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THE DYNAMIC OF TECHNOLOGY, ORGANIZATION AND ENVIRONMENT MODEL IN THE HALAL CERTIFICATION ADOPTION STUDY: A CONCEPTUAL PAPER

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ABSTRACT

Increasing halal hub business trade has always been the focus of the government of Malaysia. It has also become one of the National Key Result Area (NKRA) agenda towards an elevated income and improving the wellbeing of society. To meet the agenda, small and medium enterprises (SMEs) are essential to encourage economic sustainability. The demand for halal-certified products has increased significantly and has become the source of sustainable competitive advantages for companies to increase their business performance. However, the adoption rate for Malaysian Halal certification among SMEs manufacturer, especially in east coast states is not as strong as expected. The purpose of this conceptual article is to model the relationship between Perceived Benefits, Organizational Readiness, Customer Pressure and Halal Awareness towards SMEs' intention to adopt Halal Certificate in Terengganu and Kelantan. This paper chooses Technological, Organizational and Environmental (TOE) framework since it explains how the factors influence adoption decisions in the framework. The demand for halal-certified products has increased significantly and has become the source of sustainable competitive advantages for companies to increase their business performance. Previous research found that all elements of TOE have significant relationships which would increase the adoption rate in Halal certification.

Contribution/ Originality: This study is one of the very few studies which have investigated the issue of low adoption of Halal certificate among SMEs manufacturer in Terengganu and Kelantan, and most of the previous studies on Halal certification have only covered consumer level.

1. INTRODUCTION

Malaysia, a country in which 61.3% of the population identify themselves as Muslim (Malaysian Demographic Profile, 2018) has the potential to be a Halal hub (Toh, 2009). Halal is not just about food; it is rapidly evolving into cosmetics, personal care, pharmaceuticals and logistics (Ismail, 2017). The demand for halal products is not only based on religious purposes, but is also linked to issues which encompass cleanliness, environmental friendliness, and health (Badruldin et al., 2012). Generally, Thus, Halal indicates processing techniques that emphasise significant respect for individuals and community are referred to as Halal.

In line with the growth of the Muslim population all over the world, increasing the halal hub business trade has always been the focus of the government of Malaysia. It has also become one of the National Key Result Area

(NKRA) agenda towards an elevated income and improving the wellbeing of society. To meet the agenda, small and medium enterprises (SMEs) are vital in encouraging economic sustainability. To illustrate, this sector has contributed about 37.1% to Malaysia's Gross Domestic Product (GDP) in 2017 alone. Consistent with NKRA goal, SMEs also assist the government in reducing the unemployment rate by absorbing 66% of the workforce in 2017 (www.dosm.gov.my). However, some companies are unable to achieve effective performance management. In Malaysia, the estimated failure rate of SMEs is approximately 60% (Ahmad & Seet, 2009). It shows that SMEs in Malaysia are facing plenty of obstacles and issues to stay competitive in the market. Among the problems faced by them is the lack of knowledge in terms of marketing techniques, branding, customer loyalty and also the lack of relationships with other local and international enterprises (Muhammad, Kamal, Rushdan, & Hassan, 2010).

The sustainability of the Halal food sector is heavily dependent on Halal processing competencies to establish the reliability of Halal products. Nevertheless, the challenges of SMEs with the emerging globalization concept that become easier and less costly could be seen as an obstacle for them to penetrate the global market (Toh, 2009). Compared to multinational corporations like Nestle group which has already carved a name for itself in the Halal industry, local SMEs entrepreneurs are at a disadvantage as the consumers have a more well-known product choice. This is proven when SMEs had only contributed 17.3% to the country's export and Malaysian Halal product exports were only 0.5% (Neo, 2018).

Previous researchers agree that Halal certification is vital in ensuring the Halal status of products is safeguarded with the use of appropriate processing and management throughout the supply chain until the products are utilized. From the consumers' standpoint, Halal processing methods are a complicated concept since they are not perceptible and cannot be endorsed by the consumer. Thus, consumers must depend on tangible features in the chain to establish the products' Halal status, such as the use of Halal logo. Halal accreditation demonstrated by the Halal logo is the only means to balance consumers' minimal knowledge on products' processing (Andersen, 1994). In short, Halal food certification is an essential component of the Halal food industry since this component strongly impacts consumer preference (Mohayidin & Kamarulzaman, 2014) and assurance (Mohamed, Shamsudin, & Rezai, 2013). Therefore, the adoption of Halal certification has become the source of sustainable competitive advantages for SMEs to increase their business performance.

Even though Halal awareness has grown among SMEs entrepreneurs, the intention to adopt Halal certification, especially amongst food producers in east coast states is still relatively low. The overview of the distribution of halal-certified company application in Malaysia in 2016 is depicted in Figure 1. Based on the figure, SMEs in Terengganu has the lowest application for halal certification (2%), followed by Kelantan (2.4%) and Negeri Sembilan (3.1%). Therefore, it is important to investigate why SMEs manufacturers in Terengganu and Kelantan are still reluctant to commit to an improved Halal certification process. Addressing the consumers' demand in the assurance of product integrity crucial in assuring that the Malaysian Halal industry continuously develop. However, SMEs' limited intention to incorporate Halal certification implies a critical need to determine the challenges and enables that impact the incorporation of Halal certification.
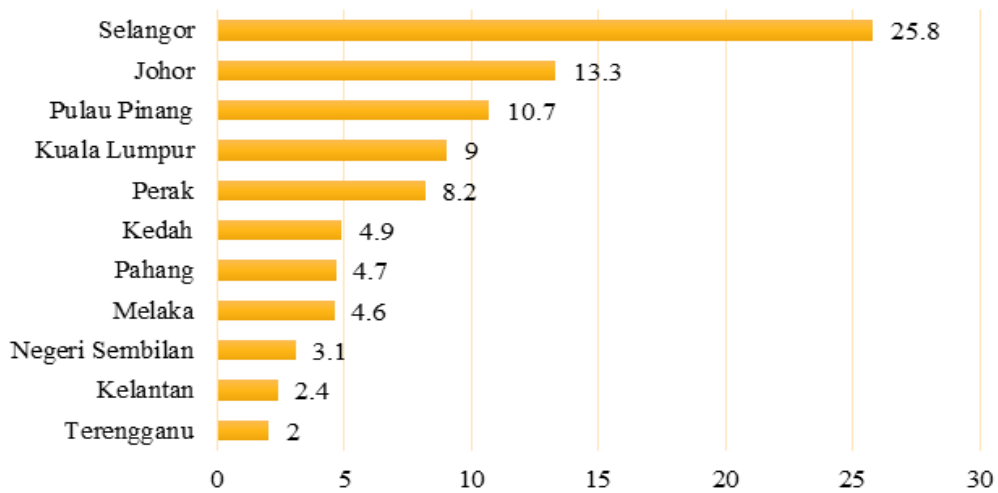
Figure-1. Halal certified company by state.

Although the industry has witnessed a significant increase in the demand for Halal products, minimal research has investigated the challenges in Halal certification. A majority of previous research has concentrated on behaviour among Halal consumer, Halal orientation, and not many have been done on SMEs and Halal food certification (Aziz & Chok, 2013). The findings from this study which aims to identify the factors that influence the intention to adopt Halal certification among food manufacturers, will assist Malaysia to become a regional Halal-hub. Therefore, further studies are vital (Talib, Hamid, & Zulfakar, 2015b). For this reason, it is essential to examine the driving factors which can increase SMEs' intention to adopt the certification of Halal food. Variables from technology, organisation and environment (TOE) framework were employed in this conceptual paper to examine the influencing factors in Halal certification adoption. The literature has highlighted that no studies have examined the intention to adopt Halal certification among SMEs food manufacturer in Terengganu and Kelantan; thus, this study attempts to bridge the gap.

This study aims to model the relationships among perceived benefits, customer pressure, organizational readiness, and Halal awareness towards SMEs' intention to adopt a Halal certificate in Terengganu and Kelantan. Based on the primary objective, two specific goals are postulated as follows:

1. To identify the predicting factors of Perceived Benefits, Organisational Readiness, Customer Pressure and Halal Awareness on SMEs' intention to adopt Halal Certificate.
2. To investigate the mediating role of Halal awareness on the relationship between Perceived Benefits and SMEs' intention to adopt the Halal Certificate.

2. LITERATURE REVIEW

Department of Islamic Development (JAKIM) (www.halal.gov.my) is an agency responsible for issuing the Halal certification document in Malaysia. This document endorses whether the products have followed and covered Islamic dietary guidelines. The validity of this certification is two years, and food manufacturers must renew the certificate once the document has expired. A competent halal certification system can assist consumers in selecting products that adhere to halal conditions. Recent years have witnessed research investigating halal certification, yet minimal research has examined the halal certification adoption (Rahman, Mohamed, Rezai, Shamsudin, & Sharifuddin, 2014).

Previously, most of the Halal certification research focused on consumer research. This indicates the wide use of two prominent theories which are the Theory of Planned Behaviour (TPB) and Theory of Reasoned Action (TRA). Despite TPB and TRA are leading theories, they are only suitable to be applied for individual level and are unable to signify the actual conception of why SMEs adopt Halal food certification in comparison with technology, organisation and environment (TOE) framework.

TOE framework has identified three facets that impact the innovation adoption process (Khan, Khan, & Haleem, 2019). The three elements of company innovations are technology, organisation, and the environment. In this study, technology refers to the perceived benefits of technological innovation which include the estimated benefits to the organisation. The organisation, on the other hand, describes the characteristics of an organisation in terms of Halal awareness and organisational readiness towards halal certification adoption. Meanwhile, the environment element in this context refers to customer pressure.

The adoption of innovations is affected by the technological, organizational, and environmental aspects within a firm. Therefore, it is suitable to be applied for studies on organizations that practice innovation (Baker, 2000) and to identify factors that may impact SMEs' behaviour in their decision-making process.

2.1. Why Halal Certification Adoption Intention?

Adoption is usually examined as a dependent variable (AlAwadhi, 2019). It is an element of the diffusion process that describes the assessment of the results of trial use of the innovation and decision to continue utilising the innovation (Pradhan, Arvin, Nair, Bennett, & Hall, 2019). This happens when an organisation elected to invest and maximise an innovation (Chen, Brem, Viardot, & Wong, 2019) in a recap of organizational innovation studies. Duradoni and Fabio (2019) pointed out that the adoption of innovations is understood to encompass the creation, advancement, and application of new ideas or behaviours. Innovation can be in the form of new products or services or a novel production of process technology (Pradhan et al., 2019). Halal certification adoption refers to a situation where manufacturers use Halal certification to ensure that the halal production structure is transparent, hence, establishing the Halal integrity of their products (Ngah, Zainuddin, & Thurasamy, 2014). Talib et al. (2015b) identified motivating factors in Halal certificate adoption, which include consumer pressure, quality and safety, competitive advantage and market expansion. Factors such as minimal support from the management and government is a critical obstacle in Halal certificate adoption.

2.2. Perceived Benefits

Perceived benefits are associated with positive beliefs on a behaviour (Hallmann & Zehrer, 2019). Perceived benefits are a dimension of technological innovation that is related to the expected advantages to the organisation (Brown & Russell, 2007). The previous researcher used it as a perceived relative advantage, but the definition is similar (Ghobakhloo, Arias-Aranda, & Benitez-Amado, 2011). Hallmann and Zehrer (2019) found that perceived benefits are one of the characteristics that explain the best behaviour for the adoption of innovation. In this study, perceived benefits describe the magnitude of the firms' acknowledgement of the relative advantage that Halal certificate could offer to organisations. The perceived benefit was identified to have a strong relationship with new technology adoption (Khan et al., 2019). With the exposure to halal certification information, SME's awareness of the certification may be influenced (Kusumastuti, 2017). Previous research reported that perceived benefits would function as an enabler for the intention to adopt Halal certificate. Hence, H1 and H2 were developed.

H1: Perceived benefits will have a positive effect on Halal Awareness.
H2: Perceived benefits will have a positive effect on SMEs' intention to adopt Halal Certificate.

2.3. Halal Awareness

Awareness is defined as the ability to perceive, to feel, and to be conscious of events and objects (Latif, 2019). This is the most crucial element in determining the intention to choose (Kusumastuti, 2017). From the consumers' perspective, they have different levels of awareness based on their background, religion (devout), culture, education and social interaction (Latif, 2019). In this case, the awareness of organizations can be described as the level of attentiveness or realization among SMEs entrepreneur's behaviour towards adopting Halal Certificate. A study in Malaysia has disclosed that the level of awareness among SMEs towards the granting of halal certification is at a

low level (Lada, Tanakinjal, & Amin, 2009). Numerous studies have examined the role of awareness as the mediating factor. For example, Alzubi, Farea, and Al-Dubai (2017) found that brand awareness plays a mediating role in the intention to use internet banking among SMEs in Yemen. In the context of education, Choy, Street, Roukema, and Yim (2017) found that Learners' Awareness has a mediating effect on Malaysian and American students' approaches to learning. Therefore, H3 was developed.

H3: Halal awareness has a positive effect on SMEs' intention to adopt Halal Certificate.

2.4. Organizational Readiness

Organizational readiness is another crucial variable in technology adoption (Khan et al., 2019) and it is essential in the decision-making process of adopting an innovation (Talib et al., 2015b). For example, Ngah et al. (2014) characterised organizational readiness as the ability of operation management to adopt Halal transportation services with regards to financial and human resources. Correspondingly, Iacovou, Benbasat, and Dexter (1995) indicated that the availability of financial resources in terms of human resource, expertise, and technology is a primary factor in the decision to adopt electronic data interchange. Based on the halal food setting, the previous study found that organizational readiness has led to an increase in the firm's awareness. In the study, awareness literally reflects a condition in which SME's have an interest, special attention, or have experience and good information about food that is allowed by Islam (Ambali & Bakar, 2014). Hence, this research refers to organisational readiness as the competence of an organisation's management to incorporate a Halal certificate with good information. Based on the previous study, the hypothesis can be formulated as follows:

H4: Organizational readiness has a positive effect on SMEs' intention to adopt a Halal certificate.

2.5. Customer Pressure

Customer pressure refers to the external pressure, which could influence the decision to adopt (Ngah et al., 2014). An organisation must possess a high level of awareness of customers' demands needs since customers are the most critical pillar in a business. A business would not be able to gain revenue without customers, despite the superiority of their services or products. The literature has established the connection between customer pressure and the decision to adopt (Namagembe, Ryan, & Sridharan, 2019). In fact, Ab. Talib, Sawari, Abdul Hamid, and Ai Chin (2016a) identified that the food and beverage sector has responded to consumers' needs by demonstrating the commitment to assure that the products are Halal certified. Therefore, the hypotheses are:

H5: Customer pressure has a positive effect on SMEs' intention to adopt Halal certificate.

H6: Halal awareness mediates the relationship between perceived benefits and SMEs' intention to adopt Halal certificate.

This conceptual paper adapts the TOE framework in the halal certification adoption study. Figure 2 illustrates a conceptual model which describes the relationships among the independent variables and the dependent variable. This study categorised the independent variables into three groups, namely, technology (perceived benefit), organisation (Halal awareness, organisational readiness) and environment (customer pressure). In contrast, the dependent variable is the intention to adopt Halal certification.
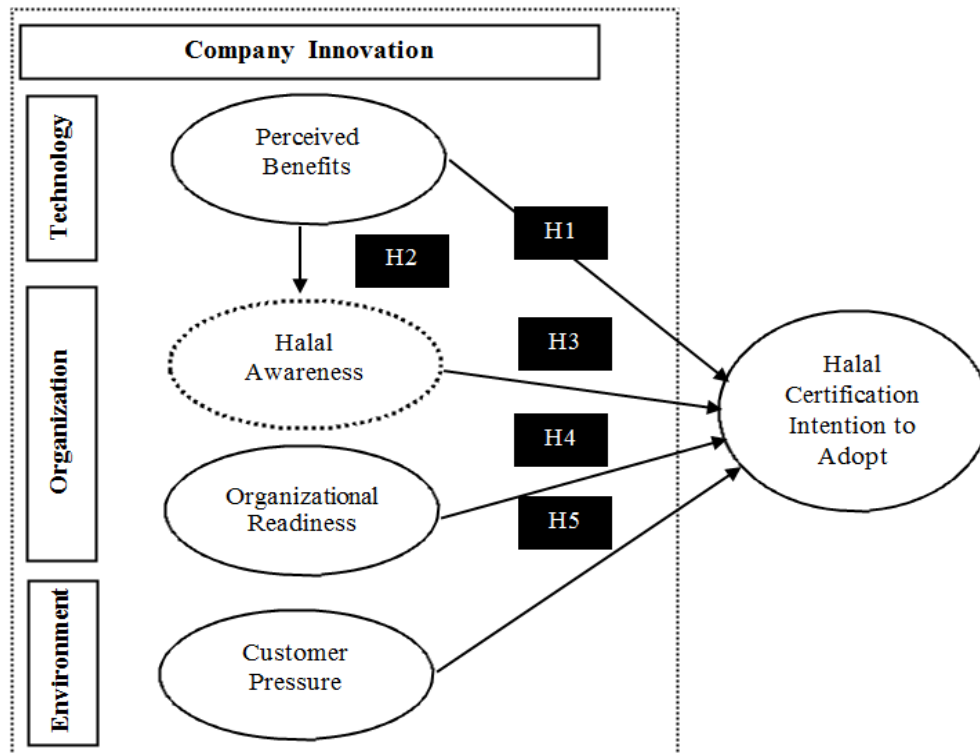
Figure-2. Research framework.
Source: Adapted from the worked of Baker. (2011).

3. METHODOLOGY

Data of interest for this research will be collected using self-administered questionnaires from consented respondents. The aim of the study will be briefed to future respondents during the data collection stage. The respondents will also be assured about the confidentiality of the information collected from the respondents. The respondents will also receive the instructions and sufficient time to complete the questionnaire. In addition, researchers and well-trained research assistants will be available to assist respondents when necessary.

In this study, cluster sampling will be applied. Cluster sampling will be employed in this study. Cluster sampling is selected as a small-scale representation of the population is offered by each cluster. The elements in the population will be categorised into different groups referred to as 'clusters'. Each element of the population is associated with only one cluster. Simple random sampling technique is utilised to extract elements from each cluster to be finalised as the sample. A total of 500 respondents will be randomly selected amongst SMEs Halal manufacturer which are involved in the Food and Beverage businesses in Kelantan and Terengganu.

The collected data will be subjected to several statistical analyses using the Statistical Package for Social Science program (SPSS) and AMOS, one of the popular packages for conducting structural equation modelling (SEM). Descriptive statistics, reliability analysis, exploratory factor analysis, and confirmatory factor analysis, and also structural equation modelling will be employed for data analysis and interpretation.

Descriptive statistics such as mean and frequency will be referred to examine the characteristics of the respondents and gather the descriptive data of respondents' opinions (Mao, 2008). Besides assessing the respondents' profile, descriptive statistics also will be used to summarize the overall level of independent and dependent variables.

Reliability will be used to measure the research instruments to make sure they are free from random error or without bias (Sekaran & Bougie, 2016). Exploratory factor analysis (EFA) will be used to reduce the measure items and explore how many factors are needed to represent the data. Meanwhile, confirmatory factor analysis (CFA) will be used to validate the factor structure that was established during the exploratory factor analysis. Besides,

exploratory factor analysis confirms since the researchers possess full control in terms of the indicators for each variable (Chi, 2005).

SEM will be employed to test the postulated hypotheses. Universally accepted statistical indexes such as Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI) and Root Mean Square Residual (RMR) will be employed to evaluate the goodness-of-fit of the proposed model. Another set of goodness-of-fit statistics identified as baseline comparisons indexes, including Normed Fit Index (NFI), Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI), will be employed the strengthen the fitness of the hypothesized model. In addition, the value of Root Mean Square Error of the Approximation (RMSEA) will also be used to support the hypothesized model goodness-of-fit.

4. CONCLUSION AND FUTURE RESEARCH

Previous research has concentrated on behaviours among Halal consumers and Halal orientation. To date, there have been no studies that empirically assessed the issue of low adoption of Halal certificate among SMEs manufacturer in the east coast states, especially in Terengganu and Kelantan. Most of the previous studies on Halal certificate only have covered on the consumer level. Halal certification is vital in assuring the Halal status of products with the practice of suitable processing and management until the end of the supply chain.

Therefore, this conceptual paper has proposed a model where perceived benefits, Halal awareness, organizational readiness, customer pressure and intention to adopt Halal certification among SMEs entrepreneurs are the variables. There are potential benefits of this research, especially in the form of new knowledge. First, the study will discover a model of perceived benefits, Halal awareness, organizational readiness, customer pressure and intention to adopt Halal certification among SMEs entrepreneurs in Kelantan and Terengganu. Second, the study will enrich the knowledge of the significant factors influencing the adoption of halal certification that requires more focus by the entrepreneurs, especially to encourage non-certified firms to become Halal-certified.

For future research, it is suggested to expend the study by developing a company innovation index based on the TOE framework, hence determine the level of company innovative practice towards adopting Halal certification. Index development is critical in assessing an issue by considering numerous essential aspects that possess substantial value to the cases. The company innovation index will be able to generate scale categories which range from excellent to very poor to indicate the level of company innovation index among the respondents. Therefore, appropriate actions based on the scale categories could be planned by the government as an effort to encourage company innovation practice towards Halal adoption.

REFERENCES

Ahmad, N. H., & Seet, P.-S. (2009). Dissecting behaviours associated with business failure: A qualitative study of SME owners in Malaysia and Australia. *Asian Social Science*, 5(9), 98-104.Available at: https://doi.org/10.5539/ass.v5n9p98.

AlAwadhi, S. (2019). *A proposed model of trust factors for e-government adoption and civic engagement.* Paper presented at the Proceedings of the 52nd Hawaii International Conference on System Sciences.

Alzubi, M. M., Farea, M. M., & Al-Dubai, M. M. (2017). The mediating role of awareness in the intention to use internet banking among SMES in Yemen. *The Journal of Internet Banking and Commerce*, 22(2), 1-10.

Ambali, A. R., & Bakar, A. N. (2014). People's awareness on halal foods and products: Potential issues for policy-makers. *Procedia-Social and Behavioral Sciences*, 121(19), 3-25.Available at: https://doi.org/10.1016/j.sbspro.2014.01.1104.

Andersen, E. S. (1994). The evolution of credence goods: A transaction approach to product specification and quality control. MAPP Working Paper No 21, Programme on Market-based Process and Product Innovation in the Food Sector, Aarhus, Aarhus School of Business. Retrieved from: www.mapp.hha.dk/wppdf/wp21.pdf.

Aziz, Y. A., & Chok, N. V. (2013). The role of Halal awareness, Halal certification, and marketing components in determining Halal purchase intention among non-Muslims in Malaysia: A structural equation modeling approach. *Journal of International Food & Agribusiness Marketing, 25*(1), 1-23.Available at: https://doi.org/10.1080/08974438.2013.723997.

Badruldin, B., Mohamed, Z., Sharifuddin, J., Rezai, G., Abdullah, A. M., Latif, I. A., & Mohayidin, M. G. (2012). Clients' perception towards JAKIM service quality in Halal certification. *Journal of Islamic Marketing, 3*(1), 59-71.Available at: https://doi.org/10.1108/17590831211206590.

Baker, G. (2000). The use of performance measures in incentive contracting. *American Economic Review, 90*(2), 415-420.Available at: https://doi.org/10.1257/aer.90.2.415.

Baker., J. (2011). The technology–organization–environment framework. *Information System Theory, 1*, 231-245.Available at: 10.1007/978-1-4419-6108-2_12.

Brown, I., & Russell, J. (2007). Radio frequency identification technology: An exploratory study on adoption in the South African retail sector. *International Journal of Information Management, 27*(4), 250-265.Available at: https://doi.org/10.1016/j.ijinfomgt.2007.02.007.

Chen, J., Brem, A., Viardot, E., & Wong, P. K. (2019). *The Routledge companion to innovation management*. London and New York: Routledge Taylor and Francis Group.

Chi, G. (2005). *A study developing destination loyalty model*. Ph.D. Dissertation, AAT 3181663. Oklahoma State University.

Choy, S. C., Street, J., Roukema, L., & Yim, J. S. C. (2017). The mediating role of learners' awareness on Malaysian and American students' approaches to learning. In Empowering 21st Century Learners through Holistic and Enterprising Learning (pp. 79-87). Singapore: Springer.

Duradoni, M., & Fabio, A. D. (2019). Intrapreneurial self-capital and sustainable innovative behavior within organizations. *Sustainability, 11*(2), 1-10.Available at: https://doi.org/10.3390/su11020322.

Ghobakhloo, M., Arias-Aranda, D., & Benitez-Amado, J. (2011). Adoption of e-commerce applications in SMEs. *Industrial Management & Data Systems, 111*(8), 1238-1269.

Hallmann, K., & Zehrer, A. (2019). Volunteers' perceived costs and benefits: The impact of context and their influence on volunteers' satisfaction and behavioral intentions. *Event Management, 23*(1), 11-26.Available at: https://doi.org/10.3727/152599518x15403853721411.

Iacovou, C. L., Benbasat, I., & Dexter, A. S. (1995). Electronic data interchange and small organizations: Adoption and impact of technology. *MIS Quarterly, 19*(4), 465-485.Available at: https://doi.org/10.2307/249629.

Ismail. (2017). Halal not just about food. Retrieved from https://www.nst.com.my/news/nation/2017/11/304887/halal-not-just-about-food-hdc. [Accessed 21/1/2020].

Khan, S., Khan, M. I., & Haleem, A. (2019). Evaluation of barriers in the adoption of halal certification: A fuzzy DEMATEL approach. *Journal of Modelling in Management, 14*(1), 153-174.Available at: https://doi.org/10.1108/jm2-03-2018-0031.

Kusumastuti, R. D. (2017). Awareness of halal certification of micro and small enterprises in Jakarta. *International Journal of Economics and Management, 11*(2 Special Issue), 459-471.

Lada, S., Tanakinjal, H. G., & Amin, H. (2009). Predicting intention to choose halal products using theory of reasoned action. *International Journal Islamic and Middle Eastern Finance and Management, 2*(1), 66–76.Available at: https://doi.org/10.1108/17538390910946276.

Latif, S. D. H. (2019). Awareness and perceptions of muslim society towards islamic banking in the Philippines. *International Journal of Islamic Economics and Finance, 1*(2), 209-228.Available at: https://doi.org/10.18196/ijief.1211.

Malaysian Demographic Profile. (2018). Population Distribution and Basic Demographic Characteristic Report 2010. Department of Statistics, Malaysia. Retrieved from:

https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=117&bul_id=MDMxdHZjWTk1SjFzTzNk RXYzcVZjdz09&menu_id=L0pheU43NWJwRWVSZklWdzQ4TlhUUT09.

Mao, Y. (2008). *Destination image building & its influence on destination preference & loyalty of Chinese tourists to Australia.* Ph.D. Dissertation, AAT 3347758. Polytechnic University Hong Kong.

Mohamed, Z., Shamsudin, M. N., & Rezai, G. (2013). The effect of possessing information about halal logo on consumer confidence in Malaysia. *Journal of International Food & Agribusiness Marketing, 25*(sup1), 73-86.Available at: https://doi.org/10.1080/08974438.2013.800008.

Mohayidin, M. G., & Kamarulzaman, N. H. (2014). Consumers' preferences toward attributes of manufactured halal food products. *Journal of International Food & Agribusiness Marketing, 26*(2), 125-139.Available at: https://doi.org/10.1080/08974438.2012.755720.

Muhammad, Z. M., Kamal, A. C., Rushdan, M. Y., & Hassan, Z. (2010). Small and medium enterprises (SMEs) competing in the global business environment: A case of Malaysia. *International Business Research, 3*(1), 66-75.

Namagembe, S., Ryan, S., & Sridharan, R. (2019). Green supply chain practice adoption and firm performance: Manufacturing SMEs in Uganda. *Management of Environmental Quality: An International Journal, 30*(1), 5-35.Available at: https://doi.org/10.1108/meq-10-2017-0119.

Neo, P. (2018). Halal food boom: Malaysia predicts rapid growth in exports and foreign demand for certification. Retrieved from: https://www.foodnavigator-asia.com/Article/2018/09/26/Halal-food-boom-Malaysia-predicts - rapid - growth - in-exports - and - foreign-demand forcertifications? utm_source = copyright&utm_medium = OnSite&utm_campaign =copyright.

Ngah, A. H., Zainuddin, Y., & Thurasamy, R. (2014). Barriers and enablers in adopting Halal transportation services: A study of Malaysian Halal manufacturers. *International Journal of Business and Management, 2*(2), 49-70.

Pradhan, R. P., Arvin, M. B., Nair, M., Bennett, S. E., & Hall, J. H. (2019). The information revolution, innovation diffusion and economic growth: An examination of causal links in European countries. *Quality & Quantity, 53*(3), 1529-1563.Available at: https://doi.org/10.1007/s11135-018-0826-2.

Rahman, R. A., Mohamed, Z., Rezai, G., Shamsudin, M. N., & Sharifuddin, J. (2014). Exploring the OIC food manufacturer intention towards adopting Malaysian halal certification. *American Journal of Food Technology, 9*(5), 266-274.Available at: https://doi.org/10.3923/ajft.2014.266.274.

Sekaran, U., & Bougie, R. (2016). *Research methods for business: A skill building approach* (6th ed.). United Kingdom: John Wiley and Sons Ltd.

Talib, M. S. A., Hamid, A. B. A., & Zulfakar, M. H. (2015b). Halal supply chain critical success factors: A literature review. *Journal of Islamic Marketing, 6*(1), 44-77.

Talib, M. S. A., Sawari, M. S. S., Abdul Hamid, A. B., & Ai Chin, T. (2016a). Emerging Halal food market: An Institutional Theory of Halal certificate implementation. *Management Research Review, 39*(9), 987-997.

Toh, L. H. (2009). Straight talk: Tapping the huge halal business. Retrieved from: http://www.bizedge.com/commentary/155833-straight-talk-tapping-the-huge-halal-business.html.