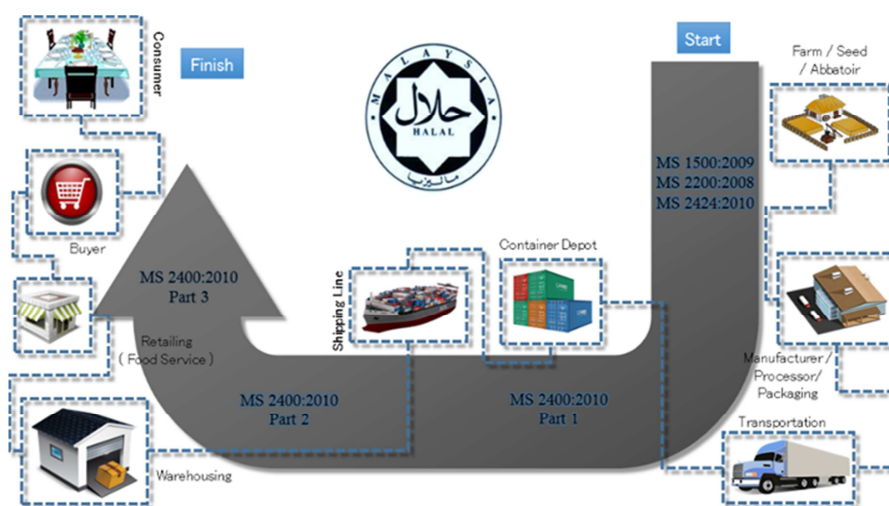
The main components of the halal logistics system are divided into warehouse management, transport management and terminal operations, and the halal logistics system should basically deal with the perception of Muslim consumers based on Islamic market requirements and comply with Islamic law.

Table 2: Key Components and Contents of Halal Logistics System

Sortation	The main content	Related certification
Warehouse Management	<ul style="list-style-type: none"> - The company thoroughly manages halal products so that they can be physically separated from non-halal products during storage in the warehouse. - Halal products should specify dedicated areas (layer separation) or racks that are clearly separated by color or special markings. - In case of refrigerator or refrigerator, it is required to separate from non-halal products through containers (separated boxes) or physical walls for storage of hala products. - Raw materials/finished products/components/packaging materials should be stored, and insect repellent and defense (records) must be thoroughly managed. - Check whether dust and water leakage prevention facilities and the supply and release control log and production record (BMR) match each other 	 MS 2400 (2):2010
Transportation management	<ul style="list-style-type: none"> - If previously shipped non-halal or unknown products, the means of transportation should be cleaned before use in accordance with religious cleaning regulations and current hygiene standards (only with records carried before). - Do not mix non-halal and halal products in the case of heavy Najis and bulk transport within containers or means of transportation. - Do not mix halal and non-halal products in one pallet or transport device - Halal shipping provides a third packing method if there is a mixture of halal and nonhalal products in a transport or container. 	 MS 2400 (1):2010

Terminal operation	<p>- Halal terminals should allow physical separation of halal and nonhalal cargo during processing in terminals</p> <p>- Terminals are related to inspection & VAL (Value Added Logistics :VAL), livestock, storage, fill/emptying, cleaning, packaging & labeling, shipping documents, and halal freight terminals are divided into ports, airports, train stations, and inland terminals.</p>	 <p>MS 2400 (1)2010</p>
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Halal certification of Malaysia's logistics division, MS2400:2010 PART1 (Transportation), PART2 (Warehouse), PART3 (Retail), indicates management of supply chain from farm to table as shown below to guarantee halal products. (MS2400-1,2,3: 2010)



Source : A-Trance(2019)

Figure 3: Halal certification guarantee activity

3.2. Netherlands

Under the Dutch halal logistics standard, National Halal Hallmark (NHK), logistics activities are applied on the basis of six principles (dedication, NHK system, commitment, NHK audit, NHK external audit, transparency) and are considered to be very serious and affect Halal's spiritual cleanliness while implementing this principle. Halal products shall not be prepared, manufactured, transported or stored in a room with tools considered Haram based on Shariah law, nor shall they be in contact with non-halal materials (HAC and Port of Rotterdam, 2005). It is believed that facilities of halal food and non-halal food (pig ingredients) are available, and since cleaning is an important element, it is allowed if pig DNA is not detected through a post-cleaning examination. Halal products, on the other hand, can be produced, processed, transported and stored in different production lines in the same place where Haram products are produced, processed, and stored, with halal products subject to prior halal conditions (allowing the use of halal alcohol for cleaning production processes or equipment).

The Dutch halal logistics chain follows the process of selecting suppliers → quarantine→storage→packaging →transportation, while the halal meat logistics chain is quarantined and brought in through customs clearance. Since the quality of logistics services is determined by the quality and reliability of the supplier, supply chain management begins with the supplier's audit and aims to reach an independent and uniform assessment of the suppliers essential to the organization.

3.3. Belgium

There is no Belgium's own standard for halal logistics certification, and it allows halal products to be fitted to the top rack when applying strict requirements such as JAKIM (Malaysia Hallal Government Certification Authority) and using halal containers, halal-only compartments, dedicated rooms, racks, etc.

Basically, it does not allow a mixture of pork and halal meat, and there is a condition that warehousing

certification equipment and tools must be used exclusively and that the transportation's past transport history must be checked for at least three rotations.

To be certified by a warehouse company, these requirements must be followed, and ATP (nucleotide, which is a combination of three-minute phosphoric acid in adenosine). Important substances that broker the storage, supply, and transport of energy in the body), DNA and SWAB (cotton swab test) tests should be mandatory. The point at which halal products are determined is to maintain halal state of the product, ensuring information flow about halal products, maintaining halal integrity of the product, and also responsible for the overall supply chain loading. In the case of a logistics service provider responsible for transporting the product from Seller to Buyer, it is responsible for informing other participants in the supply chain of halal status and, in the absence of such notice, shall be deemed non-halal products. A typical halal logistics service provider must comply with the Belgian Food and Food Safety Rules concerning the halal of Toyvan, and to ensure halal products, the logistics service provider or operator may be regularly evaluated and certified by the recognized halal certifier (Charia Commission).

In the case of LCL (Less Than Container Load Cargo) containers mixed with halal and nonhalal products, possible halal products shall be stored on nonhalal products and the primary packaging shall not be damaged. The main control points and evaluation elements of halal are made through the identification and evaluation of halal integrity risks, and are required to identify all potential hazards affecting halal integrity and analyze the product's process steps from port to port. The key control points of halal logistics are indicated as guidelines for responding to appropriate management factors to maintain integrity.

3.4. Comparison of Dutch and Belgian Halal Logistics Methods

Table 3: Comparison of Dutch and Belgian Halal Logistics Methods

Sortation	Dutch Port of Rotterdam	Port of Gibruge, Belgium
Examination	<ul style="list-style-type: none"> -It should be stored in a separate space from the Haram products and products prior to inspection should be kept in an independent space -If cargo is reported as a quantity or suspected item, the inspection should be carried out in an independent isolation room. 	<ul style="list-style-type: none"> -If samples and cargo are to be inspected at the National Customs Service (BIP), the inspection should be performed only in the designated halal room.
Storage	<ul style="list-style-type: none"> - If physical separation is not possible from Haram's products, space should be separated, such as barriers, to distinguish between halal products, and color should be marked or listed. At this time, bar codes and stickers can be used. 	<ul style="list-style-type: none"> -Halal and Haram products have separate physical spaces, in which case the minimum distance between different storage spaces is 80cm. - To prevent cross-contamination of sub-samples and cargo, only the designated halal chamber should be handled and in a clean storage area when in a temporary storage room.
Package	<ul style="list-style-type: none"> - Packaging in compliance with HACCP or similar regulations -Hallal product quality assurance should be identified by stickers, barcodes, and colors -Only halal products can be worked in an independent space when repackaged - If packaging is damaged, it should be treated as a Haram product or as a loss 	<ul style="list-style-type: none"> -If the primary packaging is damaged, the product should normally be disposed of unless the logistics provider or customer refuses. -It is the responsibility of the manufacturer/owner to verify the loading status of the product or cargo.
Transportation	<ul style="list-style-type: none"> -If loads are sealed and packed in boxes, multiple loads can be transported to the same freight car. - To avoid cross-border contamination, it is recommended that products be packed and transported separately. - Transporting in the same space, such as partitioning, is also recognized as separate transportation. 	<ul style="list-style-type: none"> - In case of container mixed cargo, if halal products are stored on non-halal products, the primary packaging is considered halal unless damaged. - Container is not unloaded if sample product is contaminated
Others	<ul style="list-style-type: none"> - Halal Haram in the area of employees must be moved, haccp not accepted any conditions other than benchmark. 	<ul style="list-style-type: none"> - Do not sterilize with ethanol to prevent cross-sectional contamination -Using halal-only equipment -Private halal treatment rooms must be marked on the label.

4. Competitive Plan for Halal Logistics Market in Korea

4.1. Expansion of halal logistics

The Hazard Analysis and Critical Control Points, or HACCP, are systems that analyze hazards that may have a detrimental effect on the hygiene of food in the entire process of production, manufacture and distribution, and establish critical management points in the steps to eliminate or ensure safety of such hazards, and manage food safety in a scientific and systematically. Already, HACCP's awareness is quite high, and it is recognized to consumers as a macro to ensure minimal food safety. As such, HACCP has become a certification to ensure safe food for the food industry. Similarly, acquiring and specializing in halal-related food and logistics will add stability and value to the food industry and the food itself. In line with this trend of the times, domestic companies are highly interested in the halal market and are particularly active in entering the food market. There is a good chance that Korean companies will expand their presence in the halal food market not only in Southeast Asian markets but also in the Middle East and Southwest Asia. If the certification of halal food, which has become important so far, is one-sided, there is a big difference in terms of strategic establishment, given that halal logistics is two-way in the nature of distribution, but there should be a special base. Halal market, too, in accordance with the growth of our country over the next blue ocean that corresponds to the Halal food on the market will eventually forced to advance, Halal food market. Halal to the logistics systems should operate time will come. Therefore, we must prepare to expand investment in Halal logistics infrastructure from now on. With the growth of the halal food market, the halal logistics market is also growing with global attention. After all, it is safe to say that the final completion of halal food is made through halal logistics. In Japan, Nippon Express, a logistics company, provides halal logistics services for Japan and Asia. The company has won halal certification for Tokyo and Fukuoka logistics centers, and is also shipping halal products in Malaysia in conjunction with halal certification facilities. Overall, most halal product exporting countries are expanding their functions around logistics hubs such as ports, logistics facilities and inland bases, maximizing synergy by linking the distribution of halal food with halal logistics. (Lee Tae-hee, Park Jinyung, 2018)

4.2. Competitiveness of Halal Logistics in the Market

Our country should create differentiated product development and business model to suit our characteristics through survey of exports by product, country and region in halal market. It should also benchmark supply chain management for the top 10 exporting countries and establish halal uniform logistics system to establish measures to preempt the market with the quality of logistics services as a later country.

Supply chain management, including halal logistics services, requires traceability and packaging in addition to institutional aspects. In Korea, entry into the halal logistics market through halal integrity guarantee solution or platform development can also be considered, taking advantage of the strength of IT and packaging. To facilitate the distribution of halal products, the government should ensure that halal products are supplied to consumers safely through halal logistics certification, as is the case with Malaysia's international standards, and to this end, institutional support should be provided so that they can be recognized equally among each other in cooperation with international halal certification agencies such as JAKIM and JHA (Japan Halal Union). To vitalize the import and export of halal products, a halal-only logistics center equipped with a freezer system is needed within the port where halal products can be processed, and a halal-only complex that provides tax support and benefits to tenant businesses should be developed to realize economies of scale between shippers and logistics companies.

For the safe supply chain management of halal products between these logistics superchain, the logistics center storage, transportation, customs clearance, customs etc. shall develop an integrated logistics system that allows customs clearance and customs to be managed smoothly while maintaining a complete halal state, to realize real-time tracking and monitoring of cargo between the shipper and the logistics company, and to establish control and control the logistics flow of logistics products.

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