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**THE INFLUENCE OF CRITICAL FACTORS OF EFFECTIVE  
IMPLEMENTATION (CFEI) TOWARDS FOOD SAFETY**

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**Abstract**

Halal food is no longer a symbol of Shariah compliance, but it is also providing a certain degree of assurance about safety of the food product itself. However as reported by the mass media, several food products even with the JAKIM halal certification sold in the market was not prepared according to the good hygiene practices (GHP) guideline. In this study, the influence of key factors for successful implementation (CFEI) on the safety of halal food products will be analyzed. The research was conducted among small and medium-sized food manufacturers that have obtained halal certification from JAKIM. Data was collected using a questionnaire. It was distributed by using electronic survey or e-survey via Google Form. Respondents were selected using purposive sampling and 40 respondents were participated in this study. SPSS and SmartPLS software were used to analysed the data. Data analysis revealed that motives, employee characteristics, human resources, top management and external factors are the CFEI of safety of halal food products. Findings also revealed that based on six different hypotheses, only the first (H1) and fourth hypothesis (H4) was rejected. Hence, this study gives direction to the SMEs food manufacturers on how to ensure halal food product produced will fulfil MS1500:2009.

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## 1. Introduction

General Guideline on the Production, Preparation, Handling and Storage of Halal Foods (MS1500:2009) which includes compliance with good hygiene practices (GHP) was developed by National Body of Standardisation and Quality (SIRIM) which has been the standard guideline in food safety system for halal food manufacturers in Malaysia. This has been put forward in accordance to the requirement of Shariah which also includes the safety of halal food product produced by food manufacturers. In which, the term 'safety' used in this study can be defined as a food product produced that has been assured to not cause harm to the health of consumers.

According to MS1500:2009, there are seven fundamental principles that food manufacturers must follow in order to prepare halal food, including using halal ingredients, slaughtering animals according to Shariah law, handling and distributing the food in a halal manner, storing and displaying the product correctly, serving the product according to Shariah law, following safety, hygiene, and sanitation practices, and properly packaging and labeling the product in accordance with Shariah law. Furthermore, the cleanliness of food premises is emphasized in eliminating risks of cross contamination from unsanitary practices or from non halal during the food production, preparation, holding and service (Talib et al., 2010).

The implementation of good hygiene practices (GHP) which is a system of assuring food producers in complying to a high degree of hygiene practices such as the practice of compulsory Typhoid inoculation for food handlers in Ministry of Health certified health facilities. Other than that, the attire of food handlers is also emphasize such as the usage of proper uniforms, gloves, headgear and mask during operations. Furthermore, GHP has restrictions of employees with illness to handle food plus habits such as smoking, alcohol consumption and drug abuse is also prohibited. In addition, the wellbeing of staff is also look upon with the operators are required to provide designated storage of personal belongings which in most cases are changing rooms which provide security in storing valuables that are restricted during production such as jewellery and watches. Buffer areas where employees can properly wash their hands before and after food handling must also be evident in the facilities with the guidelines of the standard practice of the seven steps of handwashing procedure (JAKIM, 2010).

However, the failure of food handlers to comply to GHP has seen the trust of the public towards halal food has sometimes been questioned. For instance, a well-known nasi kandar restaurant was ordered to be shut down by the local municipal council on the grounds of cleanliness which is part and parcel of halalan and toyyiban after the discovery of serious pest infestation such as rodents and cockroaches (Sukumar, 2017). Adding to that, Mohd Yusoff (2017) stated that 297 cafes were found to have a malpractice of hygienic procedures which in turn failed to implement good hygiene practices (GHP) at their premises. According to the Halal Hub Director of Jabatan Kemajuan Islam Malaysia (JAKIM), the mentioned food service operators did not adhere to the hygiene and sanitation standards outlined in MS 1500:2009. As a result, their halal certification has been suspended by JAKIM until they take corrective action. Another popular case of failure to comply to hygiene and sanitation standards has been reported by (Kamarudin, 2019) of a noodle factory operating in sub-standard cleanliness has added to the worrying issue of compliance towards GHP and toyyiban practices. Latest report of a bakery products factory of

using the halal logo without permission has also undermine the trust of some consumers on halal status of food producers (Jalil, 2021).

Previous research on halal has focused on topics such as consumer perceptions of halal principles (Rezai et al., 2012), challenges in halal certification and labeling (Ab Talib & Mohd Johan, 2012), an analysis of the implementation of MS1500:2009 (Daud et al., 2011), the views of restaurant managers on the halal certification process (Syed Marzuki et al., 2012), non-compliance with halal standards by restaurant operators in Malaysia (Ab Rahman et al., 2012), quality assurance in halal food (Abdul Talib et al., 2014), and the use of total quality management in halal food production (Abu Karim et al., 2020). However, there is a lack of research on the critical factors for effective implementation (CFEI) and their impact on halal food safety. Kafetzopoulos and Gotzamani (2014) have noted that the success of a food safety system in a company depends on various factors, including motives, employee characteristics, human resources, top management, and external factors. Therefore, this study aims to examine the impact of CFEI on trust and, in turn, the impact of trust on the safety of halal food products.

## 2. Literature Reviews

Halalan toyyiban refers to food and drink that is allowed and permissible for consumption according to Shariah law, as long as it is safe and not harmful. The opposite of halal is haram or non-halal, which means forbidden and prohibited. Food or drink that falls into a grey area and does not clearly fall under the halal or non-halal category is classified as "Syubhah," also known as questionable or doubtful. Muslims should avoid consuming Syubhah food or drink until its status becomes clear (Riaz and Chaudry, 2004).

Halalan toyyiban involves more than just the Islamic way of slaughtering animals; it is a comprehensive concept that requires manufacturers to follow safe and hygienic guidelines throughout the production process, from farm to table (Bidin, 2013). Syed Marzuki, Hall and Ballantine (2012) found that trust and safety are essential components of halal certification that food manufacturers must uphold in order to ensure that their products meet halalan toyyiban standards.

Kafetzopoulos and Gotzamani (2014) remarks successful implementation of food safety system and quality management in food company depends on a number of factors. After conducting a thorough review of the literature, it was determined that certain factors can impact the successful implementation of a food safety system, known as critical factors for effective implementation (CFEI). These have been extensively studied by Kafetzopoulos and colleagues as well as Fotopoulos and colleagues in order to provide food industry professionals with a clear understanding of the factors that should be effectively managed.

Kafetzopoulos and Gotzamani (2014) investigated the critical factors that can affect the successful implementation of a food safety system and food quality management in a sample of 347 companies in Greece. The researchers used email, fax, and in-person interviews to gather data from the respondents, who included 59% from nutrition companies, 23% from agriculture, 18% from beverages, and 91% from small and medium-sized enterprises (companies with fewer than 250 employees). Applying various goodness of fit tests for testing the hypothesized structural model, analytical results showed that internal motives, employee attributes and organization attributes were found to have a significant positive impact on the effectiveness of the ISO9001 and HACCP system. Meanwhile external environment and systems

requirement was found not to have a significant positive impact on the effectiveness of the ISO9001 and HACCP system.

Kafetzopoulos, Gotzamani, and Psomas (2014) used structural equation modeling to examine the impact of employee characteristics on the quality of food products in 310 ISO9001-certified food companies in Greece. They found that employee characteristics had a weak, insignificant direct effect on product quality. Therefore, they suggest that employees should be knowledgeable and open to change in order to improve the quality of food products.

In addition, Mensah and Julien (2011) discuss critical factors that influenced the successful implementation of an integrated food safety management system in the United Kingdom. Factor analysis results showed the involvement and recognition of the relevant stakeholders and continually upgrading the system. Employees and leadership are critical factors that can influence the successful implementation of the food safety management system in the United Kingdom.

Another study to determine the critical factors for effective implementation of food safety and quality management was conducted by Fotopoulos, Kafetzopoulos and Psomas (2009). A total of 107 Greek food companies participated in this study. Exploratory factor analysis and confirmatory factor analysis were used to assess the reliability and validity of the latent construct, and the results indicated that human resources attributes, system attributes, exogenous attributes, and company attributes are related to the critical factors for effective implementation of the Hazard Analysis and Critical Control Points (HACCP) system. Multiple linear regression analysis also showed that effective implementation of the HACCP system is positively related to company attributes (e.g., prerequisite programs, equipment, and verification procedures) and human resource attributes (e.g., employee availability, commitment, training, and willingness). However, system attributes and exogenous attributes were not found to have a direct relationship with the effective implementation of the HACCP system.

Din and Daud (2014) conducted personal interview with the experts to discuss on critical success factors that can influence the implementation of MS1500:2009 in the context of Malaysian halal food industry. Based on feedback given by the academicians, industry practitioners, consultants and enforcers, the results showed that top management commitment, company policy and procedures, employee commitment, training and education, customer relations and communication, process management, sincerity, supplier commitment, technology, competent certifying body and supportive infrastructure are considered as the critical success factors for MS1500: 2009 implementation.

Other studies have also indicated that management practices can affect the Shariah compliance of halal food products. For example, research by Abu Karim and Nawi (2016) and Abu Karim et al. (2020) has shown that top management, employee, and human resource practices can help ensure Shariah compliance of halal food products.

### **3. Materials and Methods**

In this study, the referred population comprises of SMEs located in central and southern region of Malaysia in which this particular organization are being selected based on purposive sampling and were only focusing for those having certified with Halal certification. The final response for this study is 40 and the respondents of this study is directed to any employees that represent in top/middle management level

in organization. This study has chosen to use questionnaire as a method of obtaining the data. Electronic survey set was designed, and the survey link was distributed to the respondents based on 8 different sections of overall questionnaire.

Section A represents the Demographic questions to obtain respondents' profiles. It includes industry type, year of operation, Halal certificate scheme and job designation or post in organization. While for section B, C, D, E, F, G and H, it is comprising several items regarding variables of this research in which are; employee characteristics (EC), external factor (EF), human resource (HR), motive (M), safety (S), trust (T) and top management (TM). Section B to F were designed in the form of 5-likert scale and all items were adapted from previous studies.

The collected data were analysed and tested using SPSS and Smart PLS. The analysis on measurement model and structural model have been analysed in order to measure the linkage between employee characteristics, external factor, human resource, motive, safety, trust and top management in the area of halal food and beverages operations in both southern and central regions of Malaysia. Therefore, Partial Least Square is deemed suitable for this study because it analyses the complex inter-relationships among variables in a model.

#### 4. Results and Discussion

**Table 1.** Demographic profile of organization

		Frequency	Percent
Industry Type	Small Industry	9	22.5
	Small & Medium Enterprises	16	40.0
	Multinational Industry	6	15.0
	Hotels	1	2.5
	Restaurants	8	20.0
Years of Operation	1-2 years	10	25.0
	3-5 years	11	27.5
	More than 5 years	19	47.5
Halal Certificate Scheme	Food only	15	37.5
	Beverages only	2	5.0
	Food & Beverages	23	57.5
Designation/Post	Manager	16	40.0
	Muslim Employee	4	10.0
	Halal Executive/Supervisor	18	45.0
	Production Supervisor	2	5.0

The total respondents (N = 40) met the rule of thumb of minimum 30 samples (Sekaran & Bougie, 2013). Based on Table 1, majority of industry come from small and medium size in which comprises of 40%. As of years of operation, many companies operated more than 5 years with 47.5%, followed by 3 to 5 years and 1 to 2 years. In terms of halal certification status, majority of them venturing in food and beverages business with 57.5%. Then, as of designation of respondents in organization, most of them are halal executives or supervisors.

Table 2 presents the results of the measurement model in terms of convergent validity and internal reliability. Three methods were used to assess convergent validity: factor loading, composite reliability, and average variance extracted (Fornell & Larcker, 1981). The findings indicate that all items for the factor loadings met the minimum recommended level of 0.708 (Hair et al., 2014).

However, only 1 item recorded the value of 0.591 in employee characteristics section, but the figure is accepted as the AVE is greater than 0.5. To sum up, the range of factor loadings from section employee characteristics until top management were recorded between the 0.591-0.981. The average variance extracted (AVE) also met the minimum recommended level of 0.5 (Hair et al., 2014). The lowest value of AVE was observed in the external factors section, with a value of 0.662.

**Table 2.** Result of measurement model

Construct	Items	Loadings	AVE	CR	CA
Employee Characteristics	C1	0.839	0.687	0.895	0.846
	C2	0.919			
	C3	0.922			
	C4	0.591			
External Factor	EF1	0.788	0.662	0.907	0.873
	EF2	0.888			
	EF3	0.82			
	EF4	0.731			
	EF5	0.833			
Human Resource	HR1	0.865	0.675	0.892	0.855
	HR2	0.876			
	HR3	0.771			
	HR4	0.768			
Motive	M1	0.904	0.761	0.927	0.893
	M2	0.752			
	M3	0.945			
	M4	0.877			
Safety	S1	0.777	0.671	0.89	0.835
	S2	0.83			
	S3	0.922			
	S4	0.737			
Trust	T1	0.924	0.888	0.969	0.958
	T2	0.981			
	T3	0.957			
	T4	0.906			
Top Management	TM1	0.873	0.701	0.904	0.86
	TM2	0.842			
	TM3	0.874			
	TM4	0.756			

The highest value of AVE was recorded in the trust section, with a value of 0.888. All items for composite reliability exceeded the minimum level of 0.7 as prescribed by (Fornell & Larcker, 1981), ranging from 0.89 (safety) to 0.969 (trust).

To complete the measurement model, discriminant validity must also be tested using the Fornell Larcker criterion. Table 3 shows that the discriminant validity of the latent variables is satisfactory (Fornell & Larcker, 1981) as the square roots of the AVEs for each latent variable are greater than any correlations between the latent variables.

**Table 3.** Discriminant validity

	EC	EF	HR	MOTIVE	SAFETY	TOP MGT	TRUST
EC	0.829						
EF	0.553	0.814					
HR	0.453	0.23	0.821				
MOTIVE	0.726	0.545	0.423	0.872			
SAFETY	0.412	0.654	0.453	0.557	0.819		
TOP MGT	0.511	0.414	0.355	0.584	0.377	0.838	
TRUST	0.407	0.648	0.488	0.585	0.845	0.398	0.942

**Table 4.** Result of hypothesis testing

	Path	T Value	P Values	Result	Rsquare	
	Coefficient					
h1	M -> T	0.382	1.905	0.057	Rejected	0.612
h2	EC -> T	-0.327	2.116	0.035	Supported	
h3	HR -> T	0.352	2.489	0.013	Supported	
h4	TM -> T	-0.007	0.063	0.95	Rejected	
h5	EF -> T	0.543	3.565	0	Supported	
h6	T -> S	0.845	17.077	0	Supported	0.713

Trust is an important element especially when it concerns with halal especially in the consumption of food and beverages. Consumers both Muslim and non-Muslim view halal from various perspectives including; from religious, cleanliness and safety (Mubarak & Imam, 2020). In this study, the researchers developed and tested five relationships with trust as the endogenous variable, and the relationship between trust and safety. The results of the hypotheses are shown in table 4. Based on six different hypotheses developed, all hypotheses were supported except the first (H1) and fourth hypothesis (H4).

The results of the second hypothesis (H2) showed that employee characteristics (EC) significantly influence trust (T) (t-value = 2.116). The third hypothesis (H3) also showed a significant relationship between human resources (HR) and trust (T) (t-value = 2.489). The fifth hypothesis (H5) showed that external factors (EF) significantly impact trust (T) (t-value = 3.565). The last hypothesis (H6) also indicated a significant relationship between trust (T) and safety (S) (t-value = 17.077). Overall, four out of the six hypotheses produced significant results, with only two hypotheses not contributing to the significance. Halal is indeed a practice these days regardless of countries or nations. Companies are adapting to it and being halal certified is a need as they see the importance of it both from religiosity and sustainability aspects (Mubarak & Imam, 2020; Nuratifah et al., 2019). This can confirm that, motive (M) and top management (TM) are not required as a significant impact on trust.

## 5. Conclusions

This study found that employee characteristics, human resources, and external factors have an impact on the Shariah compliance of halal food products. The results also showed that the halal food concept goes beyond the Islamic way of slaughtering animals, encompassing a holistic approach that includes the adherence to safe and hygienic guidelines by manufacturers. The data analysis demonstrated that trust has a significant relationship with safety. As the demand for halal food products continues to grow, it is important for food manufacturers to obtain halal certification in order to assure Muslim consumers of the Shariah compliance and safety of their products. To effectively implement the General Guideline on the Production, Preparation, Handling, and Storage of Halal Foods (MS1500:2009), which includes compliance with good hygiene practices (GHP), food manufacturers should focus on strengthening their CFEI, including employee characteristics, human resources, and the external environment.

This study has some limitations that suggest a need for further research. As the study was conducted with a relatively small sample of food manufacturers, it is recommended to replicate the study with a larger sample. It would also be valuable to include a range of food industries in future research in order to further confirm and validate the model. This could help to determine whether there are any statistically significant differences among different sub-samples within the food sectors.

## References

- Ab Rahman, I. N., Saleh, R., Ab Rahman, S., & Hashim, D. (2012). A review on factors of non-compliance of halal standard among restaurant operators in Kuala Lumpur, Malaysia. *Medwell Journals*, 6(6), 611-620. <https://doi.org/10.3923/ibm.2012.611.620>
- Ab Talib, M. S., & Mohd Johan, M. R. (2012). Issues in halal packaging: A conceptual paper. *International Business and Management*, 5(2), 91-95.
- Abdul Talib, H. H., Mohd Ali, K. A., & Idris, F. (2014). Critical success factors of quality management practices among SMEs in the food processing industry in Malaysia. *Journal of Small Business and Enterprise Development*, 21(1), 152-176. <https://doi.org/10.1108/JSBED-10-2013-0162>
- Abu Karim, R., & Nawil, N. M. (2016). The Influence Of Total Quality Management (TQM) Practices Towards Assuring Trust Attributes Of Food Products With Halal Certification. *Journal of Business Innovation*, 1(1), 127.
- Abu Karim, R., Mahmud, N., & Abu Hasan, H. F. (2020). The use of total quality management practices for halalan toyyiban of halal food products: exploratory factor analysis. *Asia-Pacific Management Accounting Journal (APMAJ)*, 15(1), 2-20. <https://doi.org/10.24191/APMAJ.v15i1-01>
- Bidin, J. (2013). Malaysian Halal Market Serving the Global Halal Market with a Difference. Malaysia Halal Industry Directory 2013, 33 – 36.
- Daud, S., Che Din, R., Bakar, S., Kadir, M. R., & Sapuan, N. M. (2011). Implementation of MS1500:2009: A gap analysis. *Communication of the IBIMA Journals*, 1-11. <https://doi.org/10.5171/2011.360500>
- Din, R. C., & Daud, S. (2014). Critical success factors of MS1500: 2009 implementation. *Procedia-Social and Behavioral Sciences*, 121, 96-103. <https://doi.org/10.1016/j.sbspro.2014.01.1111>
- Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18, 39-51. <https://doi.org/10.1177/002224378101800104>
- Fotopoulos, C. V., Kafetzopoulos, D. P., & Psomas, E. L. (2009). Assessing the critical factors and their impact on the effective implementation of a food safety management system. *International Journal of Quality & Reliability Management*, 26(9), 894-910. <https://doi.org/10.1108/02656710910995082>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A Primer on Partial Least Squares Structural Equation Modeling*. Sage.



- JAKIM. (2010). Halal Malaysia. JAKIM, <http://www.halal.gov.my>.
- Jalil, M. A. (2021). Premis buat biskut, roti diserbu guna logo halal tanpa kelulusan. Retrieved from Berita Harian Online: <https://www.bharian.com.my/berita/kes/2021/01/773743/premis-buat-biskut-roti-diserbu-guna-logo-halal-tanpa-kelulusan>
- Kafetzopoulos, D. P., & Gotzamani, K. D. (2014). Critical factors, food quality management and organizational performance. *Food Control*, 40, 1-11. <https://doi.org/10.1016/j.foodcont.2013.11.029>
- Kafetzopoulos, D. P., Gotzamani, K. D., & Psomas, E. L. (2014). The impact of employees' attributes on the quality of food products. *International Journal of Quality & Reliability Management*, 31(5), 500-521. <https://doi.org/10.1108/IJQRM-05-2012-0057>
- Kamarudin, F. (2019). KPDNHEP serbu kilang mi tiada sijil halal. Retrieved from Berita Harian Online: <https://www.bharian.com.my/berita/kes/2019/05/565633/kpdnhep-serbu-kilang-mi-tiada-sijil-halal>
- Mensah, L. D., & Julien, D. (2011). Implementation of food safety management systems in the UK. *Food Control*, 22(8), 1216-1225. <https://doi.org/10.1016/j.foodcont.2011.01.021>
- Mohd Yusoff. (2017, September 4). Haram Saji Makanan Kotor. Kosmo. [http://www.kosmo.com.my/kosmo/content.asp?y=2014&dt=0911&pub=Kosmo&sec=Negara&pg=ne\\_02.htm#ixzz4rgHCS88S](http://www.kosmo.com.my/kosmo/content.asp?y=2014&dt=0911&pub=Kosmo&sec=Negara&pg=ne_02.htm#ixzz4rgHCS88S)
- Mubarok, F. K., & Imam, M. K. (2020). Halal Industry in Indonesia; Challenges and Opportunities. *Journal of Digital Marketing and Halal Industry*, 2(1), 65. <https://doi.org/10.21580/jdmhi.2020.2.1.5283>
- Nuratifah, A. S., Sharifudin, M. S., & Mariam, A. L. (2019). Evaluation of Knowledge and Practices of Halal Certification among Food Processing Companies in Sabah, Malaysia. *International Food Research Journal*, 26(1), 295-304.
- Rezai, G., Mohamed, Z., & Shamsudin, M. N. (2012). Assessment of consumer confidence on halal labelled manufactured food in Malaysia. *Pertanika J. Soc. & Hum.* 20(1), 33-42.
- Riaz, M. N., & Chaudry, M. M. (2004). *Halal Food Production*. CRC Press, Boca Raton. <https://doi.org/10.1201/9780203490082>
- Sekaran, U., & Bougie, R. (2013). *Research methods for business* (Sixth Edition). Wiley
- Sukumar. (2017, March 13). Rat Droppings Force Penang's Line Clear Nasi Kandar to Close. Malay Mail Online. <http://www.themalaymailonline.com/malaysia/article/penangs-line-clear-nasi-kandar-joint-ordered-closed-after-rats-roaches-foun#cFhAcX2PSIFg9w0C.99>
- Syed Marzuki, S. Z., Hall, C. M., & Ballantine, P. W. (2012). Restaurant manager and halal certification in Malaysia. *Journal of Foodservice Business Research*, 15, 195-214. <https://doi.org/10.1080/15378020.2012.677654>
- Talib, Z., Zailani, S., & Zainuddin, Y. (2010). Conceptualizations on the dimensions for halal orientation for food manufacturers: A study in the context of Malaysia. *Pakistan Journal of Social Sciences*, 7(2), 56-61. <https://doi.org/10.3923/pjssci.2010.56.61>