


## RELATIONSHIP BETWEEN HALAL TRACEABILITY SYSTEM ADOPTIONS ON HALAL FOOD SUPPLY CHAIN INTEGRITY AND PERFORMANCE




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### ABSTRACT

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The increase number of cases on the misused of Halal logo and questionable status of Halal food indicate that there are weaknesses in the procedure of determining Halal food. In this case, food companies must be prepared to implement traceability system to ensure the authenticity of Halal products. Accordingly, the main purpose of this study is to examine the relationship between the Halal traceability system adoption on Halal food supply chain integrity and performance. Using a quantitative research approach, survey questionnaires were distributed to 127 Malaysian Halal food and beverages companies during Halal exhibitions. Partial Least Squares (PLS) software was applied to examine the direct effect hypotheses. The results revealed that Halal traceability system adoptions were significantly importance in enhancing Halal food supply chain integrity and performance. The study has successfully filled the gap in literature by empirically establishing the relationship between Halal traceability system adoption on Halal food supply chain integrity and performance.

**Contribution/ Originality:** This study is one of very few studies which have empirically link traceability system, supply chain integrity and supply chain performance in the Halal food industry. The paper's primary contribution is the finding support the integration of Halal context as an important determinant in current food supply chain in accordance with Islamic law.

## 1. INTRODUCTION

There are several issues that made Muslim consumers became aware about the status of *Halal* products that they consume. Amongst them are fraudulent cases in *Halal* certification and physical contamination (Zulfakar *et al.*, 2012) *Halal* foods manufacturers do not comply with the regulations set by the Malaysia authorities (Suhaiza *et al.*, 2010b; Arif and Sidek, 2015) the use of *Halal* logo on food produced from unslaughtered chicken (Berita Harian, 20<sup>th</sup> February 2008), and the status of catfish which fed with filth or *najs* and catfish fed with feed derived from pig organs in several ponds at Batu Gajah, Tronoh and Papan, Perak (JAKIM, 2006). These issues indicate that there are weaknesses in the procedure of determining *Halal* food.

Furthermore, with the increase number of non-Muslims dominating the food industry, the status of *Halal* food has become doubtful (Arif and Sidek, 2015). This has led to the barriers and misconceptions in producing *Halal* food. It seems that several suppliers and manufacturers did not realize the peculiarity in the process of handing

*Halal* food (Arif and Sidek, 2015). The production of *Halal* food needs a very cautious understanding throughout the supply chain especially if a product has a complex collection of ingredients (i.e., animal or plant source) and processing aids (Al-Mazeedi *et al.*, 2013).

In order to achieve the untainted *halal* food supply chain integrity, each partner in the supply chain from supplier until the end user need to be monitored, so that users can satisfy with the authenticity of *halal* products (Bahrudin *et al.*, 2011). Therefore, the adoption of *halal* traceability system is crucial to diminish and to assure that the contamination does not exist throughout the process in handling *halal* food in accordance with *Shariah* compliant. According to Zulfakar *et al.* (2014) the traceability also can be used to trace the *halal* status of particular food products at every stage of the supply chain and can increase the *halal* transparency and strengthens the *halal* integrity.

Although numerous study has been conducted in *Halal* integrity and food supply chain integrity (Suhaiza *et al.*, 2010a; Abdul and Hazlinda, 2011; Zulfakar *et al.*, 2012; Zulfakar *et al.*, 2014) and *Halal* traceability (Suhaiza *et al.*, 2010b; Zulfakar *et al.*, 2014) there is no empirical study focused specifically to shows the relationship between *Halal* traceability system adoption and factors enhancing *Halal* food supply chain integrity and performance. Thus, to help bridge this gap in literature, this study attempts to examine to what extent the *Halal* traceability system adoptions is relevant in enhancing the *Halal* food supply chain integrity and performance.

## 2. LITERATURE REVIEW

### 2.1. Definition and Concepts of Halal

*Halal* is defined as something that should be allowed and cannot be punished if it is conducted (Jayyib, 1998). In addition, *Halal* is also defined as permitted, allowed, lawful and legal (Mohammad, 1993; Lada *et al.*, 2009; Batu and Regenstein, 2014; Ismail and Laidey, 2014; Arif and Sidek, 2015). Generally, *Halal* means lawful and permissible according to Islamic law and principle (Samori *et al.*, 2014) which refers to the teachings of al- Quran and exemplary conduct of Prophet Muhammad as quoted in Hadith (Yusuf *et al.*, 2016).

*Halal* product is being produced in accordance with religious requirements based on *Halalan tayyiban* concept. The concept requires the product to meet the essential element of *Halal* and *tayyib* that is good and high quality for human consumption (Abdul and Hazlinda, 2011). The guidelines to select *Halal* food and *Tayyib* have been stated explicitly in a few verses of the Quran that urge Muslims to choose only permitted food:

“Eat of the things which Allah has provided for you, lawful and good; and fear Allah, in whom you believe” (Al-Maida 5:88).

The verse explains that Islam underlies to all Muslims who live on this earth should find *rizk*, which is *Halal* and *Tayyiban*. They must eat *Halal* food and avoid eating dirty food and any food that is prohibited in Islam so that it will not ruin their bodies and lives (Omar and Jaafar, 2011).

In addition, the principle of permissibility of things describes that everything is created by Allah is permissible to Muslim except what has been stated in Quranic verses and the Prophet tradition (Tieman *et al.*, 2012). The aspect of permissibility in this principle is not only limited to the things and objects being used or consumed, but also includes all human actions and behavior (Abdul and Hazlinda, 2011).

### 2.2. Halal Traceability System Adoption (HTSA)

With regard to *Halal* food industry, the application of traceability is at a new stage due to its infancy of large scale production of *Halal* products (Shafii and Wan, 2012). From the requirements of *Halal* food production, traceability is critical to manufacturers, producers and distributors as the aim is to provide products with safety and healthy assurance, good quality and most importantly the products must comply with *Shariah*. According to Suhaiza *et al.* (2010b) traceability in the *Halal* industry is defined as a communication tool to ensure that information related to *Halal* food and products is available along the supply chain.

In addition, traceability can be used to trace the *Halal* status of a particular food product at every stage of the supply chain (Zulfakar *et al.*, 2014) and traceability must be set up with the purpose to increase transparency in the production chain. Therefore, it is obvious that *Halal* food traceability is not a single firm's responsibility. It is a shared commitment between all the players along the supply chain which involves the integration of both the supply chain management and the inter-organizations information flow (Engelseth, 2009).

### 2.2.1. Supplier Traceability

Suppliers are those who supply the raw materials to the food producers who in turn will supply the materials to the retailers and wholesalers before they distribute to the end user (Siti Zakiah *et al.*, 2011). As the supplier in the *Halal* industry, the concern is to ensure that the livestock they supply meets the *Shariah* requirement such as being fed with good, clean, permitted and legal nutritious food. In addition to that, the livestock industry needs to allocate a unique identification number to every livestock animal that comes from their farm (Pettitt, 2001). Furthermore, it is the responsibility of the supplier to ensure that any slaughtering processes, packaging and logistics operators that they choose follow the *Shariah* guidelines and *Halal* requirement. The detailed information on *Halal* raw materials needs to be conveyed through labelling and tagging. Thus, consumers are able to know whether the food is *Halal* or otherwise and the *Shariah* requirements have been satisfied during the processing stage. The packaging and labelling are very critical particularly to ensure the food will not be mistakenly contaminated or mixed with non-*Halal* products during the distribution.

H1a: Supplier traceability is positively related in enhancing the *Halal* traceability system adoption.

### 2.2.2. Producer Traceability

Producers play the most important role as they need to understand the whole supply chain and the flow of production (Muhammad *et al.*, 2009). Every step in the production process needs to be verified as *Halal*-compliant. First, the food producers must be able to trace the raw materials to prevent unsafe and non-*Halal* ingredients from entering the production process or the entire supply chain (Starbird and Amanor-Boadu, 2006). It is their responsibility to ensure that there is a review mechanism to identify the *Halal* status of the food ingredients that comes from the suppliers (Riaz and Chaudry, 2004). Next, the *Halal* food producers need to ensure they use *Halal* materials and equipment for packaging and ensuring that all labelling are correct. They must also provide clear information on origin and processes, thus, being transparent to their customers to ensure relevant information being shared with all the industry players so that non-*Halal* products, processes and ingredients can be bypassed at all levels (Siti Zakiah *et al.*, 2011). Furthermore, the employees must practice the concept of hygiene permitted by Islamic law and *Shariah*-compliant. They must have awareness regarding *Halal* requirement and fully understand the *Halal* principles. Meanwhile, in production line, the purchasing department, distribution and storage departments, the way the products or materials are processed, stored and transported must follow the *Halal* principles. By doing so, the *Halal* food producers may prevent any misconception and gain customers' confidence and trust in their products.

H1b: Producer traceability is positively related in enhancing the *Halal* traceability system adoption.

### 2.2.3. Logistics Traceability

*Halal* logistics is well described by Tieman (2010) as the process of managing the procurement, movement, storage and handling of materials, parts, livestock, semi-finished or finished inventory both food and non-food, while the related information and documentation flows through the organization and the supply chain are in compliance with the general principles of *Shariah*. From this definition, it indicates that *Halal* logistic traceability involves every aspect of supply chain, from upstream to downstream (Tieman, 2011). In addition, the flows of inbound vehicle (i.e., truck, container) have to be monitored to avoid the mixing of *Halal* and non-*Halal* products.

Furthermore, the segregation in containers and warehouses are needed if there are non-*Halal* and *Halal* products in the same containers or warehouses.

H1c: Logistics traceability is positively related in enhancing the *Halal* traceability system adoption.

#### 2.2.4. End User Traceability

The end users in the current study are focused towards retail, shop and customers. Traceability activities that can be implemented by the retail and shop are to maintain the freshness, cleanliness and *Halal* products safety to be sold. In addition, retailers should monitor the shelf rack to avoid mixing them with non-*Halal* products and segregation needs to be done if they sell *Halal* and non-*Halal* products. Meanwhile, the implementation of traceability among consumers is being done by looking for any complaints from customer and enhances the service quality by providing the customer portal website or customer service centers (Siti *et al.*, 2011).

H1d: End user traceability is positively related in enhancing the *Halal* traceability system adoption.

Based on these discussions, with respect to *Halal* traceability system, all the players involved in the food supply chain are required to store the necessary information related to the food products and processes that links inputs with outputs, so that when the information is needed, it could be provided to the *Halal* food inspection authorities immediately.

### 2.3. Halal Food Supply Chain Integrity (HFSCIn)

*Halal* integrity has become a foundation in ensuring the successful of *Halal* industry regardless of what type of the *Halal* products. As the *Halal* integrity of the product is a result of the various activities in the supply chain, a supply chain approach is important to guarantee the *Halal* integrity at the point of consumption (Tiemann, 2011). However, maintaining the *Halal* integrity is the major challenge for all the parties involved in the *Halal* supply chain (Zulfakar *et al.*, 2014). This is because, the possibilities of cross contamination or tendency of *Halal* products to be handled together with non-*Halal* product is quite high throughout the supply chain. Therefore, to protect the *Halal* integrity, complete understanding of the whole *Halal* food supply chain is required (Tiemann, 2011). Thus, current study will elaborate the integrity issues for each of the supply chain partners (i.e., supplier, manufacturer, control system, and customer).

The production of *Halal* food is administrated by standards and legislation (i.e., MS1500:2009, HACCP, GMP, GHP, etc). According to Ali *et al.* (2014) production or manufacturing is the most emphasized stage in *Halal* food supply chain to determining the quality and integrity of the food. This is because, the production processes involve numerous stages from choosing the ingredient or raw materials, assembly process, packaging, labelling, and storage of finished products. Thus, if there are slight changes in the ingredients, the integrity of the food which was certified as *Halal* will be doubtful. In addition, *Halal* food production also exposed to the risk of contamination from equipment which will eventually affects *Halal* supply chain integrity. Ali *et al.* (2014) suggested, the use of appropriate equipment is not only limited to the factory and kitchen sections, but should be applied to all level of supply chain. On the other hand, the *Halal* food producers or manufacturers need to pertained transparency in the whole process of production and have to make sure that all employees encompass an adequate awareness to ensure the integrity of *Halal* product remains until the point of consumption.

Control system integrity in *Halal* industry can be observed through *Halal* certification and logo, *Halal* standard, and traceability and tracking activities. According Zulfakar *et al.* (2014) *Halal* certification is one of the factors in enhancing *Halal* food supply chain integrity. In essence, *Halal* certified products encourage sense of confidence and trust among customer that the food products they purchased are *Shariah*-compliant. In addition, Riaz and Chaudry (2004) added, *Halal* certification such as *Halal* logo or certified of compliance, issued by reputable and accredited agency shows that the product has sufficiently met the Islamic dietary. Thus, the authorized *Halal* logo or certificates issued by trustworthy organization may improve integrity and prevent from any fraud, fake and

misleading logo or certificates. Furthermore, *Halal* standard is another concern in ensuring the integrity of control system. *Halal* standard and guidelines are diverging due to various *Halal* authorities and agencies in different countries. Accordingly, having the *Halal* certificate and applying *Halal* standard will facilitate the company to practice a complete traceability system. According to [Suhaiza et al. \(2010b\)](#) the *Halal* traceability systems should be set up with the purpose to increase the *Halal* transparency in the production chain. More transparency will increase customer trust on the products and increased information on the total supply chain processes. [Zulfakar et al. \(2014\)](#) added, a comprehensive and reliable traceability system in the *Halal* food supply chain can increase the *Halal* transparency and strengthen the *Halal* integrity.

The increasing awareness, knowledge and perception of Muslims all over the world on their obligation to consume food based on Islamic dietary requirements creates greater effort among food producers to create reliable *Halal* foods. According to [Randolph \(2003\)](#) awareness means the knowledge or understanding of particular subject or situation. With regards to *Halal* context, awareness means having special interest in or experience of something and/or being well informed of what is happening at the present time on *Halal* foods and products. In addition, increasing customers' confidence in food and reducing customer complaints will increase food quality and safety ([Arana et al., 2002](#); [Mousavi et al., 2002](#); [Liao et al., 2011](#)) consequently will increase the integrity. Furthermore, customer sensitivity and cooperation in giving information regarding *Halal* foods status is also expected to increase the integrity of the *Halal* foods.

In addition, the use of traceability systems in food industry has been recognized as a tool to assist in the assurance of food safety and quality as well as to achieve consumer confidence. [Suhaiza et al. \(2010b\)](#) proposed *Halal* traceability systems that can be used to strengthen the *Halal* food supply chain. Meanwhile, [Siti et al. \(2011\)](#) and [Zulfakar et al. \(2014\)](#) suggested that *Halal* traceability systems will assist to sustain the integrity of *Halal* product. In addition, traceability system increases the quality of food and food production system as it increases the awareness of workers through the focus on data capturing and documentation process ([Donnelly and Olsen, 2012](#)) and consequently, this will increase the integrity. Therefore, this study expected the *Halal* traceability system adoption (HTSA) has a positive effect towards HFSCIn.

H2: *Halal* traceability system adoption (HTSA) has a significant influence on the importance of *Halal* food supply chain integrity (HFSCIn).

#### 2.4. Halal Food Supply Chain Performance (HFSCPer)

The supply chain performance is an overall performance measure that depends on the performances of the individual chain stages and the respective processes that are executed in those stages ([Van der Vorst, 2006](#)). According to [Beamon \(1999\)](#) performance measurement system of a supply chain can be accessed from three aspects of flexibility, output, and resources.

Furthermore, [Tiemann et al. \(2012\)](#) suggested that in order to optimize the supply chain of *Halal* food industries, new indicators should be included in the performance measurement systems as to ensure that the supply chains are not only efficient, but also effective in protecting the *Halal* integrity and robust in its supply chain execution.

A firm's success is tied to the strength of its supply chain partners. According to [Spekman et al. \(1998\)](#) only through close collaborative linkages in the entire supply chain, one can fully achieve the benefits of good supply chain performance. In addition, supply chain performance is an overall performance measure that depends on the performances of the individual chain stages ([Van der Vorst, 2006](#)). Hence, this study suggests the following hypothesis:

H3: *Halal* food supply chain integrity (HFSCIn) has a significant relationship on *Halal* food supply chain performance (HFSCPer).

Consequently, this study will examine the relationships between *Halal* traceability system adoption (HTSA) on *Halal* food supply chain integrity (HFSCIn) and *Halal* food supply chain performance (HFSCPer).

### 3. MATERIALS AND METHODS

The unit of analysis of the study is the organizational level consists of *Halal* food producers that have been certified by JAKIM. The self-administrated questionnaires were distributed during Malaysia International *Halal* Showcase (MIHAS) 2014 at KLCC, Kuala Lumpur on 9<sup>th</sup> -12<sup>th</sup> April 2014 and *Halal* Fiesta Malaysia (HALFEST) 2014 at MIECC, Mines Seri Kembangan, Selangor on 3<sup>rd</sup> -7<sup>th</sup> September 2014. The exhibitors came from all around the globe and also came from every state in Malaysia. Since this study only focuses on companies which are operating in Malaysia, all international participants are excluded from the survey. The products range presented during this exhibition includes foods, pharmaceuticals, cosmetics, and services. However, due to the focus of this study is food manufacturers, thus, the questionnaires were only distributed among *Halal* food manufacturers during the exhibition. Most of the respondents are the general manager or owner of the company, *Halal* executives, quality assurance managers, operation managers and sales manager.

### 4. DATA COLLECTION

Two hundred (200) self-administered questionnaires were distributed to the exhibitors via face-to-face during MIHAS and HALFEST exhibition from 9<sup>th</sup>-12<sup>th</sup> April 2014 and 3<sup>rd</sup> -7<sup>th</sup> September 2014. A total of 175 of them were collected, but only 127 of them can be used for data analysis purpose. The other 48 returned questionnaires are unusable because of poor quality of data and they are not in food and beverages category. Only the person with good knowledge of the company and have *Halal* certified product is qualified to complete the survey.

### 5. DATA ANALYSIS

#### 5.1. Structural Model Assessment

The first important criterion for assessing structural model is to measure the model's predictive accuracy by evaluating the coefficient of determination ( $R^2$ ). The  $R^2$  value indicates the amount of variance in dependent variables that is explained by the independent variables. According to Chin (1998)  $R^2$  values for endogenous latent variables are assessed with 0.67, 0.33, or 0.19, respectively describing substantial, moderate, or weak level of predictive accuracy. As illustrated in Figure 5.1, the  $R^2$  value for *Halal* Food Supply Chain Performance (HFSCPer) was 0.320 suggesting that 32% of the variance can be explained by *Halal* Food Supply Chain Integrity (HFSCIn).

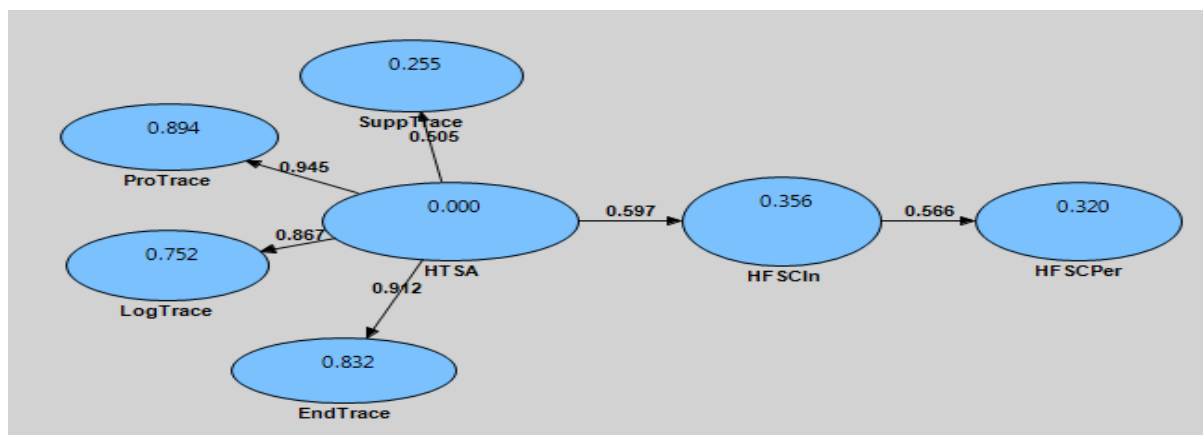


Figure-5.1. Result of Structural model

Source: Survey Data

Meanwhile, the cross-validated redundancy ( $Q^2$ ) is a means for assessing the inner model's predictive relevance and how well the omitted data are estimated by the model. In PLS, the omitted data can be estimated in two modes:

(i) Cross Validated Community ( $H^2$ ) or (ii) Cross Validated Redundancy ( $F^2$ ).  $H^2$  is where the missing values of the manifest data are estimated using the latent variables scores and factor loadings. Meanwhile,  $F^2$  is where the scores of latent endogenous variables are estimated by the scores of latent exogenous variables and the weights in the measurement model. These newly estimated scores of latent exogenous variables are used to estimate the missing manifest variables score. Both statistics are obtained through blindfolding procedures in PLS. In addition,  $Q^2$  is generally estimated using an omission distance of 5 to 10 and the rule of thumb is, if  $Q^2 > 0$  means that the model has predictive relevance; while  $Q^2 < 0$  means that the model has lack of predictive relevance (Fornell and Cha, 1994).

In the current study, the predictive sample reuse technique was applied (Fornell and Cha, 1994; Chin, 2010) besides looking at the magnitude of the R-square ( $R^2$ ) as a criterion for predictive relevance. Figure 5.2 revealed the current study  $Q^2$  value of 0.156 by using an omission distance of seven in the blindfolding procedures. The  $Q^2$  larger than zero indicates that the path model has predictive relevance for this particular construct. In this model, HFSCIn predicted HFSCPer.

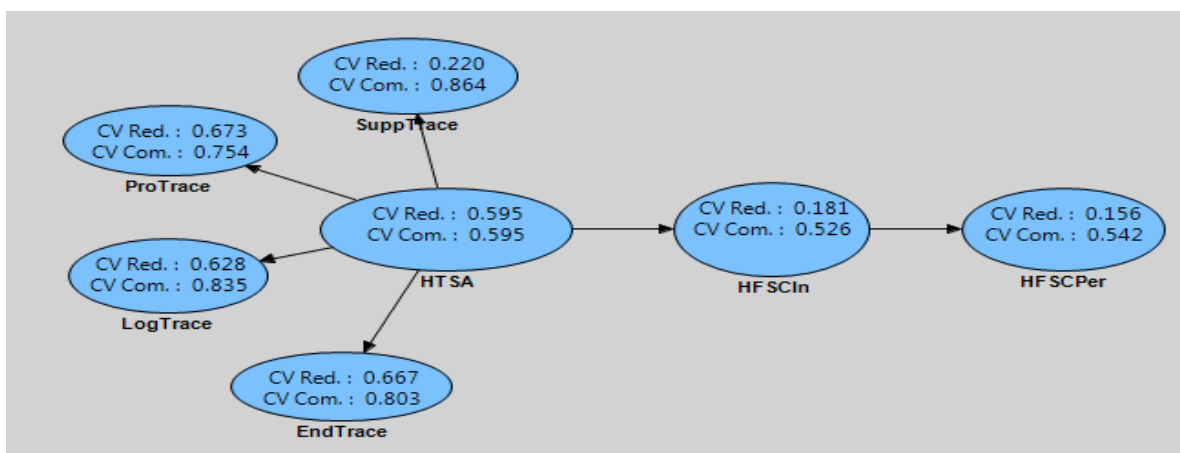


Figure-5.2.  $Q^2$  Predictive Relevance

Source: Survey Data

### 5.2. Path Coefficient and Hypothesis Testing

The path coefficient between constructs was assessed to validate the proposed hypotheses and the structural model. According to Hair *et al.* (2013) the path coefficient values need to be at least 0.1 to account for a certain impact within the model. The results of hypotheses testing for current study (refer Table 5.1) showed that all proposed hypotheses are supported. From this analysis, supported hypotheses are significant at the level of 0.01, have positive sign directions and consist of a path coefficient value ( $\beta$ ) ranging from 0.505 to 0.945.

Based on the result below, the highest adoption of *Halal* traceability system is among the producer ( $\beta = 0.945$ ,  $t = 80.568$ ,  $p < 0.01$ ), followed by end user ( $\beta = 0.912$ ,  $t = 51.635$ ,  $p < 0.01$ ), logistic ( $\beta = 0.867$ ,  $t = 33.155$ ,  $p < 0.01$ ), and supplier ( $\beta = 0.505$ ,  $t = 5.319$ ,  $p < 0.01$ ). In addition, HTSA was also found to have significant relationship on HFSCIn ( $\beta = 0.597$ ,  $t = 9.697$ ,  $p < 0.01$ ), thus conforming H2. Meanwhile, hypothesis H3 was also supported and it can be confirmed that there is a significant relationship between HFSCIn and HFSCPer ( $\beta = 0.566$ ,  $t = 11.551$ ,  $p < 0.01$ ).

Table-5.1. Path coefficient and hypothesis testing

Hypothesis	Hypothesis	Beta	Standard Error	T-Value	Decision
H1a	HTSA -> SuppTrace	0.505	0.095	5.319**	Supported
H1b	HTSA -> ProTrace	0.945	0.012	80.568**	Supported
H1c	HTSA -> LogTrace	0.867	0.026	33.155**	Supported
H1d	HTSA -> EndTrace	0.912	0.018	51.635**	Supported
H2	HTSA -> HFSCIn	0.597	0.062	9.697**	Supported
H3	HFSCIn -> HFSCPer	0.566	0.049	11.551**	Supported

\*Note: t value > 1.645\* (p<0.05) t value>2.33\*\* (p<0.01)

Several reasons explain the significant results of HTSA on HFSCIn. This finding is consistent with previous study done by *Zulfakar et al. (2014)*; *Bahrudin et al. (2011)* and *Suhaiza et al. (2010b)* where they found with the implementation of comprehensive and reliable traceability system will strengthen the *Halal* food supply chain and increase the *Halal* integrity. In addition, a study by *Hassan (2013)* also found that the development of *Halal* logistics such as *Halal* control system, *Halal* traceability, *Halal* tracking system, *Halal* transportation and warehousing system has been critical in ensuring the integrity of *Halal* products. These results have providing opportunities to understand further on the importance of HTSA in enhancing HFSCIn.

Meanwhile, the positive relationship between HFSCIn and HFSCPer confirmed that integrity for each of the partners in the supply chain is crucial in determining the whole performance of *Halal* food supply chain. This finding has been supported by *Spekman et al. (1998)* who indicate that only through close collaborative linkages in the entire supply chain, one can fully achieve the benefits of good supply chain performance. Consistently, *Van der Vorst (2006)* suggested that the supply chain performance is an overall performance measure which depends on the performances of the individual chain stages. Thus, it can be concluded that HFSCIn is important to ensure the performance of supply chain in the *Halal* food industry.

## 6. DISCUSSION AND CONCLUSION

In the *Halal* industry context, the *Halal* integrity of the product is a result of the various activities in the supply chain. Additionally, a supply chain approach is important to guarantee the *Halal* integrity at the point of consumption (*Tieman, 2011*). Therefore, complete understanding of the whole *Halal* food supply chain is required to protect the *Halal* integrity (*Khan, 2009; Lodhi, 2009; Tieman, 2011*).

Since Muslim consumers are very curious and want assurance that the products they consume are authentically *Halal* and should be *tayyib*, it can be expected that the *Halal* food supply chain integrity will also be influenced by traceability system adoption. Based on the findings, the traceability system adoptions were found to have significant relationship on *Halal* food supply chain integrity. Meanwhile, *Halal* food supply chain integrity was also found to have relationship on *Halal* food supply chain performance.

This study only focused on *Halal* food industry particularly the food and beverages category. Thus, future study can explore further on every category in food industry such as raw materials and ingredients; poultry, meat and dairy; fast food and premises and make comparison between pharmaceutical, cosmetics, and healthcare in *Halal* industry. In addition, the sample size (N = 127) can be considered small and therefore, it is recommended that in future the subject matter be explored with a much larger sample to allow generalization of the result. Furthermore, a large sample would assist future researchers to make use of other stronger data analysis.

In general, this study provided, perhaps for the first time, an analysis of the relationship between traceability adoptions on supply chain integrity and performance. The study revealed the significant relationship between *Halal* traceability system adoptions on *Halal* food supply chain integrity and *Halal* food supply chain performance. Thus, by understanding the importance of traceability system adoptions in enhancing *Halal* food supply chain integrity, the finding may provide a guideline and better perceptive for developing effective strategies and modifications to improve the *Halal* integrity practice and the supply chain performance.



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