

RELIABILITY OF HALAL TRACEABILITY SYSTEM TO IMPROVE HALAL SUPPLY CHAIN PERFORMANCE FOR FLESH-MEAT INDUSTRY



UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2023

SUPERVISOR'S APPROVAL

I hereby acknowledge that this project paper has been accepted as part of fulfilment for the degree of Bachelor of Technology Management (Supply chain and Logistics).

Approved by,



RELIABILITY OF HALAL TRACEABILITY SYSTEM TO IMPROVE HALAL SUPPLY CHAIN PERFORMANCE FOR FLESH-MEAT INDUSTRY

NUR ANISSA FARZANA BINTI AZMAN

This thesis is submitted in partial fulfilment of the requirements for the award of Bachelor of Technology Management (Supply chain and Logistics) with Honors



DECLARATION OF ORIGINAL WORK

I hereby declare that all the work of this thesis entitled "Impact of Halal Traceability System on Integrity of Halal Supply Chain for Flesh-meat Industry" is originally done by myself and no portion of the work encompassed in this research project proposal has been submitted in support of any application for any other degree or qualification of this or any other institute or university of learning.

SIGNATURE

NAME : NUR ANISSA FARZANA BINTI AZMAN

MATRUC NO : B061910042

DATE : 30/01/2023

JNIVERSITI TEKNIKAL MALAYSIA MELAKA

DEDICATION

I would like to appreciate the dedication of my beloved family members who educated me and motivated me to learn until degree level. And also, I express a deep sense of gratitude to my lecturer who was my supervisor for my final year project, Miss Atikah Saadah, and my fellow friends and classmates from BTMS. They have provided me with full support and advice throughout this research. Without their blessing and encouragement, this research is impossible to complete within a short period of time.



ABSTRACT

Due to rising global consumer demand, halal has emerged as one of the qualities being explored, particularly in food production in Muslim nations. Muslim consumers are very concerned about the integrity of Halal food due to the rising number of cases involving the misuse of the Halal logo and uncertain Halal food quality. There are flaws in the process of determining Halal food, according to the many reports on the problems of fraud cases and contamination in Halal products.

To maintain the authenticity of Halal products, food firms must be ready to put in place a methodical traceability system and understand how environmental elements related to the Halal industry affect the performance and supply chain integrity of Halal foods. As a result, the major goal of this study is to investigate how the halal traceability system affects the integrity of the halal supply chain for the flesh-meat industry, particularly in terms of how it helps to strengthen the integrity of the halal supply chain.



ABSTRAK

Disebabkan peningkatan dalam permintaan oleh pengguna bagi produk Halal telah meningkat samada di negara-negara Islam atau bukan Islam. Ianya telah menyebabkan isu berkaitan Halal sering dibangkitkan. Namun begitu, kes seperti status Halal yang tidak pasti keasliannya dan penyalahgunaan logo halal telah membuatkan pengguna produk halal raguragu akan status makanan Halal. Laporan juga telah dilakukan melibatkan kes penyalahgunaan serta pencemaran fizikal bagi makanan Halal telah menunjukkan terdapat kekurangan dalam pengendalian proses pengesahan makanan halal.

Oleh yang demikian, syarikat makanan haruslah bersedia bagi mengimplimentasikan sistem pengesahan yang boleh dipercayai kesahihannya bagi produk Halal dan memahami kepentingan faktor persekitaran industri Halal dalam meningkatkan prestasi dan integriti rantaian makanan Halal. Oleh itu, motif utama untuk menjalankan kajian ini adalah untuk menguji bagaimana kegunaan sistem pengesahan halal dapat digunakan dalam memastikan integriti bagi rantaian halal untuk industri daging dapat dipertingkatkan

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

TABLE OF CONTENTS

CHAPTER	CONTENTS	PAGES
	DECLARATION	i
	DEDICATION	ii
	TABLE OF CONTENTS	vi
	LIST OF TABLES	viii
	LIST OF FIGURES	ix
	LIST OF ABBREVIATIONS	X
	LIST OF APPENDICES	xi
CHAPTER 1:	INTRODUCTION	1
	1.1 INTRODUCTION	1
	1.2 BACKGROUND OF THE STUDY	1
	1.3 PROBLEM STATEMENT	3
	1.4 RESEARCH QUESTIONS	4
	1.5 RESEARCH OBJECTIVES	
	1.6 SCOPE AND LIMITATION OF STUDY	5
	1.7 SIGNIFICANT OF STUDY	5
	1.8 DEFINITION OF TERMS	6
	1.9 CONCEPTUAL FRAMEWORK	7 - اوسوم
	1.10 SUMMARY	7
CHAPTER 2:	LITERATURE REVIEW	8
	2.0 INTRODUCTION	8
	2.1 HALAL CONCEPT	8
	2.2 HALAL SUPPLY CHAIN	11
	2.3 RELIABILITY OF HALAL TRACEABILITY SYS SUPPLY CHAIN PERFORMANCE	
	2.4 RESEARCH HYPOTHESIS	15
	2.5 SUMMARY	15
CHAPTER 3:	RESEARCH METHODOLOGY	16
	3.1 INTRODUCTION	16
	3.2 RESEARCH DESIGN	16
	3.3 METHODOLOGICAL CHOICES	16
	3.4 PRIMARY AND SECONDARY DATA SOURCES	17
	3.5 RESEARCH LOCATION	17

3.6 RESEARCH STRATEGY	18
3.7 TIME HORIZONS	20
3.8 RELIABILITY AND VALIDITY	21
3.9 DATA ANALYSIS METHOD	21
3.10 SUMMARY	23
CHAPTER 4: DATA ANALYSIS	24
4.0 INTRODUCTION	24
4.2 PILOT TEST	24
4.3 DESCRIPTIVE STATISTICS ANALYSIS	25
4.4 DESCRIPTIVE ANALYSIS OF THE RELATIONSHIP VARIABLE	S 34
4.5 INFERENTIAL ANALYSIS	37
4.6 HYPOTHESIS ANALYSIS	42
4.7 CONCLUSION	43
CHAPTER 5 : CONCLUSION AND RECOMMENDATION	44
5.0 INTRODUCTION	44
5.1 SUMMARY OF FINDINGS	
5.3 RESEARCH IMPLICATION	
5.4 CONTRIBUTION	47
5.5 RESEARCH LIMITATION	47
5.5 RECOMMENDATION FOR FUTURE RESEARCH	48
5.6 CONCLUSION	49

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

LIST OF TABLES

TITLE	PAGES
Table 1.0: Definition of terms	6
Table 3.0: Five points rating scale by Rensis Likert in 1932	19
Table 3.1 : Determining sample size of a known population	19-20
Table 3.2: Cronbach's Alpha Coefficient Range and Strength of Association	21
Table 4.0: Case Processing Summary	25
Table 4.1: Reliability Statistic	25
Table 4.2: Frequency and percentage of Age	25
(Source: SPSS Output)	
Table 4.3: Frequency and percentage of Race	26
(Source: SPSS Output) UNIVERSITI TEKNIKAL MALAYSIA MELAKA	
Table 4.4: Frequency and percentage of	26
Religion (Source: SPSS Output)	
Table 4.5: Frequency and percentage of	27
Education Level (Source: SPSS Output	
Table 4.6: Frequency and percentage of are	27
you familiar with the idea of Halal	
Traceability System	
Table 4.7: Frequency and percentage of	28
RHTS1 (Source: SPSS Output)	

Table 4.8: Frequency and percentage of	28
RHTS2 (Source: SPSS Output)	
Table 4.9: Frequency and percentage of RHTS3 (Source: SPSS Output)	29
Table 4.10: Frequency and percentage of RHTS4 (Source: SPSS Output)	29
Table 4.11: Frequency and percentage of EHTS1	30
Table 4.12: Frequency and percentage of EHTS2	30
Table 4.13: Frequency and percentage of EHTS3	31
Table 4.14: Frequency and percentage of EHTS4	31
Table 4.15: Frequency and percentage of HSCP1	32
Table 4.16: Frequency and percentage of HSCP2	32
Table 4.17: Frequency and percentage of HSCP3	33
Table 4.18: Frequency and percentage of HSCP4	33
Table 4.19: Descriptive analysis for Reliability of Halal Traceability System	34-35
(Quality)	

Table 4.20: Descriptive analysis for	35
Effectiveness of Halal Traceability System	
(Security)	
Table 4.21: Descriptive analysis for	36-37
Effectiveness of Halal Traceability System	
(Security)	
Table 4.22: Strength of The Correlation	37
Coefficient (Hair et al., 2010)	
Table 4.23: Result of Correlations Analysis	38
for All Variables	
Table 4.24: Correlation between RHTS and	39
HSCP	
Table 4.25: Correlation between EHTS and	39
HSCP SAME	
Table 4.26: Model Summary	40
Table 4.27: Coefficients	40
UNIVERSITI TEKNIKAL MALAYSIA MELAKA	
Table 4.28: ANOVA	41

LIST OF FIGURES

FIGURES	PAGE
Figure 1.0: Conceptual framework	7
Figure 2.0: Halal certificate Issuance by JAKIM	10
Figure 2.1: Tracing point when processing the halal chicken company	14
Figure 3.0: Deductive Approach by Huygens in 1629	17
Figure 3.1: Value of correlation coefficient	22
Figure 4.0: Descriptive Statistic	34
UNIVERSITI TEKNIKAL MALAYSIA MELAKA	

LIST OF ABBREVATIONS

ABBREVIATION MEANING

MOH The Ministry of Health

JAKIM Jabatan Agama Islam Malaysia

LPH Lembaga Pemeriksa Halal

GMP Good Manufacturing Practices

GHP Good Hygiene Practices

HSCIn Halal Supply Chain Integrity

HSC Halal Supply Chain

ID Identification

RFID Radio Frequency Identification Devices

SPSS Statistical Package of Social Science

MRA Multiple Regression Analysis

RHTS Reliability of Halal Traceability System

(Quality)

EHTS Effectiveness of Halal Traceability System

(Security)

HSCP LINIVERSITI TEKNIK (Halal Supply Chain Performance for

Flesh-meat Industry

LIST OF APPENDICES

TITLE	PAGE
Appendix A: Questionnaire	56-61
Appendix B: Gantt Chart of Final Year	62
Project (FYP) 1	
Appendix C: Gantt Chart of Final Year	63
Project (FYP) 2	



CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION

The halal traceability system is important in ensuring halal supply chain management to improve its integrity, security and quality of product produce, especially for the flesh-meat industry. Because of the increase in demand for products in the industry, the consumers of halal foods, especially Muslims, have become doubtful about the authenticity of the product's status. In this chapter, I will focus on the background of the study, problem statement, research objectives and research question, the definition of terms and the significance of the study and the conceptual framework used in this study

1.2 BACKGROUND OF THE STUDY

Human beings are liable for cleanliness and purity and taking responsibility for cleanliness can increase one's quality of life. In Islam, it is the responsibility of Muslims to follow the commands of the Quran. The Quran commands Muslims only to eat Halal (permissible) food and avoid Haram (forbidden) food. Haram is a term used which refers to something illegal, unlawful, or forbidden (Rosly, 2010).

"Allah SWT has provided you with all good, lawful types of food. Moreover, note Allah SWT, in whom you have faith" (Al-Ma'idah-88)

Due to an increase in the number of cases of contaminated Halal food due to the mixing of Halal and non-Halal food in storage, poultry, and meat slaughtering, which do not meet the shariah requirement (Omar and Jaafar, 2011), it has contributed to the issue that is related to the integrity of halal supply chain management when processing the halal products. Physical contamination, and falsified Halal certification (Zulfakar, 2014), also has contribute to the integrity of the halal supply chain as well. For example, a report by The Ministry of Health (MOH) that the two Cadbury products which are Cadbury Dairy Milk Hazelnut and Cadbury Dairy Milk Roast Almond examined by the Ministry of Health (MOH) where both of the product found positive evidence of porcine DNA (New Straits Times, 2014), forcing the product to be removed

immediately which affecting the company's reputation negatively as well as has decreased the halal food consumer trust towards halal food producers or manufacturer.

In Malaysia, Muslims make up the majority of the population. As a result, consumer demands may eventually lead to the Halal supply chain business development. The consumer believes that the producer needs to be trustworthy to ensure that every food item is produced according to Islamic norms. In Quran, the term Halal is meant "permitted", "lawful," or "authorised," whereas Haram is referred to items that are prohibited in everyday life. Thus, everything people use or consume is classified as Halal or Haram. Therefore, it is understandable for Muslim consumers to be very cautious about what they eat or drink. Besides, the production of Halal foods is quite complicated as the producers need to have a definite knowledge regarding the whole process of the supply chain and, most importantly, the trust of consumers towards them in handling the halal products to prevent an issue such as cross-contamination or irresponsible act of worker while processing the products. Thus, to lessen the doubt regarding the use of halal labelling for the halal flesh-meat products being sold in the market, it is a must for businesses to apply the Halal traceability system when processing Halal supply chain.

The Halal concept is not confined to the manufacturing and packaging process in the Halal sectors. Still, it also needs vigilant checks across the supply chain processes until the product has reached the end-user (Zailani, 2017). In addition, the production of Halal meat is complicated as the producers of Halal meat need to be extra cautious when producing the products. Thus, to achieve the untainted Halal supply chain integrity (HSCIn), each partner in the supply chain, from the supplier to the end-user, needs to be monitored so that users can be satisfied with Halal products' authenticity. Therefore, keeping track of each supply chain partner's integrity is critical. With that being said, implementing the Halal traceability system should be addressed in light of growing customer demand for a better Halal food supply chain. It is critical to reduce contamination and ensure it does not occur during handling Halal food in a Shariah-compliant manner.

1.3 PROBLEM STATEMENT

There is a multiple study done on this topic where it's focusing on the concern of consumers regarding the transparency of Halal food for chicken and meat. Muslim consumers are mainly concerned with the cleanliness and hygienic handling of products, the storage of products, the transportation of products and the distribution of the products (Yudi, Ika and Ahmed, 2022). In a Muslim-majority country, Halal certification is critical in allowing consumers to choose a certain brand. Thus, if the producer's integrity for Halal products cannot be trusted, it will affect the whole trust of consumers towards the halal logo on the product.

Transparency entails exchanging information among many entities along with the supply chain network (Morgan., 2018). Recently, the issue regarding the integrity of Halal flesh-meat product producers has been circulating in Malaysia. Specifically, Muslims in Malaysia have been worried about whether the meat or chicken sold in the market is Halal or not. As news posted in the New Straits Times, with the title "Not impossible, says JAKIM of smuggling of non-halal meat," stated that an irresponsible organisation changed the packaging of non-halal meat to halal labelling meat when entering the warehouse. Thus, the issue has increased consumer trust toward the flesh-meat producers' integrity in Halal flesh-meat products (New Straits Times., 2020). Scepticism among Muslim customers was sparked by false and questionable Halal Symbols, causing some to question the integrity of the halal logo and whether they follow the halal compliance or not (Rajendran and Kamarulzaman, 2019). The use of the Halal supply chain plays an important role in ensuring the Halal products being produced and distributed to the end-user follow the shariah compliance. Therefore, keeping track of each supply chain partner's integrity is necessary (Norasekin and Jamil, 2019) by using Halal traceability system which are believed to be reliable to improve halal supply chain performance.

The Halal Supply Chain is different from the conventional supply chain because the Halal supply chain will run its processes based on shariah law which is by following the Islamic way on how to process the product. Despite that, the adoption of the Halal Supply Chain was quite complicated as producers need to have a definite knowledge regarding the whole supply chain process and, most importantly, the trust of consumers

towards them in handling the halal products in the flesh-meat industry to lessen the issue such as cross-contamination where a halal product come in contact with the non-halal product where in the case of flesh-meat product, Halal meat got mistaken with non-halal meat. Due to that, only relying on the Halal supply chain are believed to not be reliable enough as the consumer still questions the integrity of the Halal supply chain. Therefore, the Halal Traceability System can be used to solve such problems. The Halal Traceability system may increase customer trust in halal food items, safety and transparency throughout the food supply chain (Nawi, 2018). Besides, with the increase of Halal food consumers, the quality and integrity of Halal products need to be increased simultaneously. Therefore, the deployment of a Halal Traceability System needs to be addressed in light of growing customer demand for a better Halal food supply chain as it is critical to reduce contamination and ensure that it does not occur during the process of handling Halal products according to the Shariah-compliant manner (Norasekin and Jamil *et al.*, 2019).

With that being said, the lack of integrity for flesh-meat product producers, which increased the customer's lack of trust, has led the customers to demand transparency of the Halal supply chain when handling the product. Therefore, to solve these issues, the Halal Transparency System is needed.

1.4 RESEARCH QUESTIONS

- 1. How does the reliability Halal Traceability system improve the performance of Halal supply chain management?
- 2. What issue caused the lack of trust in halal meat or chicken consumers and the lack of confidence in the halal status?

1.5 RESEARCH OBJECTIVES

- To examine the reliability Halal Traceability System to improve Halal Supply Chain Management
- 2. To investigate the issue causing the lack of trust from consumers towards the Halal status in the flesh-meat industry.

1.6 SCOPE AND LIMITATION OF STUDY

This research study is about the reliability of Halal Traceability System to improve Halal Supply Chain performance for the Flesh-meat Industry. This study examines the reliability aspect of the halal traceability system affecting the quality and security of halal supply chain performance as well as the user behaviour towards the system which affects the performance of the halal supply chain. The research is conducted on selected organizations in Ayer Keroh, Malacca, Malaysia where Halal traceability system being used in halal supply chain operation.

The limitation of the study is inaccurate data from the respondents as it is difficult to provide an accurate answer as it the respondents who lack of knowledge regarding Halal traceability system or Halal Supply Chain. The researcher only focuses on Malaysia which made the data and solution provided may not be applicable to other country. In addition, researcher also face a difficulty in term of time when conducting the study as it need to be completed in a short amount of time which is 10 months.

1.7 SIGNIFICANT OF STUDY

With today's rapid growth of technology, consumers have started to be well-educated on what they eat in terms of ingredients and the actual process of producing the product. For Halal food consumers, a specific rule that producers need to follow is based on shariah law. Therefore, it is understandable for Muslim consumers to feel curious about the procedure's integrity and how the halal food producer handles the product. Recently, the concern of Muslim consumers in Malaysia has increased along with the news reported by News Straits Times in 2020, where a producer of halal meat in Malaysia has irresponsibly changed the packaging of non-halal meat to halal labelling meat when entering the warehouse. Thus, through the lack of trust in Halal meat, a Halal supply chain is the option that producers or businesses who produce Halal flesh meat can use for all procedures for processing flesh-meat, which will be based on shariah law. Despite that, only using the Halal supply chain will not ensure the transparency or integrity of each supply chain partner. Thus, adopting the Halal traceability system can increase the demand for a better process in the Halal supply chain and provide transparency in the Halal supply chain.

1.8 DEFINITION OF TERMS

		Definition
Term		
Halal		Halal is an Arabic word, whereas, in English, it means "lawful
Halal		or permissible." Halal describe what Muslims are permissible
		or allowed to eat or drink. On the other hand, Haram is contrary
		to Halal, which is also an Arabic word meaning something that
		is forbidden. The Holy Quran defines Halal (or Haram),
		represented in Shariah law.
		When the concept of Halal is used in the supply chain
Halal Su _l	pply chain	throughout its processes, from the raw material to the final
		products, it will be referred to as the Halal supply chain
		(Yusaini, Abdul, and Azanizawita, 2020). The concept of Halal
	MALAY	is meant by the process of the supply chain will follow the rules
	Ton and a second	of Shariah law.
** 1 1	ž,	Halal Traceability System is the capacity to detect and verify
Halal	Traceability	all information about the product, from raw materials to the
System	To all	final products. Traceability technology or system can help a
	AINI	logistic company handle a product quickly, ensure product
	سا ملاك	safety, and improve performance (Yudi, Ika and Ahmed et al.,
	**	2022).
	UNIVERS	The Flesh-meat industry is focused on the meat of birds or any
Flesh-meat industry		meat of animals except fish and clams that can be used as food.
		The Islamic method of slaughtering the flesh-meat is different
		as Muslims will first need to recite Shahadah, and at the time
		of slaughter, animals need to be alive and healthy, and all blood
		must be drained from the carcass (BBC News, 2014).
		T-1-1-10. D-f-::::

Table 1.0: Definition of terms

1.9 CONCEPTUAL FRAMEWORK

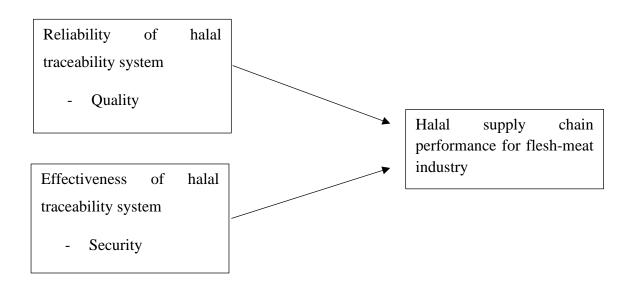


Figure 1.0: Conceptual framework

1.10 SUMMARY

In conclusion, the primary components of this study were described in this chapter, which included the study's background regarding the Halal supply chain, fleshmeat industry, and Halal traceability system, as well as the problem statement followed by research question and objectives, definition of terms, conceptual framework and significance of the study.

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

CHAPTER 2

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter will provide an overview of previous research on the reliability of Halal traceability system affecting the Halal supply chain performance for the fleshmeat industry. The researcher will first explain the Halal concept in Malaysia. Next, the researcher will explain the Halal supply chain industry in Malaysia. After that, this research aims to determine how reliable the Halal traceability system affecting the Halal supply chain performance. To better understand that the researcher will continue this research with some methodologies to allow the outcomes from past research, such as case studies, journal articles and any other resources related to the main research objectives.

2.1 HALAL CONCEPT

Halal is an Arabic word that means permissible or legal under Islamic law (Ibn Manzur, 2019). Halal, in general, refers to what is legal and allowed under Islamic law, which is based on the teaching of the Al-Quran. The concept of Halal, especially for foods, from the ingredients to the manner of preparing the Halal food, needs to be cleaned and hygienically based on the Shariah law (Islamic rule). Halal is a holistic principle in Islam that focuses on physical qualities and moral sense throughout the supply chain (Hassan, 2013). As evidenced by the following verses from the Al-Quran:

"O you who believe! We have given you plenty of good foods (toyyib) to eat and thank Allah if Him you serve." (Al-Baqarah 2:172)

Based on the verse, it is clear that Islam has established two important food intake criteria: Halal (permissible) and Tayyib (good quality) (Zalina,2008)

"Allah has given you good, lawful foods to eat. Also, remember Allah, in Whom you have faith." (Al-Maidah 5:88)

While for this verse emphasises that Muslims who dwell on this planet need to find *Rizk*, which is Halal and Tayyiban. But it's also stated that Muslims should eat Halal food, which is permissible for them to eat, and avoid consuming any food prohibited in Islam so that their bodies and lives aren't ruined.

Typically, Muslim countries will serve halal cuisine, but modern processed foods may require industrial ingredients, which may conflict with halal requirements. in Malaysia, the halal certification authority is known as Jabatan Kemajuan Islam Malaysia (JAKIM), and in Brunei, the country has Bahagian Kawalan Makanan Halal Jabatan Hal Ehwal Syariah. Therefore, for Muslim travellers visiting Malaysia, they will feel safe as it is easy for them to differentiate whether the foods they want to buy halal or not.

2.1.1 HALAL CERTIFICATION: PROFESSIONALISM IN THE HALAL INDUSTRY

Now, it can be seen that the Halal industry has growth in both Muslim and non-Muslim countries. However, the sector has become more complex due to the industrial complexity. The Halal industry requires thorough scrutiny to ensure that the Islamic policy requirement is strictly enforced, which regular producers may not be aware of. As a result, the permitted authorities must certify the industry. This section will discuss the implementation of the halal certification policy for Malaysia.

2.1.1.1 IMPLEMENTATION OF MALAYSIA'S HALAL CONCEPT

In Malaysia, Halal refers not only to a product intended for Muslim consumption but also to the industry and market. Malaysia authorities' organisation responsible for managing the halal food business is JAKIM or the Department of Islamic Development Malaysia. Therefore, JAKIM is Malaysia's main authority responsible for issuing halal certificates. It's proved by the Trade Description Act of 2011, which aimed to reduce the number of fraudulent halal certificates issued to zero (Bernama, 2018). The Trade Description Act of 2011 was created to revoke the Trade Description Act of 1972, which limited the issuance of halal certificates to JAKIM and the State Islamic Religious Department. Anyone might grant a certificate