

# Establishment of Traceability practices through Halal Assurance System (HAS) Implementation

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## **ABSTRACT**

For several years, Department of Islamic Development Malaysia (JAKIM) has started to introduce the Halal Assurance System (HAS) to enable companies to fulfil the needs of end-customer. Besides, it allows companies to be more competent in ensuring halal assurance along the supply chain. The introduction of HAS as one of control system in order to sustain Halal integrity of a product is a remarkable effort. Even though HAS is currently compulsory for multinational company, but it is imperative for every player in halal industry to understand the importance of implementing the system properly. This is to ensure that the expected results can be maximized especially in providing traceability. There is a possibility of using multiple approaches of management or system due to the different guidelines, standards and practices that enables traceability in production. Thus, this paper discusses the similarity components of HAS, ISO22005:2007, and HACCP (Hazard Critical Control Point). This paper suggests that through the effective HAS implementation, firms can add value by having the traceability system in place.

**Keyword:** Halal Assurance System, Halal food supply chain, Traceability

## **INTRODUCTION**

Halal industry continue to become an attraction in global trade-market with an estimation value of USD3.7 trillion (MITI, 2016) and the value of Halal food sector is reaching USD 660 billion annually (Bernama, 2017). The development of the sector also can be seen by total of halal certified companies which is increasing every year. Just as in Malaysia, 5726 companies having halal certification in Malaysia by 2015. It was a 21% increase with over 1200 companies on from a year before. This amount indicates Malaysia is in a strong position towards global halal hub in 2020 (Bernama, 2014).

Undoubtedly, with this great development comes with great obstacle. Halal market is not excluded from crisis involving non-compliance of halal standards and Syariah Law to fraudulent of Halal logo and terms. In 2014 alone, there are several fraudulent cases occurred related with Halal product including contamination of halal product with non-halal substance (e.g, presence of pig's DNA in a product), the use of fake halal logo and suspended of halal certification due to violation of halal standard such as production in non-hygienic environment. As a result, this incidents give a negative impact especially consumer's confidence on halal product.

Furthermore, the image of affected company may ruin and even society has questioning on credibility of Islamic authority bodies for issuing halal certificate.

Despite of Malaysia's status as one of the largest halal-hub in the world, it is crucial for an establishment of a credible system to sustain halal product integrity. A halal quality management system that can meet with consumer's need and allow halal industry player to preserve the 'halalness' of their product. Starting from July 2013, Department of Islamic Development Malaysia (JAKIM) required for multinational company to develop Halal Assurance System as a pre-requisite program before applying for halal certificate. Based on concept of effective quality management system, this reliable system can provide a systematic and practical approach for organizations to ensure halal integrity of their products (JAKIM, 2013).

Starting from July 2013, multinational companies operating in Malaysia are required to first implement the HAS before applying the *halal* certification. Meanwhile, multinational companies who are *halal* certified should have the HAS implemented by end of 2013 (JAKIM, 2013). Eventually this requirement will become compulsory to all companies producing *halal* products in Malaysia. Therefore, the implement of a systematic traceability system by *halal* products manufacturers is pertinent if sustainable Halal Assurance System is desired. However, there have not been many guidelines provided on *halal* traceability system implementation that is specifically develop for *halal* products manufacturers to follow.

The objective of this paper is to study and compare the component of traceability in HAS requirement with the existing well known international standard, which are the ISO22005:2007 (Traceability in the feed and food chain) and HACCP (Hazard Critical Control Point). This paper will provide clearer guidelines to the industry players in halal food related industry to implement HAS.

## **LITERATURE REVIEW**

### **Halal Assurance System (HAS)**

Halal Assurance System is a system with an internal mechanism to monitor, control, improve and prevent any non-compliance in halal production. This system needs to be developed and being implemented by a producer or company to assure that the products produced are halal. It is including their responsibilities to make sure that entire process in supply chain are meet with requirements set by halal authority bodies (JAKIM, 2013).

According to Chaudry et al. (1997), this system is set up based on three zero's concept:

- I. zero limit (no haram material used in the production)
- II. zero defect (no haram product is produced)
- III. zero risk (no disadvantageous risk should be taken by the producer or company)

The HAS requirements puts pressure for firms to implement the *halal* traceability system. *Halal* traceability throughout the supply chain in HAS can be achieved through the six principles namely the determination of Halal Critical Points, development and Verification of Flow Chart, Implementation of Control Measures, Development of Corrective Actions, Documentation System and Management of Records, and Process Verification (JAKIM, 2013). There are 6

principles of HAS management system. These principles are similar with Hazard Analysis Critical Control Point (HACCP) approaches. Despite of HACCP objective, to identify, evaluate and control of hazards in a particular food operation (Codex, 1997), HAS implementation are similar but with an added value of monitoring and control halal status throughout supply chain, in accordance to concept of Halal and Toyyiban. Both HACCP and HAS are systems that focusing on prevention rather than relying mainly on end-product testing.

The principles are as follows:

- I. Determination of Halal Critical Points (HCP).  
Halal critical points are stages along supply chain stages that may have possibility or risk for halal non-compliance. These HCPs will be identified by Internal Halal Committee of a company. It is being determined not only on risk of contamination with non-halal substance but it is also enclosing on the safety aspect. The critical points that have been identified need to be controlled and monitored. For example, in cheese production; Additions of enzymes, cultures and colours is one of HCP because the sources can be derived from non-halal animal. The use of any of these ingredients should be free from doubtful sources (Riaz and Chaudry, 2003).
- II. Development and verification of flow chart.  
The company should provide flow chart of entire process involved in supply chain. This process is important as its information can be a tool for company to determine which potential halal threads along the chain.
- III. Implementation of control measures.  
The company need to come out with appropriate measurement as an indicator if there is any halal threats are found. The measurement must be in accordance with Malaysian Standard or any applicable halal requirements.
- IV. Development of corrective action.  
The company responsible to develop corrective actions whenever any non-compliance has occurred. The management need to plan established procedures to make sure that similar incidence will never recurrence. The record of any non-compliance incidence needs to be documented.
- V. Documentation system and management of records.  
Documentation and record of Halal Assurance Management System need to be established and maintained as it could be an evidence of conformity that the system is being implemented. All past record should be legible, identifiable, and retrievable and be kept for at least 1 year for review and audit purposes. JAKIM's HAS guideline also listing down the document that needs to be kept by a company including:
  - a) HAS Manual,
  - b) the roles and responsibilities of the IHC and personnel involved with HCP;
  - c) IHC's minutes meetings;

- d) List of Halal threats and HCP parameters; and
- e) Instruction on monitoring and correction actions.

VI. Process verification.

The process of verification can be done by daily routine checking record and include operational compliance in monitoring systems, compliance to the HCP operations and audit reports.

Other than these principles, HAS guidelines also covered on the other requirement that need is noteworthy. For instant, development of Internal Halal Committee (IHC) in a company, development of an effective product recall procedure and continuous training program for management member and employee of a company. It also been stated in HAS that by proper establishment of HAS management system may provide traceability along the supply chain. In fact, some of the principle is eventually partly similar with traceability principle and requirements.

**Traceability**

Traceability system has been discussed from several fields of studies such as horticultural supply chain (Hu et al., 2013; Jiao, et al., 2015; and Galdeano-Gómez et al., 2015); fishery supply chain (Karlsen et al., 2011); meat supply chain (Mousavi et al. 2002; Meuwissen et al., 2003 and Knoll, 2017); and Food supply chain in general (Sanfiel-Fumero, et al., 2012; Aung & Chang, 2014; Badia-Melis et al., 2015; Manning, & Soon, 2016; Soon et al., 2017 and Davidson et al. 2017) Some traceability study in the past have specifically explained its function in particular field such as food product supply chain, meat/ raw material supply chain, agriculture, retail store, packaging, and logistic. However, there has been lack of research looking at the traceability implementation among the manufacturers of the *halal* products, within the context of the HAS implementation.

Traceability has become mandatory for several country including Europe Union countries, Japan and United States of America, purposely for the food safety (Bechini et al, 2008). According to The International Organization for Standardization (ISO), traceability is defined as the ability to trace the history, application or location of what is under consideration. Florence and Queree (1993) define traceability as the ability to trace raw materials to its point of origin (Tragas and Manolakos, 2010) through the manufacturing process to finished product from producer through to final consumer throughout the supply chain (Sarpong, 2014).

Traceability is a tool to assist an organization to achieved defined objective in a management system. Referring on its definition, the ability to trace and track contributes to the ability on searching for the cause of any non-conformity. With proper establishment withdrawal and/or product recall can be done when necessary (ISO 22005:2007). In term of cost, it also can minimize the impact of any cases regarding to hazards and safety of a product by facilitates rapid and effective recall of products including determination and settlement of liabilities (Opara, 2002). As the halal industry becomes more complex, every partner must understand its role to protect and preserve the industry's integrity and reputation. Unless firms are prepared

to adopt and comply with the principles and practice of HAS, their halal integrity will exist only in the imagination of authorities and consumers (Abd Rahman et al., 2017).

On the other hand, in terms of operational benefits, this system allowed them to assist in continuous development which will create an overall cost-effective quality management. Previous research has provided empirical evidence that traceability practices provide many advantages. Such advantages include improved product safety and quality (Aung & Chang, 2014; Mattevi & Jones, 2015), rapid recalls or withdrawal of products in the event of a food crisis (Folinas et al., 2006), lower recall expenses (Aiello et al., 2015; Banterle & Stranieri, 2008; Mattevi & Jones, 2015; Storøy et al., 2013), reduction of liability claims (Bosona & Gebresenbet, 2013; McEntire et al., 2010), continuous improvement of the food supply chain from production to consumption (Aung & Chang, 2014), an overall improvement in food crisis management (Bosona & Gebresenbet, 2013). In other study, traceability system allows company to reduce costs in every level of management, even reducing labor cost (Dupuy et al., 2005). Company can re-establishes trust within customer by creates the transparency of information accordance to the demand (Wilkinson, 2012).

In ISO22005:2007 – Traceability in the feed and food chain; have covered principles and requirements needed for traceability development in food chain. It is stated in the standard all matters that is important to be included in the design of traceability. From identifying the objectives and position of a company in the food chain to the importance of documentation also been stated. However, as similar as HAS, the standard only provides general principle and requirements. For a company to enhance the systems and be more specific, for example; type of information that needs to be retrieved from supplier; it should be referred on food regulatory or policy requirements that is relevant and applicable at their country. As for HAS in Malaysia, if it is intended to be design for a halal food chain, all the information needed to be documented should be referred to MS1500:2009 Halal Food Production, Preparation, Handling and Storage-General Guidelines, Malaysian Halal Certification Manual Procedure, Food Act 1983, Food Regulations 1985 and so on.

## **ANALYSIS**

### **Similarity of HAS, ISO22005:2007, and HACCP with respect to traceability**

Having reviewed components of HAS, ISO22005:2007, and HACCP, it is obvious that there are some overlapping components as shown in the Table 1 below.

**Table 1: Similarities between HAS, ISO22005:2007 and HACCP on traceability principle and requirements.**

HAS	HACCP	ISO22005:2007
Determination of Halal Critical Points (HCPs)	Determine the Critical Control Points (CCPs)	
Development and verification of flow chart	<p><b>Application</b></p> <p>4. Construct flow diagram</p> <p>The flow diagram should cover all steps in the operation for a specific product</p>	<p><b>5. Design</b></p> <p>5.5 Steps for the design</p> <p>5.5.2 Flow of materials:</p> <p>The organization shall determine and document the flow of materials within its control in a manner which meets the objectives of the traceability system.</p>
Implementation of control measures	Establish critical limit	
Development of corrective action	Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control	
Documentation system and management of records	Establish documentation concerning all procedures and records appropriate to these principles and their application	<p><b>5. Design</b></p> <p>5.7 Documentation requirements</p>
Process verification	Establish procedures for verification to confirm that HACCP system is working effectively	<p><b>5. Design</b></p> <p>5.6 Establishment of procedures:</p> <p>Procedures generally relate to documenting the flow of materials and related information, including document retention and verification.</p>

Referring to the Table 1 above, three out of six principles of HAS are referring to a traceability process. Based on the discussion on advantages of traceability before, an effective

implementation of HAS may be beneficial to the company as it can simultaneously enhance its traceability system. On the same token, companies that have the traceability system in place may not find it difficult to implement HAS since most of the requirements are already in practice. For a company with existing traceability system, all it takes in the integration of both systems for effective results.

## **DISCUSSIONS AND IMPLICATIONS**

### **Providing traceability through Effective Implementation of HAS**

Through the effective HAS implementation, firms can add value by having the traceability system in place. As stated in ISO22005:2007, traceability system should be: verifiable, applied consistently and equitably; result oriented; cost effective; practical to apply; compliant with any applicable regulations or policy; and compliant with defined accuracy requirements. A system that is not practical to apply and costly will cause a huge loss and may affect the operation in company. Without practices that are suitable with business operation, the system implementation will turn out to be a barrier rather beneficial to a company. Since HAS only provided basic guideline, therefore, integration with other system will be helpful. For food operation, system as HACCP, ISO22005:2007, ISO22005:2005 (for management of the control of documents), ISO 22000:2005 (for management of the control of records) and other TQM system; can be referred during HAS implementation.

Other suggestion that can assist effective implementation of HAS is to apply technology or automated system for traceability. Technologies for traceability can be categorized in two applications, one as data communication technology and the other as detector technology. Data communication technology application can be defined as technology that used for data transmission along supply chain between stakeholders. It is including implementing data system via software and IT. According to Dupuy et al. (2005), the firm have an opportunity to accurately assist cost needed and profits made by using automating process rather than manual effort. The usage of technologies are able to provide a real-time information and easy to retrieve any information in a short time. The use of technology also allows company to provide paperless based system and documentation and filing process will be much easier. The latest technological advancement has also been discussed in an effort to provide new opportunities to enhance the efficiency and compatibility of the present traceability systems (Badia-Melis et al., 2015).

There are several technologies that have been found and recognised in previous studies for traceability reason such as use of Radio Frequency Identification (RFID) (Anir et al., 2008; Tan et al., 2012; Follinas et al. 2006; Meuwissen et al., 2003; Chen et al., 2008), Barcode (Pettitte, 2001; Anir et al., 2008), Global positioning system (GPS)(Tan et al., 2012), Electronic Data Interchange (EDI) (Engelseth, 2009). However, this paper is not discussing in details the use of technology in terms of limitation of application as well as discussing its challenges and limitations.

## CONCLUSIONS

Introduction of HAS in Halal industry is a great effort to assist halal practitioner or halal industry player to maintain the integrity of their product and services. Furthermore, implementation of the system may provide traceability throughout supply chain. As well as to meet consumer's demand, this system also can act as preventive action for company from involving with any non-compliance of Halal standard and regulation. However, all of that can only be achieved if a company is successfully implementing it in an effective way. The integration or adapting practices from other system might be easier for a company to achieve the objective of HAS. A company that has well-developed traceability system allow for an effective implementation of HAS.

In addition, the use of technology nowadays will enhance and improve process of retrieving and sharing information which definitely provide traceability along the supply chain. A systematic traceability system provides the visibility that enables consumers, manufacturers, and halal enforcement bodies to track and trace the process and parties involved in producing the products all along the supply chain. Consumers can have an instance validity check on the authenticity of the halal logo and certificate to boost their confidence in the halal product. Halal authorities in Malaysia who face the constant need to monitor and update the database of the halal-certified companies can greatly utilize the visibility provided by the traceability system during the auditing processes.

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