xvideFactors Influencing Manufacturers in Implementing Halal Logistics

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Similar to the conventional logistics activities, halal logistics comprises of the planning, implementing and controlling of the production, distribution, terminal operation and storage of halal certified products. In other words, to be certified as halal, the whole of activities, from the source to the point of consumption, must follow specific procedures and regulations which are set by the authority. This paper shows the application of halal in the transportation industry, which addresses the issue of mixing the halal and non-halal products in the distribution and storage process. The awareness in the obligation to observe halal requirements for the Muslim community has increased the need to investigate the extent to which the halal principle is applied in logistics activities, from production to the delivery of the product to the end users. As such, this paper explores the perception of manufacturers on the intention to implement halal principles in using transportation services. The model was developed and tested by adopting the structural equation modelling (SEM) procedure from the data collected through a survey that yielded 360 usable questionnaires. The anticipated outcome of this study is to understand the perception of logistics providers on the value of implementing halal logistics management. This is important for the relevant authorities to improve and promote the implementation of halal logistics in Malaysia.

Key words: *Halal Logistics, Halal Integrity, Knowledge, Perceived Usefulness, Intention.*

Introduction

Malaysia is currently on a positive track towards becoming a developed country by the year 2020. To become a developed country, Malaysia greatly depends on various economic generators that could contribute to the country's wealth and economic growth. The Malaysian Government claims that one of the most imperative sectors to be investigated is halal products. According to the Halal Industry Development Corporation Malaysia (2014), about 60 per cent of Malaysians are Muslims. This composition makes the issue of halal significant. Additionally, due to the increasing demand for halal products and services, not only in the country but also within other Muslim countries, the government has taken steps to position Malaysia as a halal hub, particularly in this region. The issue of halal is not only related to the production, purchasing and consumption of food. It should also consider the overall supply chain, right from the origin to the final consumption (Azmi et al., 2018). To support the whole supply chain system, logistics activities are essential to ensure the smooth flow of the supply chain process. These logistics activities range from transportation, warehousing, material handling, procurement and storage.

According to Zailani et.al (2017), halal logistics is defined as the process of managing the procurement, movement, storage and handling of material parts, livestock, semi-finished or finished inventory for both food and non-food. Furthermore, related information and documentation flows through the organisation and through the supply chain system in compliance with the general principles of Shariah (Islamic Law). Previously, Haleem et al. (2017) described halal logistics as similar to conventional logistics activities, which comprise of planning, implementing and controlling the distribution and storage of halal certified products from the source to the point of consumption. Thus, in adopting the halal principle within the context of logistics, the handling of halal products within the logistics activities that include transportation, storage, warehousing and retailing, must also adhere to the Shariah rules.

The main objective of this paper is to examine the factors influencing manufacturers in implementing halal logistics. Particularly, the study examines the relationship of halal integrity, knowledge and perceived usefulness on the intention and behaviour to implement halal logistics. Halal integrity relates to transportation handling, while knowledge focuses on the control of the administration activities, the people, and the processes. On the other hand, perceived usefulness encompasses the health and safety in using halal services. These factors are expected to impact on the intention and behaviour of the manufacturers.

Scope of Review
Halal Integrity in Conducting Transportation Handling

Halal integrity can be divided into two dimensions: physical integrity and ethical integrity (Hassan & Bojei 2011; Mohamad & Hassan 2011). Physical integrity covers the aspects of the halalness, the cleanliness, safety, health and nutritious attributes of the products. Ethical integrity refers to proper conduct, which is the aspects of processing, handling, packaging, labelling, warehousing, transporting, distributing, financing, marketing and selling. Halal integrity is the key to the halal industry's success, hence halal industry players must invest to create a premium image for halal products (Tieman, 2009b). Rasi et.al, (2017) found that halal integrity has a significant influence on the product adaptation strategy for halal product exporters. For example, markets with a high sensitivity to halal issues, such as Australasia and Europe, might demand a high level of halal product integrity. Despite the need for halal logistics management, the responsibility to take charge in ensuring the protection of halal integrity in transportation handling is still questionable. Previous studies suggested that of all the stakeholders in halal transportation, the providers are to bear the responsibility. Jaafar et al. (2011) argued that while an organisation can practice a halal quality assurance system, the products' halal integrity is intact only if the products are still in their custody. Once the food products move along the supply chain, the integrity of that product will only be as intact, as before, if the next receiving party in charge has a similar understanding in the operational practise of handling halal products. Otherwise, all efforts undertaken by the previous party in safeguarding the halal integrity status will crumble. This will increase the possibility of cross contamination and the food products will no longer be fit for Muslims' consumption.

Due to the nature of halal food, whereby the halal status is impossible to be determined even after consumption, the halal food manufacturers must first rely on the integrity of their supplier to supply them with raw materials that fit under the religion's requirements. Once the halal raw materials have been procured, it is now the responsibility of the food manufacturers to protect the halal status by incorporating the halal values in the production activities. The same principle is applied in the service integrity, in which the element of human interface is crucial, such as the competency of the workers in handling the halal food. This is key in order to prevent any incident of cross contamination that results in the loss of the halal status. Furthermore, information sharing that upholds the transparency principle between the supply chain partners, as well as between the producers and the consumers, will result in a higher level of trust and confidence.

Knowledge of Manufacturers Towards Halal Practises

In the application of halal logistics, the whole supply chain must apply Shariah principles. This includes administration activities, the people involved in handling the product/services,

the processes, and the transportation in use. Tieman (2011) argues that halal products do not only matter during the point of consumption or purchase, but also implicate every factor along the supply chain process, from farm to fork (supplier to consumer). This indicates that the halal supply chain is depicted in an integral scheme to the halal business in which, according to Wahab and Kamarubahrin (2019), the whole chain must apply Shariah principles. Therefore, administrative activities, the people and the processes are important elements to be investigated.

In Malaysia, most of the manufacturers have a good understanding and knowledge on halal food and food hygiene, including the ways it is prepared, processed and marketed (Said et al., 2014). Hence, the extent to which knowledge on the halal requirements influences the use of halal transportation, is yet to be explored.

Perceived Usefulness

Perceived usefulness is defined as the benefit trust, relating to the manufacturers' belief or system function that might increase their performance on a daily basis (Davis, 1989). It can also be defined as the manufacturers' trust in their choice to gain improvement in their quality of life. In the context of the halal study, Wibowo and Ahmad (2016) define perceived usefulness (PU) as the extent to which a consumer believes that purchasing a halal-labelled product improves his or her experience of shopping for food products. According to cue utilisation theory, consumers use cues for information to assist in decision-making (Dodds & College, 1995), and Muslims consider the halal label as a relevant information cue enhancing the label's perceived usefulness (PU). PU reflects cognitive beliefs about using halal-labelled products and, according to the theory of reasoned action (Fishbein & Ajzen, 1975), belief might affect behavioural intentions. This study underlines that the positive response related to product quality, safety, hygiene, and health represents the perceived usefulness of the halal product (Golnaz et al., 2012; Aziz & Chok, 2013; Abd Latif et al., 2014; Mathew, 2014; Haque et al., 2015).

Intention to Manufacturers Using Halal Transportation Services

Intention is defined as a person's level of readiness to perform the behaviour of interest (Blackwell et al., 2006). According to the Theory Planned Behavior (TPB) framework, intention is based on the individual attitude toward the behaviour, the subjective norms and perceived behavioural control, which are also considered the direct antecedents of behaviour. The theory of planned behaviour as proposed by Ajzen (1985, 1991), is used by integrating it with the Theory of Reasoned Action (Ajzen, 1985). The framework underlines the inability to confront with behaviour or action under individual volitional control which is incomplete. Therefore, volitional control is defined as an ability to perform behaviour after there is a will (Blackwell et al., 2006). Further, it can be seen in a positive and negative evaluation of the

degree of behavioural performance and perceived behavioural control based on the particular beliefs on an individual basis from intention to behaviour (Ajzen, 1991).

Methodology of study
Research Framework

This study comes with four research hypotheses (H1, H2, H3 and H4) and each hypothesis is incorporated into the study framework as shown in Figure 2. Briefly, the four Independent Variables (HI, K, PU and INT) are linked to the Dependent Variable (B) via the hypotheses, which is explained as follows:

H1: There is a significant relationship between halal integrity and the intention towards using halal transportation services.

H2: There is a significant relationship between the knowledge of halal practises and the intention towards using halal transportation services.

H3: There is a significant relationship between perceived usefulness and the intention towards using halal transportation services.

H4: There is a significant relationship between the intention to use halal transportation services and behaviour for prospective manufacturers that implement halal logistics.

Figure 1: Research Framework
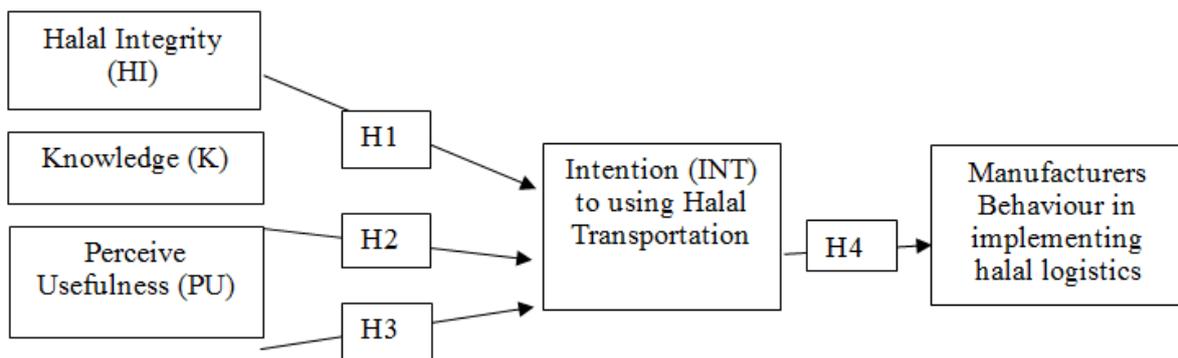
Methods

This study applies structural equation modelling (SEM) to analyse the structural relationships among halal integrity, knowledge of halal practises, perceived usefulness, intention, and behaviour regarding halal logistic acceptance, specifically in using halal transportation. This study focuses on the analysis at the organisational level of halal certified food and beverage organisations. Directors, managers, senior managers and senior executives were identified as

the appropriate main respondents since they are the key persons in the decision-making processes. This approach is intended to validate the applicability of this conceptual model in a 'real world' environment.

For this study, questionnaires were distributed to about 600 halal certified companies from four states. Namely, Selangor, Johor, Pulau Pinang and Wilayah Persekutuan. The states were selected due to the fact that 60 per cent of halal certified companies are located in these areas. The aim was to obtain a minimum sample size of approximately 200 respondents, in order to be sufficient for running the structural equation modelling (Hair et al. 2010). Around 360 completed questionnaires were collected from the respondents, who were randomly identified through the organisations' directory. Therefore, the decision to choose them is legitimate.

Data Analysis

A psychometric analysis was conducted before testing the hypotheses. It was aimed to assess the reliability of the measurement scales. This reliability assessment was developed based on the item to the total correlation and Cronbach's α coefficients ranging from 0 to 1. The convergent validity was analysed through factor analysis, composite reliability (CR), and average variance extracted (AVE), while discriminant validity was also assessed through comparing the correlation between constructs to the corresponding square root of AVE of the constructs. The appropriate level for an item to total correlation is > 0.3, while a good Cronbach's α should be > 0.7 (Nunnally, 1978). However, several references state that a Cronbach's α > 0.6 is acceptable (Kline, 2011). The item to total correlation of each measurement item has exceeded 0.3. In addition, the reliability of each variable is more than 0.6 and is considered acceptable for further analysis. The convergent validity was analysed through factor analysis, composite reliability, and average variance extracted, as shown in Table 1. There should be only one factor extracted, and the number of explained variance should be greater than 0.5. The result shows that the measurement items on each variable extracted to only one factor and the variance is above 50 per cent or 0.5.

Table 1: Internal Consistency

	Cronbach's Alpha (CA)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Halal Integrity (HI)	0.941	0.955	0.810
Knowledge (K)	0.806	0.868	0.767
Perceived Usefulness (PU)	0.873	0.879	0.802
Intention (I)	0.881	0.785	0.728

Cronbach's alpha is most used to assess the internal consistency of a questionnaire that is made up of the Likert-Scale. Based on the internal consistency, it shows that the Cronbach's Alpha is more than 0.8. meaning the data is reliable. The Cronbach's Alpha for halal integrity (HI) is 0.941, 0.806 for knowledge (K), 0.873 for perceived usefulness (PU), and 0.881 for intention (I). Composite reliability varies from 0 to 1, with 1 being perfect estimated reliability. In a model adequate for exploratory purposes, composite reliabilities should be equal to or greater than 0.6 (Chin, 1998; Hock & Ringle, 2006). For Average Variance Extracted (AVE) it reflects the average communality for each latent factor in a reflective model. In an adequate model, AVE should be greater than 0.5 (Chin, 1998; Höck & Ringle, 2006) as well as greater than the cross-loadings, which means factors should explain at least half the variance of their respective indicators. AVE below 0.50 means an error variance exceeds the explained variance. In this study, its shown that the AVE is greater than 0.5.

Discussion

Comparing the results in Table 2 below, all relationships are strong in the model. In addition, all the hypotheses tested are significant and have a much better fitness score. The focus of this study was to identify what are the contributing factors of manufacturers to use halal transportation services. This study shows halal integrity (ß= 0.232, p=0.007), knowledge of halal practises (ß= 0.167, p=0.003) perceived usefulness (ß= 0.205, p=0.001), and intention (ß=0.210, p=0.000) showed a significant relationship towards implementing halal logistics. So, H1, H2, H3, and H4 were supported.

Table 2: Structural Model Assessment

Hypothesis	Relationship	T Values	P Values	LL	UL	Decision
H1	*Halal Integrity ->* *Intention to use halal transportation*	0.683	0.007	0.214	0.092	Supported
H2	*Knowledge ->* *Intention to use halal transportation*	3.387	0.003	0.195	0.147	Supported
H3	*Perceived Usefulness ->* *Intention to use halal transportation*	9.668	0.001	0.849	1.074	Supported
H4	*Intention to use halal transportation -> Manufacturers behaviour in implementing halal logistics*	2.577	0.000	0.052	0.372	Supported

Based on the analysis in the model, this study reveals that the manufacturer's halal integrity, knowledge of halal practises, and perceived usefulness significantly influence the intention to use halal transportation services. One of the important variables in transportation handling is the manufacturers' halal integrity. Manufacturers should be concerned with quality assurance, for instance, the halal logo and the halal certification. Manufacturers need to make sure that the transports in use are appropriate to the type of the halal food. Referring to Rasi et.al, (2017), halal integrity has a positive influence on the product adaptation strategy for halal products for catering to local and international demands. This is because only manufacturers can identify the origin of the materials of the product, as well as the preparation of transportation to carry products from the beginning of the production process until the end consumers. Therefore, it is the manufacturers' responsibility to ensure the protection of halal integrity in the transportation handling, as not to be questioned by the consumers on the halal status.

The next important variable in this study is the knowledge of the manufacturers on halal practises. This study revealed that respondents have the ability and authority to control the

supply chain process, which is related to the administration activities, the people, and the processes. Manufacturers need to have the knowledge to fulfil the existing standard requirements, and must also understand the Shariah law to ensure the implementation of halal logistics meets the requirements as provided by the certification bodies, especially in the context of Malaysia. In this line of thought, manufacturers are able to determine the status of the product (whether it is halal or not) at every stage of the supply chain until it is delivered to the consumers. In other words, manufacturers can guarantee that in the process of producing and delivering the products, they undergo Shariah compliant processes and procedures. Hence, it is evident that manufacturers would have the intention to use halal transportation services when they have an understanding of the correct method of the entire production process of halal food.

Perceived usefulness is known as the perception of trust in the benefit of the product before they make any choice or decision to use or to purchase in the belief that the benefits may improve the quality of life (Lee, Eze & Ndubisi, 2011). Perceived usefulness will be achieved when manufacturers have sufficient knowledge of halal logistics. The results showed that the dimensions of product quality, safety, hygiene and health showed a strong relationship to perceived usefulness. This implies that when manufacturers satisfy with the benefits of persevering the status of halal in the process of producing and delivering products, then the intention to use halal transportation services would be higher. Among the dimensions, safety holds the highest value. This means that in practicing halal logistics, manufacturers should focus in making sure that the products are safe from contaminating with non-halal products, including dangerous substances.

In addition, when manufacturers perceived halal food as useful particularly in terms of quality, safety, hygiene and health, this could also promote a healthy lifestyle by choosing halal products over non-halal products.

The results also indicated that the intention to use halal transportation services is positively linked with behaviour to use halal transportation. This suggests that the actual use of halal transportation depends on the manufacturer's positive intention, based on the recognition of halal integrity in terms of the authorisation (halal logo and halal certification), the level of knowledge on halal practises and positive perception on the usefulness of complying to halal requirements.

Conclusion

This study explored the perception of manufacturers on the implementation of halal concepts in using transportation. The results revealed that halal integrity, knowledge of halal practises and perceived usefulness have a strong relationship with the intention to use halal transport. The results also suggest that the intention to use halal transport will ultimately influence the

behaviour to use halal transportation. The findings of this study will primarily be beneficial to manufacturers and businesses, such as halal transportation providers, as this information can be the reference point for them to plan further initiatives to adopt halal transportation services in their business activities in the future. By using the results of this study, halal service providers can work together with government authorities, such as JAKIM (Department of Islamic Development) and HDC (Halal Development Corporation), to determine the area of focus that is important to address if they were to implement halal logistic management as a whole.

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