**What are the Monitoring System Factors for the Halal food?**

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**Abstract**— The need for supervision of raw materials for Halal food with the basic ingredients of beef due to the number of meat fraud at both the distribution stage from upstream to downstream, forces the business that involve in Halal Food industry to have some system to support the supervision. The previous study on halal supply chain states that halal supply chain is a new approach to managing halal products. In Halal supply chain is discussed about the importance of technology one of which is tracking system and according to previous studies on tracking system said that traceability and tracking system is expected to increase the level of a company. The object of this research is 50 Halal restaurants that have beef-based foods. The purpose of this study is to determine the tracking system factors that can be used to monitor the distribution of raw beef from suppliers. The Methodology of this research are quantitative study with confirmatory factor analysis method. The results of this study indicate that there are 7 of tracking system factors that can be used as technology support system in Halal supply chain. The factors are Halal Compatibility Factor, Factor of Information System Support on Halal Raw Material, Halal Production Process Factor, Halal Raw Material Quality Factor, Halal Raw Material Quality Factor, Halal Raw Material Recording Factor, Halal Raw Material Recording Factor, Factor Documentation of halal raw materials, Factor halal raw material storage system.

**Keywords:** Distribution, Factor Analysis, Halal Supply Chain, Tracking System

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**I. INTRODUCTION**

Prabowo et al (2015) also stated that food industries such as restaurants and catering show a lack of concern about halal certification. According to data released by LPPOM MUI (Institute for Food, Drug and Cosmetics Assessment of Indonesian Ulama Council), less than 10 percent of restaurants are halal certified. From the 1084 hotels in Indonesia, only 2 percent are halal certified and there are only 7 percent of halal-certified restaurants from 2916 existing restaurants. Unfortunately, around 22.9 percent of the 67 restaurants in Jakarta are cheating on halal certification, which provides fake halal logo [1]. While in Lampung alone there are only 11 restaurants / restaurants, 6 catering, and 2 slaughterhouses that have been halal certified [2]. Problems about halal raw material and halal certification are also worsened by the rampant cases of oplosan meat, which is beef mixed with wild boar meat. Most of these beef meat is processed into meatballs. In 2014 Police resort of Central Lampung arrested for smuggling 1.1 tons of illegal pork to be mixed with beef as raw material for meatballs [3]. Consuming illegal wild boar meat is very dangerous for health, because the meat of wild boar is not standardized, and the delivery process does not meet the rules of health, so potentially contaminated with bacteria, viruses, larvae and others. The contaminated illegal wild boar meat is at risk of Zoonotic disease. Zoonosis is a disease that can be transmitted from animal to human [4]. Based on the problems that have been described, it is necessary to supervise or monitor the flow of supply chain of beef, both from the process of cutting, distribution and processing time, so that the beef remains halal. The foundation of halal SCM itself is determined by three factors: contact with something forbidden, contaminated risk and perception of the Muslim consumer itself. The risk itself is based on product characteristics, while consumer perceptions are based on market demand. Product characteristics are first specified when the product is in large form, the second the demand for temperature is also important whether wet (freeze or cooled) or dry (ambient). The demand for the market itself is determined through Islamic thought, local fatwa and local custom [5]. One of the crucial things in the supply chain is distribution, distribution is the steps of moving and storing products from the supplier stage to the consumer stage in a supply chain. Distribution has a direct impact on cost-driven performance that affects profitability. The choice of distribution network affects the supply chain objectives from low cost to high responsiveness. The selection of the distribution line must be correct so that the product remains in good condition and halal. Therefore it is necessary tracking system to monitor the flow of the beef supply chain. Tracking in the delivery of goods is the position where the goods, origin and destination of delivery and routes taken. Tracking system in SCM is defined as the ability to monitor distribution process in real time and to know the location of a product. Tracking system on a commodity serves to help consumers and producers know the business people in a supply chain, including how the actors in handling products /
commodities. While the tracking system in the food supply chain itself is the ability to track food and raw materials along the chain of production, tracking system is also used to find and recall products that may pose a serious risk to the health of consumers.

II. LITERATURE

Understanding of Tracking in the delivery of goods is a position where the goods, origin and destination of delivery and routes taken. The tracking function of a commodity will help both consumers and producers to know the business players in the supply chain, including how the actors deal with products / commodities. Perdana (2011) conducted research on tracking and tracing in agricultural commodity distribution aimed to get the concept of tracking and tracing model which suitable to support agricultural commodity distribution process [6].

Data to trace, Product routing, Traceability tools. Handayani (2014) also conducted research on tracking and tracing in the apple cider supply traceability system, Handayani using GS1 tracking and tracing system (Schwagele, 2005; GS1, 2012). The GS1 marker system includes 3 components, namely: Identity number, Data carriers, and Electronic information networks. While this research is different from the two previously mentioned studies, this study aims to find the tracking system factor in the supply chain of beef as raw material of halal food [7].

This study will use two theories about tracking system, the dimensions of the theory will be developed in the form of questionnaires. The results of questionnaire processing will generate new factors for tracking system, after forming the new factor, will be found also the most dominant factor in tracking system of beef supply chain.

III. METHODOLOGY

The type of research in this study is quantitative research. Selection of samples using judgment sampling technique due to natural respondents of this research are Halal restaurant managers who have the basic ingredients of beef products. With a sample of 70 respondents. To find out what factors are formed on the tracking system of beef supply chain as raw material of halal food in Lampung restaurant is done through factor analysis on the process of grouping factors. In the process of grouping factors there are component matrix and rotated component matrix, component matrix will show comparison of correlation on each line, statement item will enter into a factor seen from biggest correlation value. However, if the value in the component matrix is <0.5, so it is unclear to be included in the factor which will be the factor rotation, factor rotation is done to make the big correlation value becomes bigger and the smaller becomes smaller so it is easier in grouping factor. Meanwhile, to know which factor is the most important used the largest total variance value obtained from the total variance explained table on the factoring process. Determination of the most important factor using the total value of variance because the total value of variance describes the amount of total diversity that can be explained by the diversity of the factors that are formed.

IV. RESULT AND DISCUSSION

From all factor that already analyze, then the factors of the monitoring system special for Halal food are

1. Factor of halal raw material compatibility

Halal raw material compatibility factor was chosen as the first factor because it has the biggest loading factor of 0.837. This factor has a variant of 43.638% which means that twelve items of existing statements can be explained by one factor that is factor 1 of 43.638%.

2. Factor support system information on halal raw materials

Factor of information system support on halal raw material is chosen as the second factor because it has the biggest loading factor that is 0.862. This factor has a variant of 10.213% which means that the five items of the existing statement can be explained by one factor that is factor 2 of 10.213%.

3. Factor of halal product production process

Factor of production process of halal product is chosen as the third factor because it has the biggest loading factor that is 0.873. This factor has variant equal to 8.838% which means that six items statement can be explained by one factor that is factor 3 equal to 8.838%.

4. Factor characteristic of halal raw materials

Halal raw material characteristic factor is chosen as the fourth factor because it has the biggest loading factor that is 0.882. This factor has a variant of 6.077% which means that the five items of the statement can be explained by one factor that is factor 4 of 6.077%.

5. Factor of halal raw material recording

Halal raw material recording factor is chosen as the fifth factor because it has the biggest loading factor that is 0.750. This factor has a variant of 4.825% which means that two two statements can be explained by one factor that is factor 5 of 4.825%.

6. Factor of halal raw material documentation

Factor of raw material documentation is chosen as the sixth factor because it has the biggest loading factor that is 0.893. This factor has a variant of 3.582% which means that two items of existing statements can be explained by a factor of factor 6 amounted to 3.582%.

7. Factor of halal raw material storage system

Factor of raw material storage system is chosen as seventh factor because it has the biggest loading factor that is 0.834. This factor has a variant of 3.450% which means that two items of existing statements can be explained by one factor that is factor 7 of 3.450%. Based on the analysis of factors that have been done, obtained KMO and Barlett's Test of 0.739 (greater than 0.5) indicates that the samples taken are adequate. A significance score of 0.000 (smaller than 0.05) indicates that research variables can be predicted and analyzed.
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Further. While based on Anti-image Matrices almost all indicators already have the value of anti-image correlation above 0.5 but on item 3 is worth 0.376 so removed from research model. After item 3 was removed from the research model, KMO and Bartlett’s Test were re-tested to obtain a KMO value of 0.802 (greater than 0.5) indicating that the samples taken were adequate. After the second KMO and Bartlett’s Test all indicators have an anti-image correlation value above 0.5 so the test can proceed.

In the process of extraction of variable can be seen indicator item P1 has extraction value equal to 0,640, this matter indicate that 64% variant of indicator item P1 can be explained by factor to be formed. Similarly for other variables, the greater the value of extraction indicates the stronger the relationship with the factors that will be formed. In the Total Variance Explained table there are seven factors that formed on the tracking system of beef supply chain as raw material of halal food at Lampung restaurant with eigenvalues value ≥ 1 that is first factor has eigenvalue value equal to 14.401, second factor has eigenvalue value 3.370, third factor has eigenvalue value of 2.917, the fourth factor has eigenvalue of 2.005, the fifth factor has an eigenvalue of 1.592, the sixth factor has an eigenvalue of 1.182 and the seventh factor has an eigenvalue value of 1.138. From the Total Variance Explained table can also be obtained the total variance of 43.638% + 10.213% + 8.838% + 6.077% + 4.825% + 3.582% + 3.450% = 80.623%. Thus, 80.623% of all the available variables can be explained by the 7 factors formed. Based on the Total Variance Explained table can be seen that factor 1 has the highest percentage of variance value of 43.638%. This figure explains that factor 1 contributes almost half of the 33 factors overall.

Whereas in table Rotated Component Matrix shows items correlated with factors formed more clearly with factor loading value ≥ 0.5. Naming factors in this study based on the largest loading factor. The seven factors that are formed from this factor analysis are compatibility of halal raw materials, factors of information system support on halal raw materials, halal production process factors, halal raw material factor, halal raw material recording, halal raw material documentation, and factor halal raw material storage system. While the most important factor in beef supply chain tracking system as raw material of halal food in Lampung restaurant is the first factor that is compatibility factor of halal raw material because it has the biggest total variance value that is 43.638%.

V. CONCLUSION

Based on the discussion in this study was not found in common with previous researchers conducted by Perdana (2011) using Regattieri theory and Handayani research using GS1 theory. Initial research (2011) on tracking and tracing in agricultural distribution using Regattieri’s theory stated that food tracking and tracing system has the main pillar of product identification, data to trace, product routing, and traceability tools and resulted in conclusion that model structure tracking and tracing of commodity should be able to accommodate two important decisions, namely from the side of producers and consumers. From the producer side is how the product can be available and spread (spread) while from the consumer side is how the consumer can get the product with the quantity, the location and the right time. While based on research Handayani (2014) using GS1 theory states that there are three important factors namely identity number, data carriers, and electronic information network and result in conclusion that the technology needed in tracking and tracing is in the acceptance of raw materials, production process, distribution, packing and labeling, packaging and labeling. However, the results of this study show different results, namely the formation of 7 new factors obtained from the grouping of items of existing statements and show the result that the compatibility of halal raw materials is the most important factor.

With this research, can be obtained information that restaurants in Lampung need to focus to supervise the supply chain of beef to keep halal. Based on this study also restaurants in Lampung and restaurants in other cities can focus to oversee the supply chain of beef based on tracking system factors that have been formed to increase competitive advantage. The attention of restaurants to halal raw materials can increase the level of consumer confidence in the restaurant.

References