

## Value Co-Creation Model of Halal Logistics Services

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**Abstract.** *Increasing consumer awareness to provide halal assurance in the supply chain process happens in Muslim countries and non-Muslim countries. Kosher products become a symbol for food safety, quality assurance, and lifestyle choice due to the strict requirements, thereby reducing the risk of contamination of the disease. This led to the increase of demands of halal logistics services to implement the halal concepts in logistics processes. One of the obstacles faced by the companies is a lack of understanding of how the halal concept is applied in accordance with the role of each company in the supply chain. This paper illustrates the value co-creation model using several supply chains for Fast-moving consumer goods (FMCG), cosmetics, fashion, and pharmaceuticals to provide value for customers and all parties that guarantee halal concepts throughout the activities of the supply chains. Business model and the adaptation in operational planning for a transportation company as halal logistics services are also developed in this paper by including segregation process, packaging, cleaning process, halal labeling, and halal documentation to ensure standard halal assurance are distinguished from activities in the general logistics process.*

**Keywords:** *halal logistics; logistics services; value co-creation; business model.*

### I. INTRODUCTION

Muslim populations were estimated at around 1.6 billion in 2010, with most of the population in 49 countries worldwide (Desilver and Masci, 2017). Desilver and Masci (2017) also state that Pew Research Center also estimates the number of Muslims worldwide will grow to 2.76 billion, or 29.7% of the world's population by 2050. In line with the growth of the Muslim population worldwide and increasing demand from non-Muslim consumers, halal markets and halal industries are growing (Marzuki 2012; Marzuki et al., 2012a).

Halal is an Islamic term to explain that a product is allowed to be consumed. Halal has increasingly become a worldwide market phenomenon not only for Muslim markets (Global

Islamic Finance Report, 2013). The halal label in a product is not just a guarantee that the product is permitted to be consumed. Still, it also becomes a global symbol for quality assurance and lifestyle choice. The non-Muslim consumers view halal products as a worldwide symbol for food safety, quality assurance, and lifestyle choice (Dollah et al., 2012). Ambali and Burn (2013) also stated that non-Muslims prefer kosher foods because of several aspects: security, cleanliness, and quality, due to the strict requirements, thereby reducing the risk of contamination of the disease. Many Western countries have recognized the emerging global trend in consumerism towards halal products and services and are now racing to gain a footing in the halal industry (Global Islamic Finance Report, 2013).

The concept of halal is not only related to food and beverage products, but it is also expanded to pharmaceuticals, fashions, cosmetics, health products, toiletries, medical devices, and service sectors such as logistics, marketing, electronic media, and finance. Several cosmetics brands such as Shiseido, Talent Cosmetic (Korean company), Iba Halal Care (India company), and Amara Cosmetics (North America company) are launching halal beauty products and eco-friendly products (Ghanem, 2016). Zoya (an Indonesian company) is certified as a halal fashion brand in the fashion industry because the fabrics are produced with only plant-based emulsifiers.

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The halal concept should be applied to protect the halal status of halal products throughout the supply chain, from supplier to customer (Tieman et al., 2012). The halal concepts in the supply chain are defined as supplying halal products from the point of origin to the end of consumption with the purpose of compliance with the general principles of Sharia law and satisfying the requirements of halal consumers (Tieman, 2009a). Halal logistics is related to physical activities that include storage and delivery of products, which are equipped with information and directional communication among those involved in the flow along the supply chain by applying the concept of halal therein (Kamarudin et al., 2012). The basic idea of halal logistics is to ensure conducting separation processes from non-kosher products. It is necessary to avoid cross-contamination and ensure that all processes in the logistics systems are guaranteed kosher. Therefore, halal logistics can be expressed as applying the concept of halal along the supply chains from supplier activities, manufacturing, warehousing, transportation, and distribution of kosher products to ascertain the status of a product.

Indonesia is the country with the most significant population, of which about 209 million or 87.2% are Muslim (Desilver and Masci, 2017). As the country with the largest Muslim population globally, halal becomes an issue and demand of most consumers in Indonesia. However, in ensuring the implementation of halal logistics, the industries face many problems and challenges in the supply chain. One of the obstacles faced by companies in Indonesia in implementing the concept of halal is a lack of understanding of how the halal concept is applied in accordance with the role of each company in the supply chain and the lack of cooperation with other parties in the development of the halal logistics. In addition, there are also concerns on how logistics operations can be performed, and the application of the halal logistics concept will incur additional costs such as the separation of the warehouse, according to the nature of the product segregation, and others.

The main important aspects of the halal

industry rely on logistics service management capabilities in ensuring the integrity of halal products. It is, therefore, necessary to develop a value co-creation model to increase the understanding of halal concepts. In addition, business models for logistics services also need to implement the concept of halal. When handling the logistics of halal products, the business model used is different and more complex than the business model in general. This paper is tried to give an illustration of how co-created values and the business model of halal logistics services can be developed by prioritizing the provision of three factors, namely to provide values as much as possible for customers, provide products that are guaranteed halal throughout the activity of the supply chain, and also provide benefits for all parties involved. The paper also illustrates the structure of halal logistics in Indonesia involving various industries as an example. The case study approach based on different range of halal products such as Fast-moving consumer goods (FMCG), cosmetics, fashion, and pharmaceuticals is used in this paper to give a more prosperous and deeper insight based on the experiences and perceptions of various halal supply chains and halal logistics services in Indonesia.

The rest of the paper is organized as follows. The related literature is reviewed in Section 2. Section 3 presents the methodology used in this research based on case studies. Section 4 presents result descriptions, while the value co-creation and business model discussions are presented in Section 5. Finally, the conclusions are given in Section 6.

### **What is Halal?**

Halal generally means permissible in Arabic. Halal refers to things or actions permitted or lawful in Islam by referring to Quran and Sunnah (Hadith) (Al-Qaradawi, 2007). Halal covers several aspects such as dietary laws, dress, manner, etc. In non-Muslim countries, the halal context has similar to the Hebrew term "kosher," which is only related to Islamic dietary law and specifically associated with the method of slaughter (Al-Qaradawi, 2007). The principles of the halal concept are clearly based on Quran. However,

there are doubtful matters when consumers do not know the status of the products. Therefore, the halal principles should have evident characteristics, visible and verifiable by experts (Lazarova, 2010). Muslims must follow the halal directions and incorporate wholesomeness for their life's blessings and clean lifestyle. This term is well known as *Toyyiban*. *Toyyiban* refers to the characteristics of wholesome, sound, healthy, clean, nutritious, nonrisky exposure, and safe for human consumption (Mohamad and Hassan, 2011; Tieman, 2014).

**Halal Logistics**

The concept of halal is related to the food industry and included in sectors relating to lifestyles, such as cosmetic industries and apparel industries/textile. Tieman (2006) mentioned that logistics have an essential role in ensuring the halal status of products within their supply chains. Therefore, halal logistics is a new area in supply chain management (Tieman, 2013). Some of the notable definitions of halal logistics and halal supply chain management in the recent literature are included in Table 1.

According to Bruil (2010), there are three principles that underlie the formation of halal logistics, namely the avoidance of contamination, the avoidance of making mistakes, and the guarantee that logistics operations are consistent with the concept of halal. Jaafar et al. (2011a) also stated that the process of handling halal products

must be separated and cannot be mixed with illicit products. Tieman (2011), Talib et al. (2014), and Abdul Rahim et al. (2016) stated that the importance of halal concepts included all aspects of a supply chain such as transportation, warehouse, and terminal. In addition, Mohamad and Hassan (2011) stated that there were two dimensions related to halal integrity: physical integrity and ethical integrity. Physical integrity is related to the halalness, cleanliness, safety, health, and nutrition attributed to the products. Ethical integrity refers to proper actions that include processing, handling, packaging, labeling, warehousing, transporting, distributing, financing, marketing, and selling.

Therefore, halal logistics should control its halal activities along the supply chain across multiple industries to guarantee the fulfillment of the principles of halal logistics, the completion of halal integrity, and the guarantee of its halal products. For example, halal control and assurance in warehousing activities include admission, placement (put away), storage, cross-docking, value-added logistics, order picking, and delivery of halal products. Control and assurance of halal in transportation activities include hygiene tank/container/vehicle, loading/unloading, and documentation of kosher products. Furthermore, halal control and assurance activities also include inspections at terminals, temporary storage, consolidation, storage, and documentation of kosher products.

**Table 1.** Definition of Halal Logistics and Halal Supply Chains

Author	Definition
Ladin (2006), Vorst (2006)	Halal logistics is established to protect the halal integrity of the various links in a supply chain for the end consumer.
Che Man et al. (2007)	Halal logistics is related to the process of planning, implementing, and controlling the efficient flow and storage of halal products from origin to consumer point.
Tieman (2009a)	Halal logistics refers to managing, moving, storing, and handling halal products throughout supply chains in compliance with Sharia law.
Bahrudin et al. (2011)	A Halal supply chain is a process of managing, storing, and handling halal products that comply with Sharia Law and relate to information and documentation flows through the supply chain.
Zulfakar et al. (2014)	Halal logistics is related to all activities started from procurement, warehousing, material handling, and transportation which all must be Halal to appreciate wholesome products and services.
Karia and Asaari (2014)	Halal logistics is related to activities and operations aligned with the halal standard and expectation, and it is performed with halal practice.

### Value Co-creation

Increasing consumer awareness of the concept of halal led to the increasing of multinational company number involved and investing in handling halal product market segments (Alserhan, 2010). In the era of globalization, where competition is so fierce, supply chain management is used to maintain and improve the competitiveness of enterprises through control enhancement, product quality maintenance, industrial network development, and customer satisfaction (Rahman and Rosli, 2008). Opportunities to create value appropriate for the customer and all parties and improve competitiveness and competitive advantage can be made through a value co-creation process.

Prahalad and Ramaswamy (2004) defined the value co-creation process as to how all parties get involved in the interactions by exchanging information, knowledge, and resources to co-create value. Vargo and Lusch (2004) also stated that the interaction between the various parties was likened to be a cycle not linear as the concept of the value chain by Porter (1985). Concerning business-to-business (B2B), value co-creation can be used as an initiative to get short-term benefits and improve the competitive advantage as a long-term strategy, as mentioned by Prahalad and Ramaswamy (2004). Prahalad and Ramaswamy (2004) also noted that in value co-creation, the value was jointly created by all parties in the supply chain and the consumers through close interactions through co-create unique experiences.

## II. RESEARCH METHOD

Data relating to the development of the value co-creation process and illustration of the business model in this paper were mainly collected in primary and secondary data. Preliminary data was taken through semi-structured interviews with five industries: unit analysis representing suppliers, food manufacturing, distribution center, transportation provider, and retail. Seale et al. (2004) stated that interviewees were used as valid and reliable data

when they spoke about retrospect and the prospect of their experiences, perceptions, and judgment. The interviewees of each company were chosen based on their level experiences in management, organizational issues, and halal logistics services. Each interviewee represented a staff or a manager who had the experience of at least 3 years with the company as a staff and at least 8 years with the company as a manager. As the representatives of each company, one or more informants had been interviewed for 1.5 - 2.5 hours in 16 different sessions. All interviews were recorded with permission from the interviewees, and they were transcribed and analyzed. The secondary data was taken through technical documents and reports of each company.

To get the information on related topics in this study, the questions were developed open-endedly. Open-ended questions enable the researchers to add relevant questions depending on the interviewees' responses to get better information. In developing the open-ended questions, a literature review was used to guide several topics and aspects that needed to focus on in this paper. The collected data related to the case company consists of two parts. First, the business process referred to the case company, particularly methods related to logistic operations. Second, it highlighted the implementation of halal logistics. The aims for all those questions in the interview were to give a direction on how halal logistics was done and know their perspective on the halal concepts in the logistics area. Interviewees clarified the questions and the answer of the interviews to give them a chance to refine the answer they given during the interview.

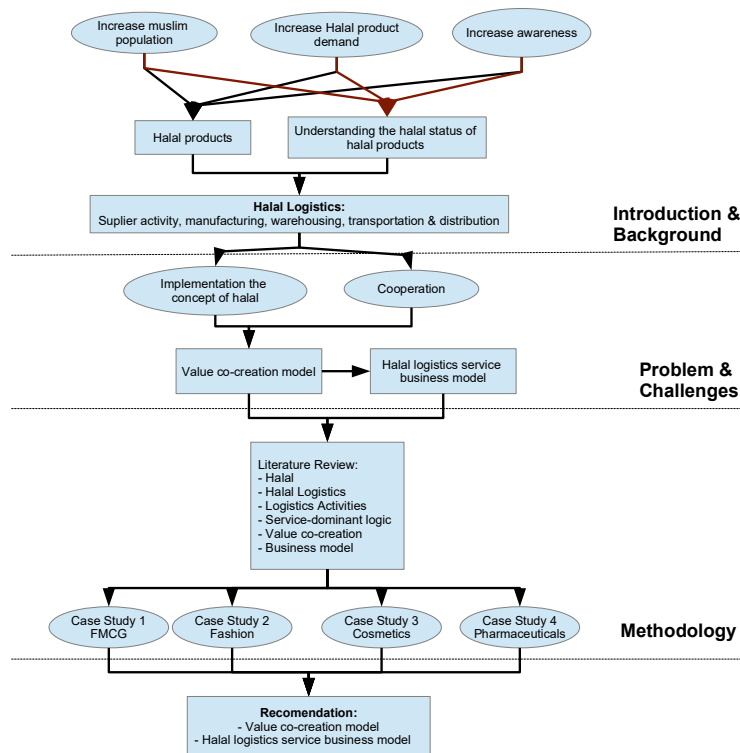
Since this paper attempts to illustrate value co-creation and the business model of halal logistics services, one supply chain started from supplier, manufacture, distribution center until retail was used as a case study. The case study method was an appropriate method to reproduce the action and develop the theory covering contextual conditions (Yin, 1994; Hitchcock and Hughes, 1995). Hodkinson and Hodkinson (2001) also mentioned that the case study method helps

develop a conceptual framework relevant to real-world conditions. The case study method was chosen as an appropriate method in this paper because this method can give a better understanding of the implementation of halal concepts in the logistics area. However, Hodkinson and Hodkinson (2001) also stated that the case study method had limitations in research, such as raising doubts toward objectivity. The complexity of examined case study samples was challenging to be represented, and it was expensive to conduct a case study on a large scale.

This paper represents halal logistics services in Different products such as FMCG, fashion, cosmetics, and pharmaceuticals used in Indonesia. From 4 cases, only 2 case studies of FMCG products and cosmetic products had already implemented halal logistics throughout their supply chains. The other 2 cases of fashion and pharmaceuticals companies had already produced halal products without directly protecting the halal status of halal products throughout the supply chain. For fashion products, the fashion brands of S Enterprise were certified by the Indonesian Council of Ulama

**Table 2.** Four Case Studies Used

Product Type	Company Name	Implemented Halal Concepts in the Supply Chain
Fashion	S Enterprise	Supplier, manufacturer, DC, retail
Pharmaceuticals	K Company	Supplier, manufacturer, DC, retail
Cosmetic	M Company	Supplier, manufacturer, DC, retail, distribution
FMCG	S Company	Supplier, manufacturer
	E Company	DC, retail
	Iron Bird	Distribution



**Figure 1.** Research Method

(MUI) as halal products because the fabrics used in the company were produced with the use of only plant-based emulsifiers and without those made from pig gelatin. For pharmaceuticals products, K company had halal medicines that follow Shariah law, for they did not contain any parts or products of animals that were not halal. The medicines are safe for humans because they were not manufactured using equipment contaminated by non-halal materials. Both companies argued that it was easy to maintain Halal status for their products because they had already been equipped with secondary packaging.

M Company as a Cosmetics Company produced halal skincare and cosmetics without any pork, dog, or alcohol ingredients. The concepts of halal cosmetics in M company included the packaging, which was handled with clean utensils and produced with materials that are not harmful to humans. S Company, as a manufacturer, produced FMCG products such as edible oils and fats, refined crude palm oil, and crude coconut oil. S Company also operated as a supplier with its principal activities comprising oil palm seed breeding, oil palm plantations, and rubber plantations. E Company, as a convenience store, had a role as the retail. E The company began its business with 20 stores in 2010, and the number had increased to 186 stores in 2015. To support the distribution of products to various retailers, E company had a distribution center to store the products coming from different manufacturers. In the delivery process from the distribution center to its retails, Iron Bird provided tailor-made services for E company by giving two types of services, which were dedicated service and on-call service. Iron Bird is a subsidiary of Blue Bird Group, one of Indonesia's biggest taxi operators (Hutton, 2015). The summary of four cases can be seen in Table 2. The overview of the research method in this paper can be seen in Figure 1.

### III. RESULT AND DISCUSSION

Halal logistics is about embedding excellence in a supply chain during the sourcing,

production, and distribution processes. When a manufacturer puts a halal logo on its products, it promises that the products' sourcing, manufacturing, and distribution are halal-compliant. The consumer assumes that the manufacturer takes care to ensure halal compliance throughout the supply chain. Therefore, to better understand how to value co-created for halal logistics, creating a value co-creation model is necessary, as seen in Figure 2. Figure 2 was modified from the sustainable business model framework of Bocken et al. (2015) and adapted from Osterwalder and Pigneur (2005), Bocken et al. (2014), and Vargo and Lusch (2004).

Value co-creation model for halal logistics created through the accumulation of experiences with all parties involved by exchange resources, services, and information. This paper's value co-creation model was developed into four components: value propositions, value creation, value delivery, and value capture. Those four components were modified from three components of the sustainable business model of Bocken et al. (2015), which were value proposition, value creation and delivery, and value capture. Value propositions are developed to capture what value is provided and to whom the value will be offered (Osterwalder and Pigneur, 2005). Social factors influence how the companies develop value propositions as value provides to their business partners and end consumers. The social factors consist of increasing awareness of the halal concepts, growing demands of halal products, growing demands for halal assurance in the supply chain process, security, cleanliness, and reducing the risk of contamination of the disease. The value proposition aims to fulfill customers' demand for halal products, deliver halal services as promised, increase customer relationships, and increase value for society and the environment. The companies also proposed that halal logistics would increase customer relationships. This can be done by ensuring the halal integrity of halal products for the end-consumer throughout the supply chain activities and provides traceability of products through close monitoring and controls.

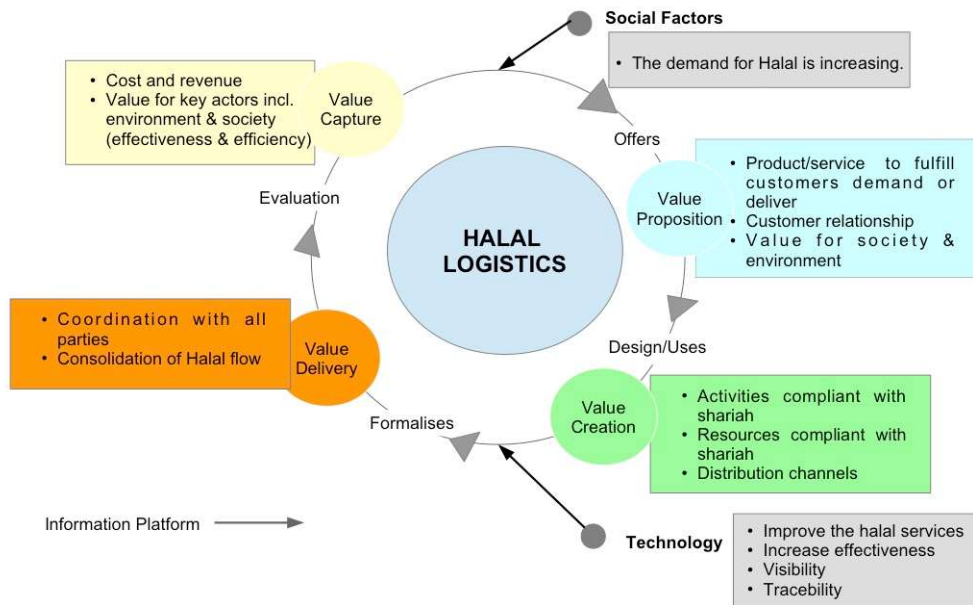


Figure 2. Value Co-creation Model for Halal Logistics Services

Those value propositions were used to design value creation (Bocken et al., 2015), such as how to value design in logistics processes is related to production, processing, packaging, transportation, storage, and retail. This includes design resources, interaction, and relationships to support all activities related to halal logistics. The resources were designed to support all activities related to halal logistics, such as the halal logistics hub, dedicated warehouse if possible, labeling, segregation tools, packaging, etc. The companies must interact and have close relationships with other companies in their supply chain system and other relevant partners to create value. The interaction and close relationship with their supply chain partners are required to support the sources globally and to be able to trace the halal status of the products and to comply with the distribution and storage processes with shariah and toyib.

To formalize value delivery in logistics processes, some technologies were used to monitor and assist halal integrity of the products and increase the halal supply chain (Tieman 2009). Technology was also used to improve the products' visibility and traceability and make the logistics operation controllable to ensure

verification of halal status. The technologies used by companies to support planning and controlling the warehouse was Warehouse Management System (WMS), while to support transportation planning related to provide analysis and select the best mode and most negligible transportation cost. The companies used Transportation Management System (TMS) and Global Positioning System (GPS) for controlling daily delivery, etc. Tan et al. (2012) stated that technology was used in logistics mainly on warehousing and transportation for data communication, data identification, and data acquisition purposes. To deliver value to all parties and consumers, coordination with all parties in the supply chain and consolidation of halal flow is needed to deliver what has been promised to its customers and partners in the supply chain. The coordination and consolidation processes are used to get the values as benefits quickly, reliably, and consistently.

The last component was value capture by evaluating the desired value and perceived value of each party and consumers (Bocken et al., 2015). Desired value refers to what consumers and all parties desire in a product or service. Perceived value is the value that a consumer and all parties

believe would be received from a product and service after it is purchased and delivered. In this

component, the performances of all parties are also evaluated to calculate the effectiveness and

**Table 2.** The Framework of Value Co-creation for Each Industry

		PARTIES				
		Supplier	Manufacture	Distribution Center	Transportation Company	Retail
Social Factor	Increase in awareness a halal products					
	Increasing desire of customers on traceability of halal products					
	Increasing hygiene, health standards, and animal welfare for manufacturers and service providers					
	Increasing safety and green environment awareness					
Value proposition	Guarantee the goods meet the halal standard	The guarantee production process meets the halal standard	Guarantee the products store in DC meet the halal standard	Guarantee to deliver will be made to the final destination as directed by the customer	Guarantee the goods meet the halal standard	
	Guarantee use of halal raw material.	Guarantee use of halal material.	Guarantee all production process not contaminated with non-halal material	Guarantee monitoring report will provide to the customer every 2 hours via email	Guarantee separated shelves for non-halal products if any.	
	Guarantee all production process not contaminated with non-halal material	Guarantee all production process not contaminated with non-halal material		Guarantee delivery will be kosher and in accordance with the halal standard.		
Information platform	The value proposition is used to design production and logistics processes that provide quality assurance and guarantee kosher.			Forms of information from value proposition used to design delivery process that provides quality assurance and guarantee kosher.	The value proposition is used to design trading, marketing, and logistics processes that provide quality assurance and guarantee kosher.	
Value creation	The supplier will provide raw materials in accordance with the standard requested by the manufacture.	Select supplier based on quality, halal standard, and cost	Segregation products based on criteria (frozen, chiller, dry)	Complete Shipping Instruction (SI), Delivery Order (DO)	Check the condition of the goods based on the packaging, labeling, and documentation	
	Production of raw materials must ensure consistency with halal standard	Storing the goods following halal standard and used a dedicated warehouse if possible	The packaging process for each product, box, and pallet	Prepare the driver and transportation unis	Arrange the goods in the rack and storage.	
	Storing the goods in accordance with the halal standard and used a dedicated warehouse if possible	The packaging process for each product, box, and pallet	Labeling that is stating that the products produced kosher	Used dedicated transportation if possible; if not used, segregation process	Separate shelves for non-halal products, if any	
	The raw materials will be sent to manufacture used dedicated transportation	Labeling that is stating that the products produced kosher	Storing the goods in accordance with the halal standard and operated a dedicated warehouse if possible	Cleaning transportation units before and after deliver goods	Provide information to customers related to the products.	
		Used dedicated transportation if possible; if not used, segregation process.		If Less than Truck Load (LTL) is used, there is a possibility of contamination in the process. Therefore, the goods will be repacking with packaging that has been provided	Separate damaged, expired, and contaminated products and return to DC.	
				Labeling and documentation stating that the delivery process is done based on the halal standard. Label contaminated for the contaminated products. Therefore receiver knows that the goods are damaged or contaminated.	Labeling that stating that the products damages, expires, and contaminated. Different labeling for non-halal products	



**Table 2.** The Framework of Value Co-creation for Each Industry (contd.)

PARTIES					
	Supplier	Manufacture	Distribution Center	Transportation Company	Retail
Information Platform	Documentation of production process as proving that production conducted accordance with halal standard			Documentation of the delivery process proves that production is conducted in accordance with the halal standard.	Documentation and labeling for the non-halal product
	Documentation proves that there are no non-halal materials used in the production process.			Documentation proves products transported are not contaminated.	Documentation and labeling for damage, expired, and contaminated products.
	Documentation proves that products store separated from non-halal products, if any, or used segregation.			Documentation proves products transported are contaminated if any.	
	Documentation proves products transported are not contaminated.		Documentation as proving that goods are not contaminated	Documentation as prove used dedicated transportation mode or used segregation for LTL	
	Documentation as prove used dedicated transportation mode or used segregation for LTL				
Technology	Use Warehouse Management System (WMS) to support planning and controlling the warehouse.				Use Point of Sales (POS) System for point of sales, inventory management, CRM, and financials
	Use Transport Management System (TMS) to support transportation planning related to provider analysis and the best mode and least transportation cost.				
	Use Global Positioning System (GPS) to control daily delivery				
Value Delivery	Coordinating daily processes (production and delivery) with the manufacture	Coordinating daily processes (production and delivery) with supplier, transportation company, and retailer		Coordinating delivery processes with DC and retail	Coordinating daily processes (selling and delivery) with DC and transportation company
	Consolidating production process with the manufacture	Consolidating production process with supplier, transportation company, and retailer		Coordinating delivery processes with DC and retail	Coordinating selling and marketing processes with DC
	Consolidating the quality and halal standard with manufacture, MUI, BNSP	Consolidating the quality and halal standard with supplier, transportation company, retailer, MUI, BNSP		Coordinating quality and halal standard with DC, retail, MUI, BNSP	Coordinating quality and halal standard with DC, retail, MUI, BNSP
Information Platform	Information in the form of a documentation report of the daily process describes how the process is done by not following halal standards.				
Value Capture	<u>Monetary value: reducing cost and increase revenue</u>				
	<u>Quality value: good quality and guarantee kosher</u>				
	<u>Information value: guarantee kosher</u>				
	<u>Time value: on time</u>				
Information Platform	<u>Relationship value: guarantee kosher and close relation</u>				
	Information related to quality, cost, relationship, and halal standard				

efficiency of the logistics process, how halal concepts are implemented in all activities. Furthermore, halal assurance is also evaluated as value for society and the environment.

Vargo and Lusch (2004) stated that the interaction between the various parties was likened to be a cycle. Therefore, the value capture is used to improve the value proposition and improve its strategy to distinguish itself from competitors. Each component in the value co-creation model is connected with an information platform. Information platform in this paper refers to forms of information to exchange information,

control, and monitor halal logistics to provide halal assurance in the products and supply chain process. Based on the value co-creation model for halal logistics services shown in Figure 1 and four case studies, the value co-creation framework for each industry is illustrated in Table 2.

Teece's (2010) and Gambardella and McGahan (2010) stated that business model was important to be developed as an illustration of what customers want, how they want it, and how an enterprise can best meet their needs, and how the organization can best generate and capture the value. Moris et al. (2005) also stated that the

business model represented decision variables of value propositions, profit formulas, essential resources, key processes, key partners, key activities, customer relationships, and customer segments to create sustainable advantages in the markets. Therefore, the business model needs to develop, develop, and deliver the value relevant to the halal concepts to customers.

Relating to the business model, this paper only focuses on the business model of a transportation company as the logistics services because the three case studies above did not implement halal concepts in their transportation activities. Therefore, the transportation company in the three case studies must develop different business models when they implement halal concepts in their activities. The business model includes all aspects according to standards of halal logistics from the part of business activity. The business model will be described in a Business Model Canvass developed by Osterwalder and Pigneur (2010). The Business Model Canvass is a model to define, visualize, and assess the business model following the desires of consumers, companies, and all parties according to standard business processes

(Osterwalder and Pigneur, 2010). The business model of halal logistics services of a transportation company can be seen in Figure 3.

The key partners of the transportation company as logistics services are the Indonesian Council of Ulama (MUI) as the legal certification body helping the issuance of the certificate of Halal Assurance System Status, Syariah banking and insurance as a partner to support financial transactions through the system of Syariah, Indonesia Professional Certification Authority (BNSP) as halal auditors and legal halal standardization bodies that help to carry out the implementation of halal assurance system, and Indonesian Truck Association (ASPERINDO) as a partner in the transport alliance when Iron-Bird. Experiencing a shortage of vehicles.

There are seven key activities in the transportation service company. They are distribution, unit cleaning, segregation, Documentation, labeling, packaging, and service of product returns. Transportation Services Company has main activities to support distribution activities of other companies that serve export, import, and domestic distribution. The transportation company carries out unit

Key Partners	Key Activities	Value Propositions	Customer Relationship	Customer Segments
Indonesian Council of Ulama (MUI) Syariah banking and insurance * Indonesian Truck Association (APTRINDO). Indonesia Professional Certification Authority (BNSP)*	Distribution	Services to fulfill customers demand or deliver as promised to ensure mainly halal and toyyib in the supply chain.	Operational services	Fast Moving Consumer Good (FMCG) Industry
	Cleaning unit*	Distribution for return products ensure halal and toyyib in the supply chain	Specific or customize operational services	Retail
	Segregation*	Segregation services for Less than Truck Load (LTL)		Pharmacy
	Documentation*	Packaging for contaminated products		Raw material
	Labeling*	Halal labeling and documentation		Fashion
	Packaging*	Cleaning transportation unit and material handling to ensure halal and toyyib		Cosmetic
	Return products	Safety		
	<b>Key Resources</b>	Transparency and trust	<b>Channels</b>	
	Special tim for contamination products.*	On-time delivery	Distribution Consolidation	
	Vehicle and material handling	Cost accordance with services		
	Less than Truck Load (LTL) and Full than Truck Load (FTL) services			
	Halal label and documentation*			
<b>Cost Structure</b>		<b>Revenue Streams</b>		
Fix cost		Operational Cost		
Variabel cost		$\text{Revenue} = \frac{\text{Fix Cost} + \text{Variabel Cost} - \text{Margin}}{\text{Unit} - \text{Margin}}$		

Figure 3. The Business Model of Halal Logistics Services

Cleaning activities before and after the units are used to ensure that the transportation unit is not contaminated with non-kosher materials. For delivery services, the company uses Less than Truckload (LTL). Furthermore, the segregation process needs to be done so that the products are not contaminated if there is a non-kosher product in the delivery process. Halal labeling is very useful to facilitate the distribution process, especially if LTL carries out the distribution. Labeling of halal logistics can be assigned to each pallet or per carton of products to determine whether the products are delivered by the halal logistics services or regular services. Contaminated-products labeling is also necessary as an indication of when the products are contaminated during the delivery process. The labeling of contaminated products needs to be identified with a particular label so that receivers involved in the loading and unloading process know when the products are contaminated. Documentations are required to report to their partners related to conditions of products whether the products are contaminated or not. Labeling and documentation support close monitoring and controls of kosher assurance. During the distribution process, repackaging is needed in the case of contamination. Therefore, the transportation company must take action to repackage the products that are contaminated so they will not contaminate other products. In addition, the transportation company also serves the activities of distribution to return products that are already expired, deformed, and damaged from retailers.

Key resources supporting the critical activities of the transportation company are to own a special team to handle the contaminated products, transportation units, different types of services, packaging for the contaminated products, and halal labels and documentation. The special team must clean transportation units and respond quickly if there are contaminations upon delivery. Different types of transportation modes are used as resources to support the distribution process of their partners. There are two types of services: Less than Truckload (LTL) and Full Truckload (FTL). LTL is the unit that

contains some items belonging to some senders, which are combined in one unit. This service is used to charge the 30 kg-2000 kg capacities to serve shippings. FTL is the unit that contains only one sender's belongings that can be used to charge any capacity. During the distribution process of LTL, there is a possibility of getting the products contaminated in the course, so the transportation company should repackage the contaminated products with packages that have been provided before. This is necessary so that the contaminated products do not contaminate other products. The H halal labeling and documentation ensure that the procedure of halal standards does the delivery process. It will make consumers feel secure and confident that the delivery process has met the halal standards.

The value propositions proposed by the transportation company are to guaranty the delivery of halal products, product returns services, conduct segregation for LTL, repackage the contaminated products, make halal label and documents, clean units complying with the halal standards, safety, transparency, and trust, arrange on-time delivery, and cost compatible with services provided. Their Halal Assurance System Status certificate is a value that the transportation companies can offer to their consumers and partners. The certificate has been demonstrated that the transportation company provides halal assurance of the products throughout their distribution processes. In addition to the export, import, and domestic distribution, the transportation company gives an additional service to deliver product returns. The distribution of products using LTL should be segregated to avoid contamination. The company should provide repackaging services if contamination occurs in the course of the distribution process. It is intended to avoid other products from getting contaminated.

Moreover, there should be a label and documentation confirming that the distribution process conducted by the transportation company has been in accordance with the halal standards. The transportation company also operates a cleaning process before and after the units are used. It is intended to guaranty the

cleanliness of the units. Additional cleaning is done every week if necessary. Safety is also provided for drivers, such as uniforms, identity cards, and safety shoes. There are appropriate equipment units such as drug boxes, wedges, and a fire extinguisher in every transportation unit. In addition, the company should also provide pieces of training and guidance about road safety for their drivers. The labeling and documentation are also used to increase transparency and trust among its partners and consumers. The transportation company and its partners have made distributions of products being carried out on time following time estimation. Consumers will pay more when they get perfect services. Therefore, the transportation company must consider what is expected by its partners and consumers; and the cost of services.

There are two customers relationship proposed, i.e., personal assistance and specific personal assistance. Personal assistance is the interaction with their partners during the delivery process. The communication can be done through a call center, email, or other channels. This personal relationship is given to all partners based on dedication contracts, monthly contracts, and an on-call basis. For specific personal assistance, the transportation company will assign

customer service representatives as part of customer service specific to its partner. This type of relationship is the deepest and the most intimate relationship developed in the long term.

A transportation services provider coordination is used as a channel to integrate their partners. The coordination is conducted to achieve efficient operations. The consumer segments include FMCG, retail, pharmaceutical, and supplier. There are two types of cost structure, i.e., fixed cost and variable cost. Fix cost is costs in a certain period, and it does not depend on the number of consignments. Variable cost is costs that fluctuate according to the number of deliveries performed. In this case, the more the number of consignments, the greater the amount of variable costs is. For revenue streams, the transportation company applies usage fees from the use of specific services. The more frequently services of Iron Bird are used by its partners, the increased number of payments received by the transportation company.

The business model of the transportation company, as seen in Figure 3, can be adapted into three stages of operational planning started from the planning stage, the operational stage, and the monitoring and evaluation stage. The adaptation in each stage can be seen in Table 3. The

**Table 3.** The Adaption of Halal Logistics Services Business Model in Operational Planning

Process Business	Activities	Parties	Information Platform	Value
<b>Planning</b>	Planning number of order and delivery for each retail	Retail & transportation company	Planning documentation	Information
	Planning operational process accordance with halal standard	Retail, transportation company, MUI, BNSP	Halal certification	Information
<b>Operational</b>	Booking order (contract, monthly, & on call)	DC	Documentation as prove of order	Information
	Preparing the driver and units		Documentation as prove of units and driver status	
	Examine the safety of units			
	Cleaning the unit before and after delivery process	Transportation company	Documentation and halal labelling as prove that delivery process kosher and accordance with halal standard	Information, Quality, Relationship
<b>Monitoring &amp; Evaluation</b>	Make segregation for delivery Less than Truck Load (LTL)			
	Preparing packaging for contaminated goods if any			
	Monitoring unit and report the position of the unit to the customer			
	Evaluate KPI at least once a month in order to determine the level of performance is already in line with the wishes of the customer or not	Retail & transportation company	Report documentation	Information, Quality, Relationship, Time, and Monetary

operational planning defines how the company would operate and implement the actions and which part the company would engage with its partner. This operational planning would ensure the sustainability of the efforts conducted by the company and its partners. In the planning stage, the transportation company operates the monitoring and evaluation stage with its partners to deliver and capture values for itself, its partners, and end consumers.

Prahalad and Ramaswamy (2004) and Payne et al. (2008) stated that values are determined and can only be created by customer participation in a value co-creation process through experiences. Moreover, Ramaswamy (2009) also mentioned that consumers engaged with the company through communication and consumer experiences. In this context, value co-creation is developed into several aspects such as value proposition, value creation, value delivery, and value capture. Value propositions are established as communication tools and foundations upon which the companies plan their activities for their consumers and their business partners (Osterwalder and Pigneur, 2005). The value proposition is necessary to be designed based on recent social factors that demand halal products and require halal assurance in the supply chain process. Therefore, value propositions are proposed by the company to suit the services given to their business partners and the halal concepts. The value propositions are presented to guarantee that the quality standards must meet the system of shariah and *toyyib* in the supply chain activities. The products and services are liable, hygiene and meet the health standards of manufacturers and service providers, and meet the safety standards. And the deliveries are on time. In addition, the companies also make sure that a halal logistics system should not significantly increase the costs of halal products, as this would be an important determination for the global acceptance of the halal logistics system.

To create value co-creation process interaction, arranging a close relationship with other relevant partners to ensure kosher of products and logistics process. The exchanges are

arranged with the Indonesian Council of Ulama (MUI) as the legal certification body and Indonesia Professional Certification Authority (BNSP) as the halal auditor and legal halal standardization body. In addition, all the companies with halal-certified (preferred) understand and comply with the requirement of halal supply chains.

The interaction with the relevant partners and the insurance of a smooth flow of materials, products, and information could be arranged through an Information System and technology. Gunasekaran and Ngai (2004) stated that the Information System and technology become very important aspects of achieving accountability, responsibility, and transparency. All business parties coordinate and consolidate each other by conducting open communication and shared information in every stage of the order-to-delivery process.

Chesbrough (2007) stated that the critical part for business parties is evaluating the activities that create and capture net values for themselves, their business partners, and end consumers. Tieman (2010) also stated that for effective logistics management, the company should have a halal assurance system and solid visibility to ensure that the halal concepts in daily activities are under control. Therefore, evaluation and monitoring are necessary to review that the halal logistics activities have been completed and met. Evaluation and monitoring are required to provide management's performance and align performance metrics of the goals and objectives of all parties.

Based on the illustration of the value co-creation model and business model, several activities should be done to assure halal standards to deliver halal logistics services. These activities are processes of segregation, packaging, cleaning, halal labeling, and halal documentation. These activities distinguish activities between halal logistics processes and general logistics processes. Segregation needs to be done to avoid halal products from the contamination of non-kosher products. The segregation process is conducted in a warehouse if the dedicated warehouse is not used. The segregation process

is also conducted if the delivery process uses LTL. Therefore, the companies use the segregation process to avoid an additional cost increase rather than use separate warehouses or different transportation modes.

The additional packaging process is necessary to separate the products that have been contaminated with other products when the contamination occurs during the distribution, storage, loading, and unloading process. This is necessary so that the contaminated products will not contaminate other products. In preparing transportation units and material handling to apply the halal standards, the companies should clean the units before and after being used. Non-kosher materials will not contaminate the units. Besides, to assure kosher, the companies must have their halal label and documentation. The halal label is useful to distinguish which products are kosher and which one is not kosher. The halal documentation is separated from other standard documents required in the logistics process. The documentation consists of kosher cleaning unit and segregation again through the checklist of documents to ensure the halal standard. The halal labeling and documentation raise consumers' confidence and all companies involved and acquire transparency and trust.

#### IV. CONCLUSION

Values emerge when business parties interact with each other during their joint activities (Grönroos and Voima, 2011). Voima et al. (2011) mentioned that to capture the value for all parties and end consumers, weights were accumulated through dynamic experiences in a long-term relationship. In addition, Abdul Rahman et al. (2015) stated in their previous review that there were still limited studies emphasizing the real implementation of Halal Logistics, especially for logistics services. To answer this limitation, this paper was intended to increase the understanding of halal concepts of all industries involved in the supply chain, not only halal food industries. This paper focused on developing the value co-creation model for halal logistics services to guarantee halal logistics

principles and control halal activities along the supply chain.

The value co-creation model developed as the cycle interaction among business parties was started from the value propositions offering social factors. The value propositions are used to design the value creation in logistics processes related to production, processing, packaging, transportation, storage, and retail operations. To deliver value, technology is used not only for monitoring and reporting purposes but also to increase visibility and traceability of products to ensure the verification of halal status. In addition, to measure that the value has been captured by the companies, evaluation of the desired value and perceived value of each party and consumers is conducted.

The business model and its adaptation in operational planning for transportation companies as halal logistics services are also developed in this paper because the companies must develop different business models when they implement the halal concept in their activities. Several activities, which distinguish halal logistics process and general logistics process, should be done to assure halal standard. These activities include the segregation process, packaging, cleaning process, halal labeling, and halal documentation.

This paper's contribution is to illustrate to the policymakers and practitioners how the halal concepts should be done in logistics processes and how the interaction and close relationship contribute to the creation of value for the company, their partners, and end consumers. This paper is developed based on four supply chains of different products, i.e., FMCG, fashion, cosmetic, and pharmaceuticals. However, since the business model in this paper is only based on one transportation company that has already implemented the halal concepts, it has brought forth the limitations to generalize the halal logistics services business model. Several different kinds of research need to be done by examining the implementation of the distribution process for pharmaceutical products, apparel, and cosmetics.

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