

# **A Review Halal Food Supply Chain Practices Research**

**Ahmad Shalihin**

Ph.D Student

Faculty of Engineering, Department Industrial Engineering  
Universitas Sumatera Utara, Medan, Indonesia

[ahmad@usu.ac.id](mailto:ahmad@usu.ac.id)

**Harmein Nasution**

Professor of Industrial Engineering

Faculty of Engineering, Department Industrial Engineering  
Universitas Sumatera Utara, Medan, Indonesia

[harmein\\_nasution@yahoo.com](mailto:harmein_nasution@yahoo.com)

**Iwan Vanany**

Professor of Industrial Engineering

Department of Industrial and Systems Engineering,  
Institut Teknologi Sepuluh Nopember Surabaya (ITS)  
Surabaya, Indonesia

[vanany@ie.its.ac.id](mailto:vanany@ie.its.ac.id)

**Juliza Hidayati**

Ph.D Lecturer

Faculty of Engineering, Department Industrial Engineering  
Universitas Sumatera Utara, Medan, Indonesia

[rivaijuliza@gmail.com](mailto:rivaijuliza@gmail.com)

## **Abstract**

This paper presents a systematic review of halal practices on the topic of halal food supply chain (HFSC). HFSC is a developing concept (since 2010) as a development of the classic supply chain concept due to the increasing awareness to provide halal food for Muslim and non-Muslim customers. This study has reviewed 120 papers (60 empirical papers) and provides four main findings. First, from a theoretical point of view, the theory of planned behavior, the theory of reasoned action, and the arc integration approach are the most widely used theories to study halal practices in HFSC. Second, the choice of quantitative methods dominates empirical papers on Halal Practices in HFSC studies. Third, the majority of Halal Practice Studies at HFSC are conducted in Muslim countries with the food and beverage industry as the main sector studied. Fourth, based on the results of social network analysis, halal practices in the HFSC study are grouped into three research themes, namely issues related to HFSC and food issues. This study suggests a future research agenda such as elaborating theoretical and methodological aspects by examining three research themes. This paper will contribute to the HSC body of knowledge.

## **Keywords**

Halal, Halal Practice, Halal Food Supply chain, bibliometric technique, network analysis.

## **1. Introduction**

The Halal trend is currently experiencing rapid development and has penetrated various countries, especially food (Tieman 2020). The halal market offers an alternative amidst the hustle and bustle of conventional market segments, both in Muslim and non-Muslim countries. Its popularity is increasing due to the increasing demand for high quality, safety and concern for environmental issues. Muslim people choose Halal products because of religious requirements

based on Islamic principles. Allah SWT said, "Then eat from Allah's provision for you [which is] lawful and good and be grateful for Allah's favours, if [indeed] it is He whom you worship (QS An-Nahl verse 114)". On the other hand, non-Muslim communities voluntarily choose halal products because halal products are claimed to provide health benefits (Krishnan et al. 2017). Moreover, several secular countries such as New Zealand, Thailand, Japan, the Republic of South Korea have mass-produced halal-certified products to be distributed and sold locally and globally (Petrlia 2019).

The word "halal" is Arabic which means that everything and actions are permitted by Sharia (i.e. Islamic law) and refers to Islamic beliefs (Rejeb 2018). Allah SWT said, "And eat what Allah has given you (which is) lawful and good. And fear Allah whom you believe in" (QS Al-Maidah verse 88). Another important word related to halal is "thoyyib" (also Arabic) which means healthy and good (Tiemann 2011). The concept of halal and thoyyib as 'beneficial' includes nutrition, quality, hygiene and safety for everyone. Although they are not intended only for Muslim societies (Omar et al. 2010) but also for all human beings in this world, the two concepts complement each other. For example, meat from animals that are allowed for consumption in Islamic rules but are "not-thoyyib because the process of sending the meat (the animal was slaughtered not in accordance with the Islamic way), the meat is not halal as a result. Conversely, when the meat is "thoyyib" (ie the processing of meat according to Islamic law) but the animal itself is prohibited for consumption according to Islamic rules, it causes the meat to become non-halal as well. Both of these concepts must be met in order to be called a halal product. In other words, firstly, the concept of halal is intended for human welfare. Things or objects, prohibited foods, or actions that are forbidden are indeed basically actions that if they are carried out will endanger the human being himself because they are prohibited. secondly, to test the extent of human obedience to God's commands. Whether God sent down the order, the prohibition, humans obeyed or did not see who truly believed and obeyed God's commands.

Halal consumers demand not only halal products but also halal practices (Bonne and Verbeke 2008). consumers buy halal products mainly because of the halal process (Omar et al. 2011). Therefore, the concepts of halal and thoyyib are needed in supply chain management to ensure the quality and integrity of halal products (see Lada et al. 2009; Wilson and Liu 2010; Tieman 2011). HFSC Management (HFSCM) is an extension of the existing SCM that focuses more on upstream-to-downstream delivery of Halal processes (Potluri et al. 2017; Osman and Aziz 2018 (Vanany et al. 2021)). In addition, HFSCM is the management of halal networks with the aim of extending halal integrity from the source to the consumer's point of purchase and the way to deliver halal products to the consumer's point of purchase (Tiemann et al. 2012). The HFSCM process must be halal from supplier to final consumer (Omar et al. 2011) and must comply with Sharia law (Khan et al. 2018)

Figure 1 shows that there was one study in 2010 which increased to 15 studies in 2018. These findings point to increasing interest in HFSC studies over time. However, to the best of our knowledge, no studies have provided a systematic review of the behavior of halal practices in HFSC that is expected for traditional topics. Systematic studies of the HFSC field over the past ten years are relevant to provide a better mapping of existing debates on the topic of HFSC.

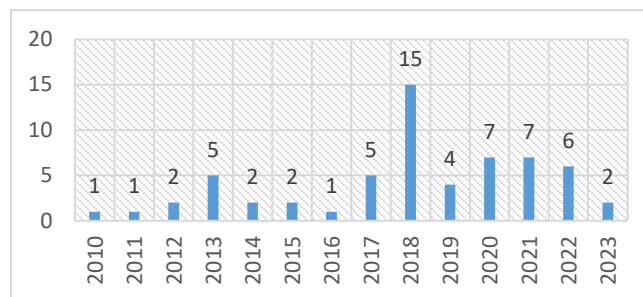


Figure 1. Number of HFSC publications 2010-2023

Based on the above, this study will provide answers to two research questions (RQ). First, what has been investigated in the HFSC study in terms of theory/perspective, research methodology, research setting (ie sector and country of origin)? Second, what are the research themes used in the HFSC study?

### 3. Methods

This study will provide an overview into 3 sections, the first section of the methodology includes the methods used to collect, copy, process, and analyze the papers reviewed. The second part describes the results of data processing and analysis to answer the RQ. The third section, discussion of the results leading to recommendations for future studies is summarized at the end of this paper. The systematic review uses bibliometric techniques adopted from previous bibliometric studies, such as Setyaningsih et al. (2018), Wahyuni et al. (2019) and (Islam et al. 2020)). The bibliometric technique consists of five steps as follows (see Figure 2).

The initial stage is to find relevant published papers using Google Scholar for journal sources related to HFSC using the Publish or Perish (POP) software. It then uses four keyword combinations and title words to capture various HFSC related topics. The first combination, we use the initial keywords "HFSC" OR "halal logistics" OR "halal distribution" OR "halal value chain" OR "Islamic supply chain" and the title word "HFSC". It produced 108 papers. The second combination, the same keyword – as the first combination – is used together with "Adoption of halal practice" as the title word. The result is six papers. After that, we used the same keyword along with "halal practice SC" as the title word as the third combination and got two papers. The last combination, the same keyword as "halal value chain" as the title word was used and resulted in five papers. From the four combinations, 120 papers were collected based on journals, proceedings, conferences, symposiums, books, working papers/ theses, and citations.

The second stage, setting specific criteria to select relevant papers for further analysis. The three criteria used to ensure the quality of the selected journals are: "language (English)", "has an index value (Scimagojr)", and "non-predatory journal (beallist.weebly.com)". We got 60 papers selected for further analysis, consisting of three papers from Q1 (Scopus indexed); 15 papers from Q2, 15 papers (Q3), 5 papers from Q4, and 5 papers from non-Scopus index. In addition, 10 papers from conferences, symposiums and proceedings were also included after carefully checking the quality and relevance of the papers. The third stage, inputting data or systematically documenting 60 selected papers based on several key aspects of each paper, namely the theory used in the research, research methodology, and research setting (ie sector/industry and country of origin), and research theme. This step was carried out with the help of Ms. Excel. The fourth step is data processing/analysis and presentation. To do this, we use software from VOSviewer to visualize findings and the SNA program to analyze the relationship between keywords (or nodes) and other keywords (or nodes). The results are then analyzed to answer research questions.

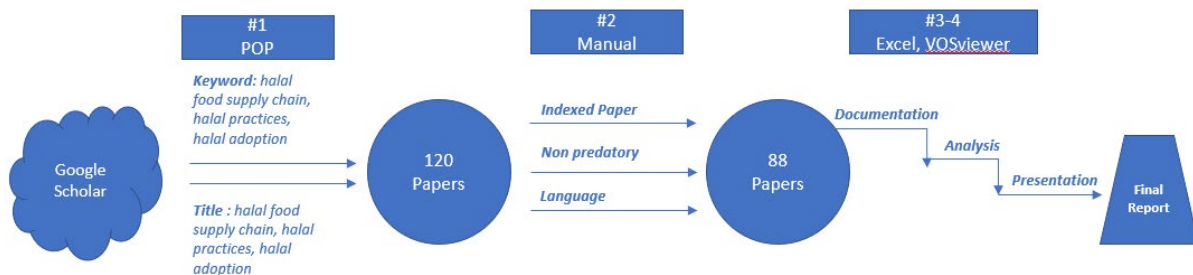


Figure 2. Research stage

## 5. Results and Discussion

Results from 60 selected papers with two research questions referring to theory/perspective, research methodology, research setting (i.e. sector and country of origin), and research theme group

### 5.1.1 Theory/perspective used in the HFSC study

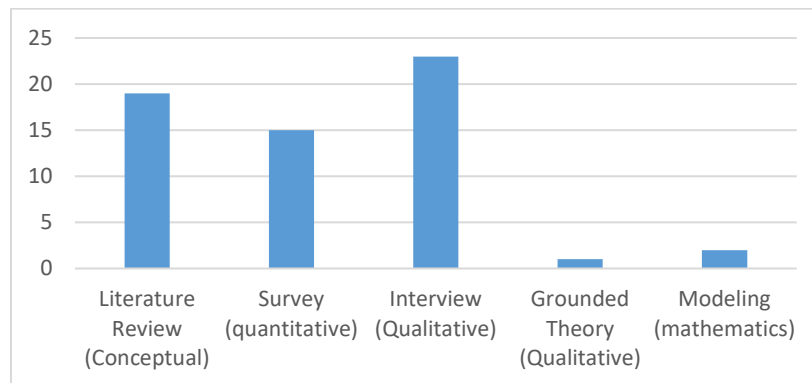
Various classical theories have been used to study HFSC as shown in Table 1. Theory of Planned Behavior (TPB), Arc of Integration Approach (AIA), and Theory of Reasoned Action (TRA) are the most frequently used classical theories. used in this field. For example, TRA and TPB are used to explain consumer awareness of halal products, motivation and intention to buy halal products which is called consumer buying behavior (Yusoff et al. 2015). Another study by Osman and Aziz (2018) examined TPB and TRA to predict the level of consumer behavior (attitudes, social norms, and perceived behavioral control and intentions), and AIA is used to relate to the integrity of halal food.

Table 1. Theories or approaches used in HFSC studies

No	Theory and Approach	Number
1	Theory of Planned Behavior	3
2	Arc of Integration Approach	3
3	Theory of Reasoned Action	2
4	Adaptive Theory	1
5	Agency Theory	1
6	Convention Theory	1
7	Convention Theory	1
8	Mean End Chain Theory	1
9	Mean End Chain Theory	1

### 5.2 3.2 Research methodology used in the HFSC study

Based on the 60 papers reviewed, 19 of the HFSC study papers were in the form of conceptual papers (i.e. a review of traditional literature), and the other papers were empirical works. In terms of research methods, interviews (from a qualitative paradigm) dominate the findings (23 studies). Of the 23 studies from the qualitative paradigm, 15 studies used surveys and 2 studies used mathematical modeling techniques, such as Multi Criteria Decision Making (MCDM), Best-Worst Method (BWM), Comprehensive Multi-Step Approach, House of Risk (HOR), and Analytical Hierarchy Process (AHP) twice. Furthermore, the grounded theory method is the least research method (1 study) used in this research. Many empirical studies combine more than one approach, for example, survey and modeling methods, or modeling and case studies to provide better and more comprehensive analyses. For example, Kusriani et al. (2018) conducted research using a case study and modeling approach (AHP Analytical Hierarchy Process method). The first stage is mapping the supply chain structure which consists of 5 processes (i.e. planning, procurement, receiving and storage, distribution, returns) and designing halal performance indicators which are validated by the General Manager who has experience and full responsibility for the halal retail supply chain. The next step is to calculate the indicator weight using AHP and calculate the supply chain performance score by multiplying the weight and the indicator value.



Note: one study may use more than one method

Figure 3. The methodology used in the HFSC study

### 5.3 The research setting of the HFSC study, namely sector/industry and country of origin

Based on the research setting related to the type of industry/sector, we found that food and beverage is the type of sector/industry that is most widely used (30 out of 60 papers) to study HFSC (see Figure 4). This finding is expected because the nature of the food and beverage sector is closely related to the existence of halal and thoyyib issues (ie processes and sources/materials). The second common sector used to study HFSC is the logistics sector. The logistics sector includes warehousing, transportation and terminal operations. Tieman (2013) states that contamination is a

major problem in the logistics industry because direct contact with haram objects can occur during the shipping process and must be carefully guarded for the sake of Muslim consumers.

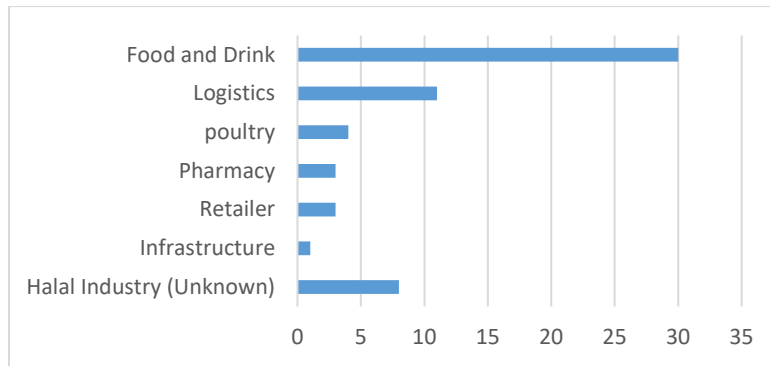


Figure 4. Research background: type of sector or industry

The finding that only one study was conducted in the context of the infrastructure sector (halal parking). Halal parking can include green design of park infrastructure, cleaner production, pollution prevention, availability and accessibility of raw materials, energy efficiency, inter-company relations, consolidated services from public bodies, and relations for marketing. Although the number of studies on halal parking is still limited, this issue is very critical for further studies. For example, in Indonesia, the existence of a halal park is located in the Indonesian capital (in Taman Senayan, Jakarta). This park is transformed into a halal area not only fulfilling halal principles but is expected to have an impact on the economic growth of an area. In addition, several studies on HFSC used more than one industry such as the study by Maman et al. (2015) in the food and beverage, logistics (transportation) and retail industry settings.

Regarding the country of origin, we divide it into two categories, namely: countries with a Muslim majority and countries with a non-Muslim majority. The classification is based on the number of residents who claim to be Muslim. According to Wikipedia, the religion of the majority of a country is a religion that has more than half of the country's population. As shown in Table 2, we found that studies on the topic of HFSC were mainly carried out in Muslim-majority countries than in non-Muslim-majority countries. Malaysia and Indonesia are the choices of Muslim countries in the ASEAN region to study HFSC. State peculiarities such as the nature of Muslims who require halal and thoyyib practices in the country's economic activities can explain this result. Malaysia is a well-known Muslim country that has Islamic laws for all daily activities, while Indonesia is a country where nearly 90% of the population is Muslim. However, this is not the case for the UAE. The current results also show that HFSC studies in non-Muslim countries are increasing due to the growing awareness of the benefits of halal products worldwide.

**Table 2. Country of origin**

Country	#Number	Country	#Number
<b>The majority are non-Muslims</b>	<b>8</b>	<b>The majority are Muslim</b>	<b>42</b>
Australia	3	Malaysia	35
Singapura	1	Indonesia	5
Cina	1	UEFA	1
India	1	Brunei Darussalam	1
Jepang	1		
Belanda	1		

#### 5.4 HFSC Study Research Theme Cluster

To determine the novelty of the research theme in the VOSviewer HFSC study to visualize potential clusters among the keywords and titles of the papers reviewed, three procedures were followed. First, we identified three main groups

based on the three different colors (i.e. red, blue, and green) of each main topic presented in the diagram (see Figure 5, on the left side). Each color represents a specific topic grouped together. The line (also colored) indicates how often one node (eg integrity, red dot) is connected to another node (eg halal food, halal food supply chain, etc.). Different colors mark the groups of each node that link to other nodes in groups of similar titles and keywords. Second, we analyze each line using the SNA concept, the larger the line between two points indicates the more frequently the two points are related to each other based on the keywords and titles of the 60 selected papers. Third, we identify the central topics in each cluster based on the degree of line thickness and how “busy” the nodes are connected to other nodes. Our analysis continues on the right hand side by providing common themes to each cluster based on our interpretation of the keywords in each cluster and generalizing these keywords into a single theme. Figure 5 summarizes the analysis process

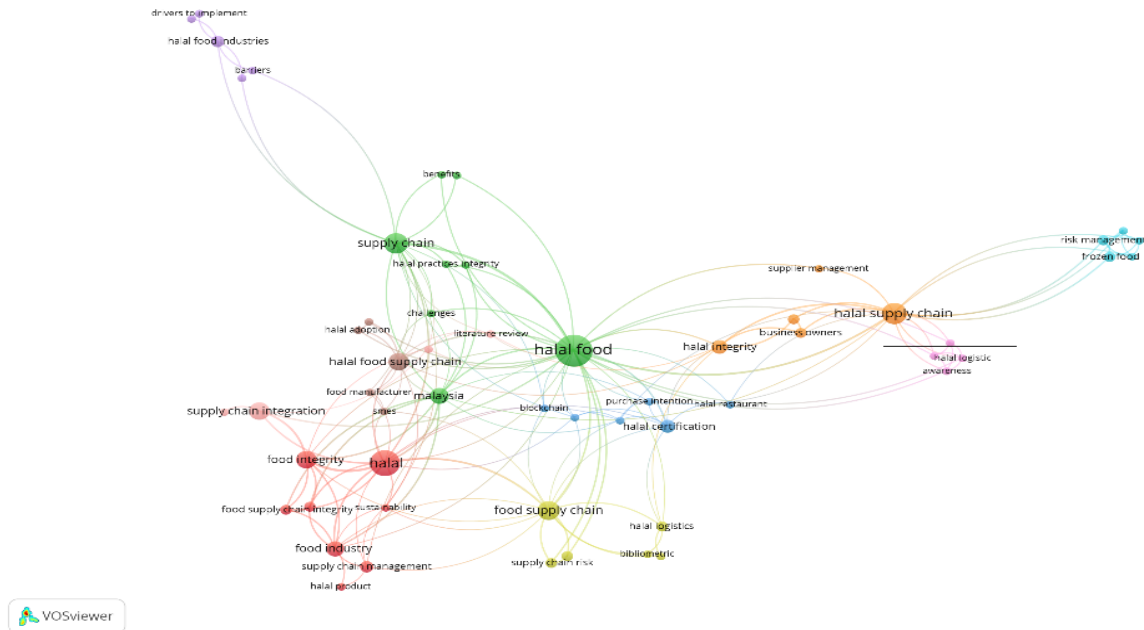


Figure 5. Visualization of the central topic network and clusters

Based on the 60 reviewed papers, this study found that the research themes on the HFSC topic could be classified into three groups, namely a) issues related to food; b) support system related issues; and c) supply chain and halal related issues (see Figure 5). The food-related issue cluster focuses on how to provide good quality food involving all steps or processes (i.e. raw material provider, warehouse, transportation, distribution) along the supply chain. Topics used in this cluster include the need for integration in operations by considering risk issues to provide better traceability and visibility in the supply chain (Ali et al., 2015). For example, the study by Ab Rashid et al. (2019); Zulfakar et al. (2014); and Bahrudin et al. (2011) found that implementing a comprehensive and reliable traceability system will definitely strengthen the halal food supply chain and enhance the integrity.

The second group of research themes support systems-related issues that include support systems and their impact on supply chains or company performance. An example of this cluster is the study by Ab Talib et al. (2015) proposed five critical success factors for ensuring process integrity in HFSC, namely government support, special assets, information technology, human resource management, collaborative relationships, and halal certification. The third cluster is supply chain and halal-related issues outlining the topic of an expanded definition of SCM and its relationship to SCM integrity and issues of halal products. Alqudsi Study (2014) and Ngah at al. (2014) which focuses on the successful implementation of halal logistics is an example of a study in this cluster

## 6. Conclusion and Future Research Agenda

HFSC studies have received increasing attention from management researchers over the past 11 years. Based on the results from 60 selected HFSC papers, this review summarizes the following statements with suggestions for future research. First, most of the HFSC studies use classical theories such as the TPB or TRA AIA approaches to examine

the antecedents of the intention to consume halal products. The use of existing theory is often independent of the purpose of the HFSC study. The main aim of the existing studies at HFSC is theory testing. To provide a comprehensive understanding of the HFSC phenomenon, or combine minus two relevant theories/approaches for the future. Also, explore or understand product processes using more process-oriented theories. In addition, exploring or understanding halal product processes by utilizing more process-oriented theories (such as dynamic capabilities, institutional theory, stakeholder theory) is an interesting agenda for research. future).

Second, related to research methodology, most of the research uses quantitative methods with surveys as the main data collection while qualitative methods are rarely used as well as modeling. As indicated in the previous suggestions, there is a need to understand how and why organizations adopt and apply HFSC principles, a more inductive approach or interpretivist paradigm such as multiple case studies or phenomenology etc. is essential. Third, our results show that most of the research was conducted in the food and beverage industry, especially in Muslim countries such as Malaysia and Indonesia. Relatively little is done for other sectors such as halal infrastructure, tourism and hospitality, financial services, health, beauty, pharmaceuticals, public education, real estate, and toiletries. In addition, other Muslim countries or non-Muslim countries and combined with various relevant potential sectors to be explored for future research agendas. Finally, our research identified three groups of research themes that are also relevant for further research. For example, future research could focus on some of the possible topics such as examining more in depth the potential relationship between the supply chain and HFSC, exploring in detail issues related to Halal practices within HFSC, or focusing more on factors related to support systems for HFSC implementation.

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## **Biography / Biographies**

**Ahmad Shalihin** is a Ph.D student at Faculty Engineering, Universitas Sumatera Utara, Indonesia and a lecturer at universitas sumatera utara. His research interest are supply chain and halal issues, his email address is [ahmad@usu.ac.id](mailto:ahmad@usu.ac.id)



**Harmein Nasution** is an Professor of Industrial Engineering Program Doctoral and Industrial Engineering at the Universitas Sumatera Utara, Medan, Sumatera Utara, Indonesia. He is concern with ergonomic, human capital, human resource management, behaviour industry and supply chain management. his email address is [harmein\\_nasution@yahoo.com](mailto:harmein_nasution@yahoo.com)

**Iwan Vanany** is a Professor in the Department of Industrial and Systems Engineering at Institut Teknologi Sepuluh Nopember (ITS), Surabaya, Indonesia. His research interests are in food supply chain management, business process management, and halal operations and supply chain. He has published in International Journal of Information System and Supply Chain Management, Meiji Business Journal, Supply Chain Forum: An International Journal, International Journal Logistics Systems and Management, Journal of Islamic Marketing, International Journal of Lean Six Sigma, British Food Journal, and Food Control. He teaches business process reengineering, supply chain management, enterprise resources planning (ERP), logistics system, productions and planning control, transportation, and warehouse management, and purchasing management. He can be contacted at [vanany@ie.its.ac.id](mailto:vanany@ie.its.ac.id)

**Juliza Hidayati** is an Associate Professor, and lecturer in the Faculty of Engineering at the Universitas Sumatera Utara, Medan, Indonesia. She earned B.S. in Industrial Engineering from Universitas Sumatera Utara, Indonesia, Masters in Industrial Engineering from Bandung Technology Institute, Indonesia and Ph.D. in Industrial Engineering from Bogor Agricultural University, Indonesia. She has published journals and conference papers. Her research interests include crude palm oil, green and sustainable manufacturing, renewable energy, supply chain management, and productivity. In Year 2018, she just published her second book entitled Value Chain in CPO Industry after publishing her first book, Instrumentation and Measurement Instrument in Year 2010. She can be contacted at [rivaijuliza@gmail.com](mailto:rivaijuliza@gmail.com)