# WILLINGNESS TO PAY FOR HALAL LOGISTICS: A STUDY ON THE NON-MUSLIMS IN MELAKA

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### **VERIFICATION BY SUPERVISOR**

I hereby declare that I had read this thesis and, in my opinion, this thesis is adequate in term of scope and quality for the award Bachelor of Technology Management (Supply Chain Management and Logistics)

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Report submitted in fulfillment of the requirement for the degree of Bachelor of Technology Management (Supply Chain Management and Logistics)

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> > JANUARY 2023

### **DECLARATION OF ORIGINAL WORK**

I, LIM LI SHAN

"I hereby declare that this thesis and the work presented in it are my own except for the quotations and summaries that have been duly knowledge."

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### **DEDICATION**

This study is dedicated to my beloved parents who gave me the strength with their guidance, love, and support.

A special feeling of gratitude to my loving parents for being the sources of my inspiration and motivation.

To my supervisor, friends and classmates who shared their knowledge and encouragement to finish this research.

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A lot of thanks to both my parents, who always providing me unmeasurable love, patient, prays, and life advices. They do provide me with the electronic gadgets and life necessaries which thus I can concentrate on my study and research. I will be grateful for them for the rest of my life. And, finally, I would like to thank the respondents and everyone who helped me during throughout my study by offering suggestions and support no matter directly or indirectly.

Thank you.

#### ABSTRACT

Halal logistics has recently becoming a blooming trend due to the seeing of increase demand especially from the non-Muslims society. However, many potential logistics providers are still hesitant to adopt this service with doubts on the customers' willingness to pay for the novelty "halal logistics service". This study aims to investigate the factors that influence the willingness of non-Muslims in Melaka to pay for halal logistics. With the guide of Theory of Planned Behavior (TPB) as conceptual framework, the relationship of knowledge and awareness towards halal logistics, perceived demand for halal logistics, and perceived cost towards halal logistics on the willingness of non-Muslims to pay for halal logistics in Melaka is being studied. By using quantitative research design along with convenient sampling, 150 data were collected by a survey via online and face-to-face distribution. SmartPLS 3.3.9 software was employed in data analysis. Results show that only perceived demand for halal logistics and perceived cost towards halal logistics have significant influence on the willingness of non-Muslims to pay for halal logistics while the awareness and knowledge towards halal logistics not significantly influence the willingness of non-Muslims to pay for halal logistics. This study contributes to fill the gap of study for non-Muslims society, advance the knowledge on the factors influencing willingness to pay for halal logistics, and beneficial for future potential investment, government, policy makers, and the industry players.

Keywords: Halal Logistics, TPB, Willingness to Pay, Willingness to Pay for Halal Logistics, Awareness and knowledge towards halal logistics, Perceived demand for halal logistics, Perceived cost towards halal logistics

#### ABSTRAK

Logistik halal telah menjadi trend yang berkembang pesat berikutan dengan peningkatan permintaan dalam beberapa tahun kebelakangan ini terutamanya di kalangan masyarakat bukan Islam. Namun begitu, ramai pembekal logistik halal yang berpotensi masih teragak-agak untuk membekalkan perkhidmatan ini atas keraguan tentang kesanggupan pelanggan untuk membayar "perkhidmatan logistik halal" yang baharu. Kajian ini bertujuan untuk mengkaji faktor-faktor yang mempengaruhi kesanggupan masyarakat bukan Islam di Melaka membayar logistik halal. Dengan panduan Teori Tingkah Laku Terancang (TPB) sebagai kerangka konseptual, hubungan pengetahuan dan kesedaran terhadap logistik halal, persepsi permintaan terhadap logistik halal, dan persepsi kos terhadap logistik halal terhadap kesediaan masyarakat bukan Islam untuk membayar logistik halal di Melaka telah dikaji. Dengan menggunakan reka bentuk penyelidikan kuantitatif bersama persampelan mudah, 150 data telah dikumpul melalui pengedaran tinjauan secara atas talian dan bersemuka. Perisian SmartPLS 3.3.9 telah digunakan untuk menganalisis data. Keputusan menunjukkan bahawa hanya persepsi permintaan terhadap logistik halal, dan persepsi kos terhadap logistik halal mempunyai pengaruh yang signifikan terhadap kesanggupan orang bukan Islam untuk membayar logistik halal manakala hubungan pengetahuan dan kesedaran terhadap logistik halal tidak mempengaruhi secara signifikan terhadap kesanggupan masyarakat bukan Islam untuk membayar logistik halal. Kajian ini menyumbang untuk mengisi jurang pengajian bagi masyarakat bukan Islam, memajukan pengetahuan tentang faktor-faktor yang mempengaruhi kesanggupan membayar logistik halal, dan bermanfaat untuk potensi pelaburan masa depan, kerajaan, pembuat dasar, dan pemain industri.

Kata kunci: Logistik Halal, TPB, Kesanggupan Membayar, Kesanggupan Membayar Logistik Halal, Pengetahuan dan Kesedaran Terhadap Logistik Halal, Persepsi Permintaan Terhadap Logistik Halal, Persepsi Kos Terhadap Logistik Halal

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# LIST OF ABBREVIATIONS

UTeM	-	Universiti Teknikal Malaysia Melaka
JAKIM	-	Jabatan Kemajuan Islam Malaysia
TRA	-	Theory of Reasoned Action
TPB	-	Theory of Planned Behavior
DSM	-	Department of Standard Malaysia
LSP	-	Logistics Service Provider
MS	-	Malaysian Standard
ACCCIM	-	Associated Chinese Chambers of Commerce and
		Industry of Malaysia
CASS	-	Cargo Account Settlement System
PLS-SEM	-	Partial Least Squares Structural Equation Modelling
SEM	-	Squares Structural Equation Modelling
KAW	-	Knowledge and Awareness
PD	-	Perceived Demand
PC	-	Perceived Cost
WTP	-	Willingness To Pay For Halal Logistics
AVE	-	Average Variance Extracted
HTMT	-	Heterotrait-Monotrait
VIF	-	Variance Inflation Factors
KAA	-	Knowledge and Awareness
PD	-	Perceived Demand
PC	-	Perceived Cost
$\mathbb{R}^2$	-	Coefficient of Determinant
$F^2$	-	Effect Size
$Q^2$	-	Predictive Relevance
В	-	path coefficients
FDI	-	Foreign Direct Investment

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### **CHAPTER ONE**

#### INTRODUCTION

### 1.0 Introduction

This chapter will serve as an overview for the entire research project. It will start with the introduction of research background regarding the topic: Willingness to pay for Halal Logistics: A study on the non-Muslims in Melaka. Thus, it will follow with the research problem that exist and need to be solved. Then it will continue with the reveal on research question, objectives of the study, and scope of study. Limitation of the study as well as the boundaries and constraints encounter will also be discussed. Next, significance of research to theoretical and practical contribution will be explored. Thus, the summary which summarizing the results and findings will be recorded.

### **1.1 Background of Study**

In Arabic, Halal can be defined as the things and actions which is literally permissible and lawful to the context of proper Islamic practice (Bergeaud-Blacker, et al., 2015). Halal industry can be known as the engagement of a series of halal activities and procedures that ensuring the "Halal-ness" of the final consume products or services that being delivered. While, Halal Logistics can also be known as the process which taking control over "Halal-ness" of the flow of product or services from raw materials in procurement, to semi-finished product in manufacturing, to the product storage, and until it reaches to the final consumers.

In nowadays, the Halal term is no longer a brand-new word to publics, instead, it is a new trend and new market exploration to the world. According to the Global Islamic Economy Report 2018/2019 by Thomson Reuters (2016), global halal market is estimated in reaching 9.71 trillion USD by 2025. Meanwhile, the global halal market value is also estimated to growth and hit 11.2 trillion USD in 2028 from the value of 7.2 trillion USD in year 2020 (Adroit Market Research, 2021). With this, Malaysia will be the nation who lead the halal industry as according to the Global Islamic Economy Indicator (GIEI) since Malaysia has been a few more steps standing in front of the world Islamic economy system. The CEO of Halal Development Corporation (HDC) Dato' Seri Jamil Bidin announced that Malaysia recorded an increase of RM 1.2 billion to RM 43.39 billion in 2017 from RM 42.2 billion in year 2016 to emphasize on the performance of Malaysia as one of the leading global halal hubs (Salama, 2018). On the Halal Cluster Week in November 2021, Deputy Secretary-General of MITI, Dato Seri Norazman Ayob had showcased that the halal Malaysia brings huge opportunities in potential trade and investment up to 80 million USD (Bernama, 2021) and this will definitely contribute to the long run halal market growth.

Halal is not only the concept that anchored by Muslim society but also the new choice of standard life quality to the Non-Muslim society. Ismail et al. (2017) reveals that the increase of knowledge and awareness on consumable health and safety promotes the concern of non-Muslims towards halal products. With expansion of halal concept and the opportunity of the market, halal concept is no longer binding to the aspect of food, instead, bunches of halal products and services are emerged such as halal-logistics, halal-healthcare, halal-cosmetics, halal-pharmaceuticals, halal-tourism, halal-financial-services, and the lists go on. Halal is undeniably germinating from food and product based to a more sustainable value of logistics and supply chain (Ahmed, 2019) since halal is now already instilling as a lifestyle but not only a concept. Nevertheless, Halal is not only concerning on the consumption and purchase, it comprises of the whole flow and process of logistics activities (Kasim, et al., 2017).

Halal logistics will be the main character or system which in-charged to ensure the

halal integrity during the flow of goods across proper warehousing and transportation activities before it arrive to final consumers (Ngah, et al., 2014). Halal logistics controlling and assuring the activities of halal supply chain (warehousing, transporting, and terminal) in place and prevent the vulnerability (Tieman, et al., 2012). Therefore, halal logistics will be focused in this study as it is the current circumstances that driven Halal industry since "logistics" may be the major process control to prevent the products from contaminated with non-halal products during the flow of the logistics (Sham, et al., 2017).

Apart from Muslims, society of non-Muslims are also attracted for Halal products due to the emphasize of halal concept on cleanliness, safety, and usefulness (Adirestuty, et al., 2021), the demands and opportunities of Halal logistics will also be increased. In year 2019, 286.96 billion USD was been valued as the global halal logistics market size (Grand View Research, 2020) which means halal logistics have a very potential value in the future trend. Therefore, logistics player could not ignore of the trend and should take a deeply look into it. Previously, many studies and researches are done to have an investigation towards non-Muslims intention and perception to purchase halal product such as the research from Wibowo & Ahmad (2016); Haque et al. (2015); Ismail & Nasiruddin (2014). However, it looks like less studies are being made to look for the willingness of non-Muslim to pay for Halal Logistics. Determining the willingness of non-Muslim to pay for this type of services is crucial since halal logistics will only exist and being embraced by the logistics providers or companies if there is a high willingness to pay for it. It is anticipated that this research's findings will contribute in some way for Malaysia halal logistics development and in addition, acts as a niche of better understanding regarding the demand for halal logistics for logistics service provider (LSP).

### **1.2** Problem Statement

Halal logistics is seemed to be the critical role which promotes the success of halal industry especially for halal food products (Ngah, et al., 2017). As according to the potential development of future halal industry, Malaysia government has taking initiatives in promoting the halal logistics services. Incentives and strategies are being introduces to promote the halal services' trade and investment. Numerous incentives are being introduces (NASDAQ OMX Group & Edbiz Consulting, 2012):

- Exemptions of tax for export income or revenue to halal logistic operators, halal industry players, and halal park operators.
- Double deduction on expenses to meet the standard in obtaining JAKIM halal certificate for halal product producers.
- Five years of 100% Investment Tax Allowance to companies who producing halal food.

The figure below shows the detail incentives support for various halal industry players.

Halal Park Operators:	Halal Logistic Operators:	Halal Industry Players: - Income Tax Exemption on export		
<ul> <li>Income Tax Exemption (100% tax exemption for 10 years) OR;</li> <li>Investment Tax Allowance (100% for 5 years)</li> <li>Exemption on import duty &amp; sales tax for cold room equipment</li> </ul>	<ul> <li>Income Tax Exemption (100% tax exemption for 5 years) OR;</li> <li>Investment Tax Allowance (100% for 5 years)</li> <li>Exemption on import duty &amp; sales tax for cold room equipment</li> </ul>	revenue (100% for 5 years) OR; - Investment Tax Allowance (100% for 10 years) - Exemption from import duty on raw materials - Double deduction on expenses incurred in obtaining international quality standards, Sanitation Std Operating Procedures & regulations for compliance for export markets.		

# Figure 1.1: Incentives details for various halal industry players Source: Halal Industry Development Corporation

However, many of the Halal food manufacturers still refuse to implementing Halal logistics services in their business. (Ngah, et al., 2017). Adoption of halal transportation is comparatively low, only 15% of Halal manufacturers are implementing the services of halal transportation from the halal logistics provider (Ngah, et al., 2014; Ngah, et al., 2019). This might be due to the reason that the potential adopters have certain degree of scruple on the large capital or investment needed to adopt for halal logistics service. A halal product is declared as "Halal" if it remains halal from origin until the end of the supply chain flow. Therefore, a product that has received halal certification should be monitored throughout the whole supply chain in addition to complying with the particular requirements in manufacturing practices inspections (Ngah, et al., 2020) and especially during the halal logistics transportation to ensure the fully complies of halal requirement. Once the halal product player adopts for halal logistics services, additional expenditures for facilities, warehouses, and handling tools is needed to ensure a thorough segregation of halal products from those non-halal products (Nor, et al., 2016). Higher operation cost will be incurred for new adoption and as a result, higher transportation fees will be charged and bear by the consumers who demands for it (Ngah, et al., 2021). From this, willingness of consumers especially the non-Muslims to pay for halal logistics which charge higher than conventional logistics is one of the main issues considering by potential halal logistics adopters. Will non-Muslim customers pay for halal logistics to minimize the likelihood of halal items becoming contaminated?

According to Majid et al. (2019), from the latest statistical data of JAKIM, only 86 of logistics company is certified as Halal Logistics Provider comparing to the number of companies who is certified for Halal certification in F&B companies, eating establishment restaurants, cosmetics and pharmaceuticals.

No	Certification	Related	No of
	Scheme	MS	companies
1	Food and beverage	MS1500	4800
2	Abattoir	MS1500	147
3	Eating establishment	MS1500	1334
4	Cosmetics	MS2200 -1	313
5	Pharmaceuticals	MS2424	194
6	Logistics	MS2400	86

 Table 1.1: Halal certification scheme and number of companies in Malaysia

 Source: JAKIM Statistical Data

This can be seemed that the adoption of halal logistics among the LSP is relatively low compare to other halal product or market. Halal logistics is firstly being introduced to provide the sense of satisfaction and confidence to Muslim consumers regards of halal products (Fathi, et al., 2016). Problem of low halal logistics adoption again arises and

this might be caused by the concerning of LSP towards the perception and willingness of consumer to pay for halal logistics especially the non-Muslim consumers. In order to disclose the willingness of non-Muslim people to pay for halal logistics which seemed can contribute as the reference to LSP that have positive intention towards the adoption of halal logistic services, this research is being conducted.

Halal logistics is existed to ensure halal product's integrity throughout consumption points (Aziz & Zailani, 2016) and ensure for the best control performed of halal products' transportation in accordance to the Islamic Law, Syariah (Sham, et al., 2017). Throughout the whole process stages or flow, all activities in halal transportation operation are purely based to the concept of Syariah to avoid the risk of cross-contamination (Sham, et al., 2017) and assure for authenticity of "Halal-ness". The willingness of adoption by LSP or 3PL providers towards halal logistics are usually a deeper insight beyond the values that halal activities brought once they implement it, instead, the logistic providers concern about the real halal requirements from consumers' perspective. There will be a next coming question, is there really a perceived demand among non-Muslim consumers for halal logistics services?

Moreover, halal is usually perceived or considered as a term which being used extensively among Muslims and unfamiliar to non-Muslims people. However, according to Malaysia Islamic Development (JAKIM), data showing that there are over 60% of halal certified manufacturer companies (multinational) owned by non-Muslims (Bernama, 2019). As according to the minister in the Prime Minister's Department, Mujahid Yusof explained that the data is due to the realization of non-Muslims on the benefits and importance market halal certified products internationally and domestically (Salama, 2019). From this, it can be considered that non-Muslims society is having certain degree of knowledge, awareness, and perception regarding what "halal" is and have intention to adopt or pay for it. Since there is demand for halal market, the willingness of potential consumers to pay for halal logistics should be drawn with higher concerns and attentions. From the past researches or studies, there are plenty of researches or studies which focus on the willingness or intention of Muslims to pay for halal logistics such as the research from Kamaruddin et al. (2012); Fathi et al. (2016); Kamaruddin et al. (2018); Asri & Ngah (2018) and the lists go on. Instead, there is less and only few studies which being conducted to realize the willingness of non-Muslims to pay for halal logistics. Hence, this research is conducted to contributing more in filling the gap of studies in halal logistics.

#### **1.3** Research Questions

It is an essential part of a study called research questions as it act as the framework and focusing the direction of a study. Based on above discussion, this research aims to find out the factors that might influence the willingness of non-Muslim consumer to pay for halal logistics. The following research questions provide a more detailed insight for the issue of this study:

- i. How attitude such as the knowledge and awareness relate and influence the willingness of non-Muslims to pay for halal logistic?
- ii. Why subjective norm such as the perceived demand on halal logistics relate and influence the willingness of non-Muslims to pay for halal logistics?
- iii. What type of perceived behavioral control (perceived cost) relate and influence the willingness of non-Muslims to pay for halal logistics?

#### **1.4 Research Objectives**

The objectives of this research are to investigate the factors that influence the willingness of non-Muslim in Melaka to pay for halal logistics. The research objectives are stated as below:

• To find out whether attitude such as the knowledge and awareness affects the willingness of non-Muslims to pay for halal logistics.

- To examine whether subjective norm such as the perceived demand towards halal affects the willingness of non-Muslims to pay for halal logistics.
- To determine whether perceived behavioral control such as perceived cost affects the willingness to pay for halal logistics.

### 1.5 Scope of Study

This research is focusing on the study of willingness of non-Muslims in Melaka to pay for halal logistics. This research will be using the Theory of Planned Behavior (TPB) in order to study on the determinants or factors that drive non-Muslims consumers' willingness to pay for halal logistics. According to the Theory of Planned Behavior (TPB), willingness of consumers to pay or purchase for a product or service depends on the 3 main components or factors: Attitude, Subjective Norms, and Perceived Behavioral Control (Asri & Ngah, 2018). This research will determine the factors that might influence the willingness of non-Muslims to pay for halal logistics according to these three components. Furthermore, this research will be focused on the non-Muslims in Melaka state. This is due to the reason that Melaka is the state which possess with a great many of SMEs (Small and Medium-sized enterprises) and actively involved for halal business activities especially of halal food industry (Parid, et al., 2021). Besides, Melaka Halal Hub in Serkam is the very first halal industrial centre in Malaysia (Melaka State Economic Planning Unit & Melaka Chief Minister's Department, 2021) which have a very high research value for future halal development and investment.

#### 1.6 Limitation

There are various constraints or limitation for this study. Firstly, it is a bit challenging in findings the data resources and information regarding to halal logistics and the willingness among the non-Muslims consumers since halal logistics is still a developing industry which receives less attention especially among the non-Muslims. Hence, limited articles or journals are being published and can be used as important references during this study. In addition, time consuming will be another constraint for this study. Since the scope of respondents will be the non-Muslims in Melaka state, large sample size of respondent will be needed in order to generate reliable and accurate outcome for this study and the process of the data gathering will be time consuming.

#### 1.7 Significant of Study

In this study, proposed model will be based on the Theory of Planned Behavior (TPB) in order to have a look on the factors affecting the willingness of non-Muslims in Melaka to pay for halal logistics. Besides, efforts also being made by this study to contribute for theoretical study for willingness to pay for halal logistics. According to previous research of Fathi et al. (2016) and Zunaidah (2018), variables or factors that being studied are concern, perception, awareness, and knowledge on halal. However, this study added two new factors which are the perceived demand and perceived cost towards halal that might influence the willingness to pay for halal logistics. It is believed that this study has certain level of value in figuring out the factors influencing willingness of non-Muslims to pay for halal logistics in a different perspective.

Moreover, for practical contribution, this study can act as a reference or guideline to manufacturers and logistics service providers who have positive intention to adopt for halal logistics in their operations in the effort for Malaysia's Halal Hub expanding and growth. This research or study which propose to focus on the non-Muslims society will be significant in exploring the willingness of the group of people towards halal logistic services and thus contributing to solve some doubts of potential adopters towards the demand of non-Muslims on halal logistics. As referring to the forecast statistics from (Grand View Research, 2020), it is predicted that the worldwide halal logistics industry would be worth 525.09 billion USD by the year 2027. Adoption for halal logistics is needed to catch up with schedule by manufacturers and logistics service providers as looking to the high potential growth of Halal products' market value.

### 1.8 Summary

This chapter go thru the background of study on the current trend of halal logistics and the attention is needed to study on the willingness of non-Muslims to pay for halal logistics. Next, the chapter follow with the problem statement which explained and touched on the relevant issues that encourage the conducting of this research. Meanwhile, research questions and research objectives are being listed and will be discussed in further chapter. The scope of research explained that the focus of study in Melaka and towards the range of non-Muslims society by the Theory of Planned Behavior (TPB). This chapter is further unfolding the limitation of the research on time consuming of data collection. Besides, this chapter also explained the importance of this study towards future halal logistics growth, investment, and adoption.

#### 1.9 Synopsis

In the study of Chapter 1, the researcher will explain on research overview. The researcher explained regarding the problem statement on why the adoption rate of halal logistics is relatively low as well as the adopters' concerning or doubts on the willingness of consumers to pay for halal logistics. Less attention is focus to halal logistics if comparing to halal products. Hence, researcher unfold the importance of more researches on the willingness to pay for halal logistics to increase the attention on the growth of halal logistics. The researcher highlighted the scope of study on the non-Muslims society in Melaka and to identify the factors which influence them to pay for halal logistics.

In Chapter 2, researcher will discuss regarding the literature review which related to the research questions. First of all, the literature review will start with the recognition on halal and halal logistics. Furthermore, researcher will introduce on the theory which will be used as the based framework in this study and thus expanding on the literature review on the perceived demand on halal, and the perceived cost on halal logistics. The researcher will also unfold the independent variables and dependent variables within this study in Chapter 2.

In Chapter 3, researcher will lead the reader to a more detailed description on how the research is being designed in order to meet the objectives of the study. The researcher will unfold on the research method which is the quantitative research method. The process of data collection, sampling, questionnaires designed, and the list regarding of research methodology will be discussed in this chapter. The scope of respondent which is non-Muslims in Melaka will be focused for this research. Data collection will be collected via primary and secondary data. Convenience sampling will be established to deal with this study.

In Chapter 4, data will be collected by researcher regarding on the willingness of non-Muslims in Melaka to pay for halal logistics. The data collected will thus analyse by researcher by using Smart PLS. Various data analyses will be done including the hypothesis testing, descriptive analysis, regression analysis, respondents' demographic and the lists go on. Lastly, in Chapter 5, findings will be summarized by researcher to meet the research objectives. Implication of the research will also be discussed in a deeper sight of view. In addition, limitation that might impact on the findings of the study will also be unfolded in this chapter. Finally, recommendations and suggestions for future research will be presented together with the sum of conclusion on research findings.

### **CHAPTER TWO**

#### LITERATURE REVIEW

### 2.0 Introduction

This chapter will discuss and present the literature which related to this research. In addition, related theory which the Theory of Planned Behavior (TPB) will be further discussed in this chapter since it is being used as the base framework or approach in this study. Factors will be analyzed along with the TPB framework and hypotheses will be suggested. The literature review in this chapter will be elaborating on the halal, halal logistics, knowledge and awareness towards halal, perceived demand on halal, and perceived cost on halal logistics.

#### 2.1 Halal

The word "Halal" is an Arabic term which represent a set of religious and moral law derived or descendent from religious prophecy (Nor, et al., 2016). Halal can be defined as the permissible, allowed, lawful, and legal (Razak, et al., 2015). The concept

of halal is one of the main terms which being widely used in Qur'an and Sunnah. According to Qu'ran and Sunnah, Muslims are being taught to have moral in conducting and emphasizing on materials which is permissible or not forbidden to the concept of "halal" and "haram" (Toure, 2012).

The word "Halal" may be the word which stamped for exclusive used by Muslims society or it also may be the most common or first word which exposed non-Muslims society towards the Islamic context. However, in nowadays, the word halal ceases to be the term that relate on religious matters only. Instead, it becomes a type of lifestyle choice to all peoples around the world or countries including those who are non-Muslims (Adirestuty, et al., 2021). This can be due to the reason that in the past, Muslims people are only emphasized on forbidden activities especially regarding of food and drinks consumption where animals being consumed should slaughtered according to restricted Shariah-mandated Islamic dietary requirement (Hussin & Sukor, 2021).

In present, "Halal" has expanded its concept to many other aspects of products and services such as cosmetics, pharmaceutical, halal supply chain and halal logistics (Ngah, et al, 2016). In the perspective of scientific and religious, halal products and services are being seemed to stamp the concept of more ethics, safety, value, and hygienic (Awang, 2016). Therefore, the extend of "halalness" towards other aspects of products and services will be a new norm of lifestyle choice in the coming future.

#### 2.2 Halal Logistics

As stated before, the concept of halal has expanded to other aspect in our life. People starts realizing that the concept of halal is now enveloping of the services and processes such as packaging, handling, storing, and transporting besides from only food and products in the late of 2000 (Ngah & Thurasamy, 2014). Halal logistics emerges as a vital part in the activities of a supply chain with the mission to assure on the continuous halal integrity until the product flow to the final consumer (Majid, et al., 2020). Halal logistics is also known as a halal practice throughout the supply chain. The halal logistics practices will be applied to the activities from the very start of procurement and planning, to the handling, inventory, warehousing, and the transporting of goods and products no matter they are in semi-finished, finished, food, or services (Tieman, 2013).

It is clear according to Fathi et al. (2016), halal logistics plays important role to prevent transportation or distribution contamination among the halal and haram products. Unlike the conventional logistics, halal logistics provides additional services and practices to ensure the halal integrity of product, information, and services flow through proper handling, storing, and transporting until the final consumers and thus ensure the compliance to Syariah principle (Majid, et al., 2020). From this, halal logistics is important and act as an enabler which facilitate halal supply chain's continuous integrity (Talib, et al., 2015).

Malaysia government have done initiatives in promoting halal logistics growth. Besides of halal market incentives that being introduce in the previous chapter, Malaysia also instituted the exclusive standard to handling with "halal". A large group was formed to have a consensus on the scoping of halal logistics standard from the wide aspects of terminal operation, warehousing, transportation and the depth aspects for instance the logistics procedure, processes, labelling, packaging, trace and track, cleansing SOP, and the certification (Tieman, M., 2013). According to the Department of Standard Malaysia (DSM), there are various standard which established to be followed by the halal certified players as well as those logistics service provider (LSP) and manufacturer. For instance, Malaysian Standard (MS) 1500:2004 is one of the highest adopted halal standards and it is later being cancel and replace by MS 1500: 2009. This standard is written with the rules, requirement, and guidelines for halal logistics practices. This standard gives constraint guidelines on the storing, displaying, serving, processing, handling, and distributing of halal product in order to avoid contamination of halal and haram products before it reaches final consumers especially in the aspect of halal food (Department of Malaysia Standard (DSM), 2004; Bruil, 2010; Department of Malaysia Standard (DSM), 2022).

Halal integrity may be affected if there is no proper practice in raw material handling, food securities, process of production, and logistics practices in a supply

chain (Ngah, et al., 2014; Majid, et al., 2020). Therefore, the halal logistics practices which enveloping throughout the points or intermediaries of the supply chains is seemed vital for the success of halal industry.

#### 2.3 Conceptual Framework: Theory of Planned Behavior

Theory of Planned behavior (TPB) (Ajzen, 1985; Ajzen, 1991) is considered to be the popular theory that being used in researches to predict and explain on an individual behaviour (Ngah, et al., 2020; Ali, et al., 2020). According to Al-Suqri & Al-Kharusi (2015), TPB is recognized as an improvement and extension from the previous started theory which is the Theory of Reasoned Action (TRA) by Ajzen & Fishbein (1980). The variable, Perceived Behavioral Control was the third extension construct that being added to the previous TRA model and thus developed as TPB model (Hasbullah, et al., 2014) which being used until now. This can be supported by Icek Ajzen (1991), who was the introducer of the TPB, proposed that the behavior of an individual can be influenced by not only the behavior intention but also the addition construct which is the perceived behavioral control.

Theory of Planned Behavior (TPB) is being widely used in multitude range of fields to have the predictions on human behaviors. TPB uses attitude, subjective norms, and perceived behavioral control to predict people's conduction of behavior. In TPB, four main component variables that could influence the human behavior has been highlighted, which are intention, attitude, subjective norm, and perceived behavioral control. TPB is being utilized to predict a wide range of behavioral aspects and domains including physical activities, habit towards behavior, travel mode choice, technology adoption, acceptance or purchasing of halal food, and the lists go on. (Fu, 2021; Lo, et al., 2016; Shalender & Sharma, 2021; Ali, et al., 2020). The TPB is being formed, proved, and supported empirically in previous researches.

Theory of Planned Behavior is being frequently used by researchers to predict and explain the intention of an individual towards certain issues such as intention to pay or purchase for a particular products or merchandise. Although TPB is usually being used to predict on an individual behavior, but, at the same time, one of the variables in the theory which is "intention" is being realized as the crucial concept or antecedent of the conduct of behavior (Tommasetti, et al., 2018). In this study, researcher is mainly concerning on the influence or factor towards the willingness to pay for halal logistics but not the prediction of the real conduct of behavior by the consumer. For this reason, TPB will be applied as a conceptual framework in this study and focusing only on the factor that may influencing on the willingness to pay for halal logistics (intention). Therefore, behavior is excluded in the proposed framework of this study. As referring to the past research of Fathi et al. (2016), Majid & Hassan (2020), Majid et al. (2020), and Ngah et al. (2020), the researchers who focus on the intention rather than the actual conduct of behavior prediction, use the TPB as conceptual framework and the behavior is not included in the research framework.

#### 2.3.1 Intention

Intention would be the driver of behavior or behavioral achievement according to Theory of Planned Behavior (TPB) (Iranmanesh, et al., 2019). The TPB model considers intention to be the antecedent of conduct behavior which the stronger the behavior intention, the more probably the behavior will be attained or performed. This thesis can also be supported as referring to Scalco et al. (2017), the researcher claimed that the intention of an individual is the greatest predictor of future behavior. Besides, past studies have claimed that an individual or consumer who have positive attitude are prone to have a positive intention to perform a behavior (Awan, et al., 2015; Hinsz & Nickell, 2015).

Iranmanesh et al. (2019) refer to Ajzen (1985) that intention can ccurately reflect the readiness and willingness of a person to perform a particular behavior. In addition, according to Ali et al. (2020), the willingness or intention of behavior will act as the motivational variable which triggers the achievement of behavior of an

individual. However, intention would be influence or affected by three main constructs which are attitude, subjective norms, and perceived behavioral control (Ajzen, 1991). There are numerous past TPB researches which can support this thesis such as the research of Paul et al. (2016), Liu et al. (2020), Alzubaidi et al. (2021), and Emekci (2019). As referring to previous research of Lee et al. (2016), and Pradana et al. (2019), the researcher only focusing their study on the intention to purchase for halal food product. This study will also be focusing on the willingness of non-Muslims to pay for halal logistics, therefore the variable "willingness to pay for halal logistics" will be act as the behavior intention in the proposed framework and the willingness of non-Muslims to pay for halal logistics would be affected by the three factors that will thus be introduced in the later part of this study.

#### 2.3.2 Attitude

Attitude is one of the prominent variables in TPB. Attitude is prominent as it could influence a person's behavior intention since according to Ajzen (1991), attitude can be known as whether positive or negative view, perception or belief of a person on certain behaviors. Asri & Ngah (2018) refer to Schiffman & Kanuk (2007) that an attitude is described as a learning inclination to perform a particular behavior whether in unfavorable or favorable manner. In simple, an individual's attitude is basically based on their knowledge and awareness. Asri & Ngah (2018) further explained that consumers' attitude is founded on their knowledge and awareness towards a particular item or products which is resulting from the process of information integration and thus affects a person's intention to act in particular way. Many studies or researches regarding the individual behavior have been taken attitude as one of the main variable components inside their framework of research (Ngah, et al., 2019). A person's view, perception, or belief on the favorable or unfavorable feeling to perform certain behavior will be typically affected by the starting factor of knowledge and awareness towards a certain commodity. From the research done by Aminrad et al. (2013), both

knowledge and awareness are seemed to be the terms that can act as the attitude factors since both of them are having positive relationship with attitude in the research. In this research, knowledge and awareness will be act as the attitude factor which influencing an individual willingness to pay for halal logistics (intention).

#### 2.3.3 Subjective Norm

Subjective norm can be known as the second behavior intention's predictor or determinant in TPB (Iranmesh, 2019). Paul et al. (2016) referred to Ajzen (1985) that the societal pressure to perform a particular behavior can be referred as a subjective norm. This thesis is being supported in the followed research of Ajzen (1991) saying that subjective norm is a factor that associated with the demand and societal pressure from the person who is close and important to an individual and which thus will influence their intention to behave. According to Paul et al. (2016), people who is considered close and important are relatives, friends, partners, or colleagues.

In another perspective of definition, subjective norm can be said as the normative expectation or belief that will act as a factor to facilitate or influencing the behavior of an individual (Bonsjak, et al., 2020). Simply put, a normative belief is the societal pressure that could causes an individual to engage in or refrain from engaging in a particular behavior. There are a variety of studies that used subjective norm as one of the vital construct or determinants on the intention to pay or purchase (Rachbini, 2018; Vizano, et al., 2021). It is clear that subjective norm can be the determinant that affect an individual intention to perform a particular behavior. In this research, perceived demand of a non-Muslims from the people around him/ her will be considered as the subjective norm determinant towards the willingness to pay for halal logistics (intention). This is due to the reason that an individual's perceived norm or beliefs that being established by referring to the peers, or group close to them will influencing their intention to perform certain behavior.
## 2.3.4 Perceived Behavioral Control

Perceived behavioral control is the extended construct of the TRA in order to deal with the limitation of the theory towards the behavior that might influence by the volitional control of an individual (Ajzen, 1991). The concept of perceived behavioral control is being expanded to include an individual's expectation and perception of how easy or difficult it is to perform a behavior (Ajzen, 1991). According to Ajzen (1991) again, a person's beliefs about the efficacy of internal and situational circumstances which facilitate the implementation of a particular behavior might determine their perceived behavioral control. In other words, perceived behavioral control could be an individual's perception on the degree of difficulty as well as from the aspect of product availability and affordability to implement or perform the buying behavior (Rachbini, 2018). Thus, perceived behavioral control can also be referred as the accessible controller or beliefs, which include the necessary abilities, skills, money, availability, as well as other resources that may be relevant in the context or setting of interest (Ajzen, 2020). There are various studies which embraced the perceived behavioral control as the determinant of a behavior intention. For example, the researches of Ngah et al. (2020) which make use of PBC as one of the factors that influence the willingness to pay for halal transportation cost. Besides, from the research of Amalia et al (2020), the researcher thinks that the stronger the confident of an individual to perform a particular behavior, the stronger their intention to purchase for halal food.

Therefore, in this study, perceived cost of an individual on halal logistics which related to the behavior affordability and value worthy situation will be considered as the perceived behavioral control determinant towards the willingness to pay for halal logistics (intention).



Figure 2.1: Theory of planned behavior

Source: Tommasetti et al. (2018)





Source: Pradana et al. (2019)



Figure 2.3 Conceptual Framework Source: Lee et al. (2016)

# 2.4 Research Framework

The purpose of this study is to determine the factors that influence non-Muslims' willingness to pay for halal logistics. As a result, the researcher employs the Theory of Planned Behavior as a foundation or based framework to determine the factors that influence non-Muslims' willingness to pay for halal logistics using three variables which are: knowledge and awareness on halal logistics, perceived demand on halal logistics, and perceived cost towards halal logistics.

## 2.4.1 Dependent Variable

Dependent variable is one of the important terms in a study. It could be defined as the effect or result that being observed for the purpose of study (Cherry, 2022). It is being said as dependent as it depending on the independent variable. When the independent variables change, the value of the dependent variable would change as well (Cherry, 2022). The willingness of non-Muslims in Melaka to pay for halal logistics is being set as the dependent variable in this study. Based on the literature analysis, the proposed model is expected to predict and explain on the non-Muslims' willingness to pay for halal logistics.

## 2.4.1.1 Willingness to pay for halal logistics (WTP)

Willingness to pay is prevalently defined as the utmost point or value that a person is willing to pay for an item or services (Ngah, et al., 2020) as the based framework in this research. It can also act as the metric which can be referred by potential adopter during the decision of adopting some new technologies or services to increase the company profit especially on the aspects of consumers' willingness to pay and have a better knowledge or understanding towards their potential consumers (Saricayir, 2020). Willingness to pay for halal logistics can be thus defined as highest amount or price that an individual or customer is willing to pay for halal logistics services despite there may be some dissatisfaction and unpleasant towards the cost or expense of halal logistics services (Kamaruddin, et al., 2012).

According to the previous studies, researches are being done to have a deeper look into the willingness to of Muslims to pay for halal logistics or halal products, however, there are less studies being done on the study of willingness of non-Muslims to pay for halal logistics. For instance, previous research done by Ahmed et al. (2018) and Iranmanesh et al. (2019) respectively revealed the Muslim consumers' willingness to pay for halal products, operations and food and the willingness of Muslims to pay for certified halal food. In addition, research by Kamaruddin et al. (2018) revealed on the factors of Muslims' willingness to pay for halal logistics, and the list goes on. Therefore, this study can act to fill the gaps of the related researches especially on non-Muslims' society. Willingness to pay for halal logistics can be influence by various factors. The factors will thus be the breakthrough points that being taken attentions or focused by potential buyers or customers since it can influence their behavior on whether to pay for it. Furthermore, this research on the willingness of non-Muslims to pay for halal logistics can definitely give some practical contributions towards the LSP whose is having certain degree of interest to adopt for halal logistics services. Therefore, willingness to pay for halal logistics will be the dependent variable in this study to determine the factor which will influence on it.

# 2.4.2 Independent Variables

Independent variables are referred as the predictor or determinant that may manipulate or shift changes in the dependent variable (McLeod, 2019). According to Theory of Planned Behavior (TPB), attitude, subjective norm, and perceived behavioural control is seemed to be the critical determinants towards the willingness to pay. As a result, this study embraces specific construct factors which are knowledge and awareness (attitude), perceived demand (subjective norm), and perceived costs (perceived behavioural control) of non-Muslims towards halal logistics as the independent variables towards the willingness to pay for halal logistics. Each of these dependent variables are being employ based to the Theory of Planned Behavior (TPB) framework.

#### 2.4.2.1 Knowledge and Awareness (KAA)

Knowledge is referred as the understanding towards an issue or information where an individual gets through learning, discovering, observing, or experiencing (Cambridge Dictionary, 2022). Awareness can be the synonym that usually being linked to the meaning of knowledge. However, there is still some difference between the knowledge and awareness. Awareness can be said as a part of knowledge as awareness can be referred as the knowledge or understanding of a situation or issue based on experience or information (Cambridge, 2022). It is the ability of an individual to know, feel, or think about an issue or information once they have a certain knowledge on particular issue. Hence, it can be said that awareness arises when there is knowledge, however both of them will happen in accompany.

These two phrases shown up frequently in the research literature especially those researches regarding the behaviour intentions or willingness to pay such as in the research by Majid et al (2020), Ngah et al. (2020), and Aziz & Vui (2012). According to the previous studies, there is results of study reveal that the willingness of consumers to pay is influenced by knowledge and awareness. (Putri, et al., 2017) disclosed that the willingness of consumers to pay for halal-labelled chicken is influence by the consumers' awareness on halal. Besides, Lu & Shon (2012) revealed that willingness to pay will be high when consumers have the knowledge towards halal.

A good example which indicating the raise of awareness and knowledge of non-Muslims towards halal is the scenario that most of the manufacturer which recognized as halal-certified are of non-Muslims in Malaysia (Ngah, et al., 2019). It can be said that there is a high possibility that non-Muslims are having certain degree of understanding on the benefits and importance of halal and thus realizing that halal may not only imbedded lonely for Muslims society but also a new quality lifestyle choice among the non-Muslims. An individual who have knowledge on halal will have certain level of understanding about the concept of haram and halal (Majid, et al., 2020; Elias, et al., 2016).

In addition, food safety can be said as an emerging hot trend that given huge attention from publics as it highly related to the further concern of a country's economies no matter in developing or developed economies (Shamsudin., 2016). Halal is undeniably symbolizing the safety and health of food or products that being consumed. This can be supported by Ambali & Bakar (2014) that halal emphasis much on the hygiene and safety which conform with the halal context in Islamic setting. An individual with halal awareness will be more aware on the quality and ethical practice of the halal product consumption in order to ensure a better choice of life quality (Majid, et al., 2020) once awareness on halal rises with the halal knowledge. Thus, the knowledge and awareness on halal will influence the intention or willingness to perform a particular behaviour on halal. Therefore, the higher the non-Muslims' knowledge and awareness towards halal could increase the willingness to pay for halal logistics in order to get the halal-certified goods.

In addition, this can be supported in Ngah et al. (2020), the researcher referred to Rivis et al. (2006) that the variables in TPB model are the cognitive predictors or determinants which may influence the behaviour of an individual. Thus, knowledge and awareness can be definitely act as one of the cognitive attitude factors which may influence on the willingness to pay for halal logistics among the non-Muslims. A higher or better knowledge and awareness on halal could positively influence the willingness to pay for halal logistics. Therefore, a hypothesis is developed:

**H1:** Knowledge and awareness will positively influence the willingness of non-Muslims to pay for halal logistics

## 2.4.2.2 Perceived demand for halal logistics (PD)

The halal market growth and development has seemed to changed especially in the non-Muslims' acceptance and perception towards halal products or consumption (Birruntha, 2021). According to Datuk Tan Tian Meng, the Associated Chinese Chambers of Commerce and Industry of Malaysia (ACCCIM) secretary general revealed that there is an increase of demand in non-Muslim market especially for halalcertified products (Birruntha, 2021). This scenario may be caused by the realizing of non-Muslims on the importance or benefits of healthy-trend in food consumed as well as the halal products. From these, there is seemed to be a certain degree of demand for halal product or services from the non-Muslims society. A consumer who is health or dynamic diet-conscious will have a demand for halal standardization such as the product or services that are halal-certified or halal-labelled (Suib, et al., 2019).

Fathi et al. (2016) refer to Aziz & Chok (2013); Ambali & Bakar (2013) that the impression of halal represents a clean preparation and better lifestyle drives adoption of halal services and products between non-Muslims and Muslims alike. Therefore, there will be a demand of consumer towards the halal-certified or halallabelled product and thus also the halal logistics services to ensure the halal compliance. This can be supported in the research of Nugraha et al. (2022) that the non-Muslims' intention or willingness to purchase for products can be affected by the halal label on the product packaging.

There will be a demand for halal services as well as the halal warehousing, storing, and transportation when there is a demand for halal product. This can be supported by (Ngah et al. (2014) that the demand for halal services affects by the demand for halal products. The basic guideline for halal logistics is to ensure the decontamination between the halal and non-halal products or cargo during the transport services as well as the systematic segregation of halal and haram throughout the whole supply chain (Ahmad & Shariff, 2016). Due to diverse customer needs, the changing economic climate has drastically altered how the halal business is organised. Since, more and more people are having the demand for various products and services which related to halal, therefore, there will also be a need for the established of halal logistics services. While halal logistics that being demanded will be needed to standardized the services in order to ensure the halal compliance of the products and the reputation in the industry.

In this research, the perceived demand of a non-Muslims from the people around him/ her will be taken as one of the factors to test whether it is influencing the willingness to pay for halal logistics. An individual is more willing to accept a product or service if he or she notices that a big number of other people around him/her have already done so. Social influence has been proven to be an important factor that affecting the intention of an individual to purchase or pay for something in the research done by Tjokrosaputro & Cokki (2020) and Yeo et al. (2021). When a potential non-

Muslims consumer perceives the people such as friends, peers, relatives, colleagues, and others have the demand for halal logistics, there will be a strong influence and interest arising on their willingness to pay. Therefore, perceived demand of non-Muslims from people around him/her towards halal products and halal logistics will be one of the independent variables in this study to see its influence on the willingness to pay. Based on the previous related research findings, a hypothesis is formed:

**H2:** Perceived demand for halal logistics from people around will positively influence the willingness of non-Muslims to pay for halal logistics.

## 2.4.2.3 Perceived cost towards halal logistics (PC)

The willingness to pay for halal logistics may comprise to the cost of the services provided. Cost of halal logistics may be differ depending on the parameter or degree of complexness to achieve the halal compliance during the logistics process in transportation, handling, managing, warehousing and so on (Kamaruddin et al, 2012). For halal transportation, ensuring the halal and haram cargo segregation is a vital principle in order to fulfil the halal compliance. However, for halal logistics, it may incorporate with the bigger scope of operation controlling in order to ensure the pure halal integrity throughout the supply chain or transportation. As according to Bruil (2010), halal logistics is playing the vital role to perform excellent in the chain of supply especially from the kick start of sourcing, manufacturing, and distribution phases. The activities between the halal logistics and conventional logistics is seemed to be similar, but, on contrast, they are of different aiming and purpose. Halal logistics is process of handling, storing, and distributing until it reached to final destination (Rusydiana, A. S., 2021).

According to Cargo Account Settlement System (CASS), logistics costs is divided by the categories of transportation costs, inventory carrying costs, and logistics administration cost (Fathi, et al., 2016). Pohit et al. (2019) refer to Lambert et al. (2006) logistics cost could be divided into six groups which are customer services, inventorycarrying cost, warehousing cost, material handling cost, transportation cost, and order process and information system cost. Besides from the transportation, storing, handling, and warehousing cost, (Ayers, 2006.) also considering the labor and material purchased as one of the cost group in logistics management.

Due to the different concept and different operating purpose between the halal logistics and traditional logistics, Nor et al. (2016) revealed that halal logistics will be incurred higher cost compare to traditional or conventional logistics as the activities of logistics such as inventory management, handling, transporting, warehousing, and the lists go on will be needed to ensure its accordance towards the Shariah compliance principles. For instance, facilities, equipment and, tools that being utilized during the logistics process is restricted to be solely used only halal's operating activities (Ngah et al, 2021). Therefore, it can be clearly seemed that there will be more cost incurred for halal logistic adopters as well as manufacturers and logistics service provider which have been previously operating with the conventional logistics services. This is due to the reason that specific facilities, equipment, and transportation should be isolated or segregated from the conventional logistics operation and purely use for halal operations only. To list an example, Fathi et al. (2016) had explained that halal logistics ensure non-contaminated process of halal product flow by operating the activities that ensure the halal products or food are keeping, loading, and unloading in segregate shelves, cartons, pallet and the lists go on. In addition, extra costs will also be incurred when there is a need for the application of halal certification. Halal certification could be said as the main and vital parameters or guidelines which a halal logistics adopter should obey for in order to fulfil the Syariah compliance in halal. This can be supported by Ngah et al. (2019) which halal logistics transforming is costly since there is a strict requirement for quality of MS 2400-1:2010.

Unquestionably, one of the most important elements or barriers that might impact consumers' desire or intention to pay for particular goods or services is cost or price (Levrini & Santos, 2021). The cost that being incurred from the huge investment in halal logistics operation, process, equipment tools, man power, and so on will thus be led to the cost that being bear by the consumers who acquire for the services in the end (Ngah et al, 2019). The "cost" in this study refer to the perceived cost or price to be paid by the non-Muslims for halal logistics. Many researchers have revealed that cost or price may be a factor that affect the intention to pay such as the research from Roy et al. (2016) and Levrini & Santos (2021). In addition to that, Mirabi et al. (2015) research state that cost or price can influence the purchase intention of an individual. Hati et al. (2021) also reveal that perceived cost or price is important factor towards the intention to purchase and it negatively affects the intention to purchase. Therefore, based to the previous researches, a hypothesis is being formed:

**H3:** Perceived cost towards halal logistics will positively influence the non-Muslims' willingness to pay for halal logistics.

## 2.5 Proposed Framework



Figure 2.4: Proposed research model of factors that may influence the willingness to pay for halal logistics

## 2.6 Hypothesis Testing of Study

There are various number of hypotheses that generate from the proposed framework above. The following are the hypotheses:

#### **Knowledge and Awareness**

H1: Knowledge and awareness will positively influence the willingness of non-Muslims to pay for halal logistics.

# **Perceived Demand**

H2: Perceived demand for halal logistics from people around will positively influence the willingness of non-Muslims to pay for halal logistics.

## **Perceived Cost**

H3: Perceived cost towards halal logistics will positively influence the non-Muslims' willingness to pay for halal logistics.

# 2.7 Summary

In short, the researcher introduces regarding the main concerning topics in thus chapter. There are numerous independent variables that existed in this research framework including knowledge and awareness, perceived demand, and perceived cost. The researcher clarified the process of study in this chapter and focus on the willingness of non-Muslims to pay for halal logistics. The researcher has developed various hypotheses testing to determine the influence of the independent variables to the dependent variable.

## **CHAPTER THREE**

## **RESEARCH METHODOLOGY**

# 3.0 Introduction

As according to Kothari (2004), research methodology can be known as the systematic way to solve for the research problem. It established as the primary principle or key premise that will govern a research or study (Dawson, 2019). Research methodology is a vital tool in a research or study and it is being widely used in the data collecting and data analysing. In this chapter, the instruments and methodology of the research will be focused and further introduced in order to execute with the research objectives. The research design and research strategies will also be explained in this chapter to present a clear flow regarding the study and the process approaching to data. In addition to this, the research methodology including the data collection method, sampling method. and research instruments were also being discussed in this chapter.

## 3.1 Research Design

Jaakkola (2020) refer to Ragin (1994), a research design is referred as a plan to gather and interpret data in order to answer particular problems based on the study. This can be thus supported by Jenkins-Smith, et al. (2017) that a research design is a collection of procedures for collecting and analysing data for a study. In simple, it can be said that research design is a framework which consists of selected appropriate techniques and methods or strategies that being chosen by the researcher of a study. Research design is also a strategic plan that a researcher must adopt in order to carry out or achieve the study goals in a valid manner (Asenahabi, 2019). Asenahabi (2019) also explain that a research problem can be analyze and answer by the data that translated from it through a good research design. Research design can be set as according to the study or research that taken by a researcher. Therefore, a researcher needs to come up with appropriate research design in order to successfully complete a particular study.

## 3.1.1 Explanatory Research

Research design has numerous types. As according to Jovancic (2020) and Team Leverage Edu (2021), the five research designs types are explanatory research design, diagnostic research design, correlational research design, experimental research design, and descriptive research design. However, explanatory research design is being chosen for this study. This study is more prone to be a social research. A social research usually raises questions on what and why. As according to De Vaus (2001), these types of "why" questions are the focus of explanatory study. The research questions in an explanatory research can be answered by generating causal explanations that arguing phenomena Y (willingness to pay) is influenced by variable X (factors affecting the willingness to pay). In simple, an explanatory study analyzes the causes and effects of a phenomenon. In this study, direct causal relationship between the willingness to pay for halal logistics and the factors affects the willingness of non-Muslims to pay for halal logistics will be discussed and explained. The investigators may benefit from using an explanatory research design to observe the relationship and acquire a better comprehensive of the study. In order to address the study questions, the scholar or researcher will need to collect primary data in order to acquire insights from the current view of the factors that influence non-Muslims' willingness to pay for halal logistics. The figure below showing on the process of research stages.



Figure 3.1 Research Process Stages

## 3.2 Research Method

Research method can be described as the techniques or methods used in the course of a research or study conducting (Kothari, 2004). Quantitative, qualitative, and mixed research method are the three types of research method that being used by researchers in their researches and studies. Hypothesis testing research can be easily found from online search engine. Research which involves the hypothesis testing are usually quantitative research. Studies or research which adopt quantitative research technique will began with a theory or framework statement and thus deriving out the research hypotheses. In this study, a quantitative research method is being adopted.

#### **3.2.1** Quantitative Research

Quantitative research method can examine and express in a numerical way regarding the influence of independent variable towards dependent variable (Lakshman, 2000). This study employs the scientific method, in which a comprehensive review of theories and literature generates objectives, along with arguments and hypotheses to be tested by using the quantitative research method (Fellow & Liu, 2021). In the research of Fellow & Liu (2021), explanatory research is being mentioned since the research employed for hypothesis and rebuttal form of research. As according to Bentouhami et al. (2021), a causal relationship between determinants and occurrence could be an explanatory research. In this study, researcher is interested to discover and describe the relationships on the factors affecting the willingness to pay for halal logistics and the willingness of non-Muslims to pay for halal logistics. Hence, this study would be referring as an explanatory research too. Besides, quantitative research will be implemented in this study in order to associated with positivism. As according to Saunders et al. (2019), quantitative research method would be a typical analysis method which associate with positivism as it involves the typical predetermined reasoning, large samples, analysable data range, high organized structure, and measurement. In this research, the influence of factors that affect the willingness of non-Muslims to pay for halal logistics can be examine in a numerical way by quantitative research method.

# 3.3 Data Collection

Data collection could be split into two major categories which is quantitative data and qualitative data (Kabir, 2016). Since this study is implemented for quantitative research approach, therefore, quantitative data would be taken into consideration. Data may be one of the most crucial aspects of a study. Data collection is considered to be a challenge for scholars since the process of data collecting requires

the scholar or researchers to instil a lot of effort and time (Vathsala Sadan, 2008). Therefore, during the data collection in this study, scholar ensures that data is collected and documented in a way that is appropriate for the desired analysis quality (Paney & Paney, 2021). Data of this study will be collected, gathered, and measured in a systematic manner during data collection in order to address the research questions and thus evaluate the findings (Kabir, 2016). Data of research are being collected and grouped into statistics, observations, and figures.

Besides of the type of data collection, researcher will need to consider the type and the sources of their desired data collection. For the type and source of data, there are two types of data sources that needs to be considered by researchers or scholars which are primary data and secondary data. In this research, both primary and secondary data will be used in order to deal with the research objective and research questions. The details on the primary and secondary data that being collected for this study will be explained in the latter part.

#### 3.3.1 Primary Data

Primary data can be defined as information or data obtained by a scholar or investigator for the sake of that certain research objective. This type of data is being recognized as the new data or the very first-hand data as well as the initial sources of information gathered., Field observation, laboratory measurement, questionnaires, interviews, schedules, opinionnaires, and biophysiological measures are examples of primary data sources or primary data collection methods used by researchers to acquire data directly from respondents (Vathsala Sadan, 2008; Pandey & Pandey, 2021). In this study, questionnaires is being chosen by to use as the study research tool to get the primary data from the non-Muslims' respondents in Melaka.

#### 3.3.2 Secondary Data

Secondary data can be known as the existed data which can be found from the sources such as the records, documentation, books, newspapers, biographies, published consensus or statistical data, achieved data, online articles, journals, databases and the lists go on (Vathsala Sadan, 2008; Pandey & Pandey, 2021). Secondary data could be any form of info or data which has been published. In this research, data that being used in chapter one and two, especially those in the literature review part are based on secondary data. For example, the census data on the population of non-Muslims in Melaka is being used as the reference on the population of the respondents. Secondary data can play an important role which easier the scholar or researcher when a research is hard or difficult to approach on the primary data set. Therefore, both the primary and secondary data is being utilized in this study.

#### **3.4 Research Strategy**

A research strategy is an action plan to reach a goal or a plan on how an investigator will approach to answer research questions (Saunders et al., 2019). As according to Wedawatta et al. (2011), a research strategy outlines the entire course of the study or research including the conduction of research method. In this study, a research strategy is necessary to lead researchers through the planning, implementation, and evaluation of the study. Therefore, the scholar or researcher must ensure that the research strategy is appropriate for the research goals or objectives. As according to Johannesson & Perjons (2014), for instance, an experiment research strategy is beneficial for determining the causes of an event, but it is not appropriate for investigating an unknown issue. To list another example, a case study may be appropriate for such a complicated specialised context of social relationships, but it may not be suitable for analysing the attitudes of a large population. Therefore, research strategy needs to be appropriate and executable from a practical perspective.

There are various number of research strategies. For instance, grounded theory, experiments, action research, ethnography, case studies, surveys, and phenomenology. In this research, survey research strategy is being utilized.

#### 3.4.1 Survey

Survey research strategy will be implemented for this study on the topic willingness to pay for halal logistic: A study on the non-Muslims in Melaka. A survey is typically used to acquire basic information on a broad group of people's beliefs, attitudes, and activities. (Johannesson & Perjons, 2014). As according to Kabir (2016), a survey research strategy allows for the measurement of a population's characteristics, self-reported and behavioral styles, programme consciousness, feelings and perceptions, and needs. It is appropriate and suitable with the research objectives and questions in this study, therefore, study research methodology is being implemented for this study. In order to implement the survey research strategy, questionnaire is being used in this study as the research instrument.

Apart for that, survey research strategy by using questionnaire instrument is being applied in this study due to the advantages and convenience it brings. There are various advantages that brings by survey questionnaires (Vathsala Sadan, 2008; Saunders et al., 2019):

- The questionnaire is simple to administer, conduct, and manage.
- The information received by a survey questionnaire is reliable because the responses are confined to the options listed.
- The data obtained can be easily analysed, coded, and interpreted.
- A greater level of control over the research process
- In comparison to an interview schedule, it is less expensive, has a lower cost, and requires less time and energy.
- Using an electronic questionnaire helps to save time and keeps the cost down.

## **3.4.2** Research Instruments

As according to Polit & Beck (2017), self-reports are the method that most frequently utilized for quantitative research data collection. To list various type of instruments for self-report are the interview schedule, questionnaires, and scales. In this study, questionnaire and scales are being used as the research instrument. Questionnaires can be categorized into structured or unstructured questionnaires (Roopa & Rani, 2012). Respondents will be required to respond to predefined questions with non-list of answer alternatives in an unstructured questionnaire. While, for structured questions, respondents will need to choose the best response from the predefined answers offered to the closed ended questions. Scaled questions is also a type of structured questions will be used in the questionnaire instruments. Close ended questions as well as scaled questions will be set in the questionnaires instrument in order to get the primary data from the respondents. The design of the questionnaires will be discussed in the later part of this chapter.

Questionnaire is being considered as the prior research instrument since it is economical and yet allows the investigator or researcher to gather for information and data from publics or large populations. In this research, questionnaire will be set and distributed to the target respondents via two approach or method which are online survey (Google form via WhatsApp and Facebook application) and face-to-face (Aeon-Mall Melaka). Besides, QR code will also be provided as an alternative way to ease the accessing of respondents to the google form questionnaire survey by using the smartphones.

## 3.5 Sampling

Sampling can be described as the process of picking a certain number of people from a specific population to be representative of that population (Pandey & Pandey, 2021). Dg Ku Zunaidah (2018) refer to Sekaran and Bougie (2009), non-probability and probability sampling are the two techniques of sampling. Simple random sampling, cluster sampling, double sampling, area sampling, systematics sampling, and stratified sampling are all examples of probability sampling. Meanwhile, convenience sampling, quota sampling, and judgement sampling are the only three types of non-probability sampling. Every sampling strategy or method has its own set of benefits and drawbacks (Acharya, 2013). In this study, a convenience sampling technique is being applied. Convenience sampling enables the researcher to obtain the basis data of study in the easiest way (Saunders et al., 2019).

Since the population of this study will be the non-Muslims in Melaka. As according to the Department of Statistics Malaysia (2022), the latest non-Muslims population in Melaka is 310,727 in year 2020. Since the population is large, convenience sampling could be the way or method of collecting samples at close proximity to a site or an internet connection. (Edgar & Manz, 2017). Another reason is that it is seemed that data and information may be obtained quickly and efficiently within the time constraints, convenience sampling is being examined in this study (Saunders et al., 2019). Everything has a double side, undeniably that convenience sampling has also the disadvantages. Measures to address these drawbacks in this study will be described in the following section.

## 3.5.1 Sampling techniques

For the questionnaire distribution, researcher choose to distribute via two methods which are the online survey (WhatsApp and Facebook applications) and faceto-face distribution (mall intercept, Aeon Malls). In order to reduce the bias, the data will be collected during two sessions which is at noon and evening with each session for a duration of 2 hours. Every tenth visitor to the mall will be ask to participate as a respondent. In order to reduce the religious bias, screening question "Are you a non-Muslim" will be asked. The subsequent tenth visitor will be questioned if the respondent is a Muslim.

## 3.5.2 Survey sampling

The required sample size is relied and determined by factors such as the selection of data analysis programmes (Memon et al., 2020). In this study, the researcher proposed to use the Partial least squares structural equation modelling (PLS-SEM) in order to study on the relationship between the latent variables. For the minimum samples size requirement, there are various guidelines which being recommended or proposed by the scholars. The 10-times rule proposed by Barclay et al. (1995) is widely acknowledged in the PLS-SEM literature, and it could be used by the researcher in this study as a guideline. The rule suggest that minimum sample size should be 10 times the maximum number of formative indicators used to measure a construct or 10 times the maximum number of structural paths in the structural model which directed at a particular latent construct (Hair et al., 2017). In this study, for the 3 exogeneous variables, there will be 6 reflective indicators for PC construct, 5 reflective indicators for PD construct, 5 reflective indicators for WTP construct. Therefore, the minimum survey sample size required for this study will be  $(6 \times 10 = 60)$ .

Apart from this, researcher also refer to other rules of thumb which being utilized by Endra (2018). Endra (2018) refer to Hair et al. (2010) that the determination of minimum sample size for SEM could be calculated as follow:

## (Number of indicators + number of latent variables) x (estimated parameters)

In this study, there are a total of 21 indicators, 4 latent variables, and 3 estimated parameters (structural paths or arrows). Based on calculation, the minimum sample size required will be  $(21 + 4) \ge 75$ . However, if the model under consideration has five constructs or fewer, each of them have strong item communalities (0.6 or higher) and with more than three items, then 100 should be the minimal sample size for a research, according to Hair et al. (2010). These guidelines give a rough idea that this research requires a minimum of 100 sample size. In order to get a better data analysis in the interpretation later, researcher proposed to take more than the minimum sample size which is 150 survey sample size for this study.

## **3.6** Questionnaire Design

In this study, questionnaire is being developed for the data collection. Researcher create the questionnaire based on the previous researches or studies which is similar and suitable to be used as questionnaire developing reference. In this research, structured questions will be asked in the questionnaire. Close ended questions as well as scaled questions will be set in the questionnaires instrument in order to get the primary data from the respondents. The target respondents are the non-Muslims in Melaka. In this study, the questionnaire contains of 27 questions which being distributed in the sections of A, B, and C. In section A, the demographic profile, nominal scale is being used to measures categorical answer on age, gender, religious, education level, employment status, and income level. Moreover, in section B and C, interval scale is being used to measure the variables: knowledge and awareness, perceived demand, perceived cost, and the willingness to pay for halal logistics. The nominal scale enables the researcher to get the information presents in categorical forms. Five Point Likert Scale is being used to measure the independent and dependent variables.

#### Section A: Demographic

This section includes questions on Age, Gender, Religious, Education Level, Employment Status, and Income Level. Researcher has decided to set simple standard question at the beginning of the investigation as to know more details and background from the respondents.

# **Section B:** Factors influencing the willingness of non-Muslims to pay for halal logistics.

This section is then divided into four part according to the factors that may influence the willingness of non-Muslims to pay for halal logistics. The factors including the knowledge and awareness, perceived demand, and perceived cost. All of the questions in this section are constructed with a five-point Likert scale ranging from 1(Strongly Disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), to 5 (Strongly Agree). The questionnaires are being modified from the sources in order to suit for the study.

Firstly, the researcher constructs and develops the questionnaire for the knowledge and awareness factor by referring to the journal published by Razak et al. (2015); Ali (2017); Ngah., Jeevan., et al. (2020); and Ngah., Gabarre., et al. (2020). The questionnaires inquire the respondent on their knowledge on halal logistics to give an advice on others, degree of knowledge on halal logistics service, respondent's ability to differentiate the halal products and halal logistics, awareness on the benefits of Islamic Syariah bring to the halal logistics services, awareness of the halal logistics service availability.

After this, the researcher constructs the questionnaire for the perceived demand factor which developed and published by Ali (2017); Rachbini (2018); and Ridaryanto et al. (2019) in their journal. The questionnaires inquire the certainty of closest people choice to pay halal logistics services, possibility of being influenced by people to pay halal logistics services, the closest people view on halal logistics, suggestions from closest people to pay for halal logistics, and the willingness to pay for the suggestions from closest people.

Next, the researcher constructs the questionnaires inquire for the perceived cost factor by referring to the questionnaires in the journal which developed by Suhud et al.

(2022); Chu & Lu (2007); and Jaafar et al. (2012). The questionnaires inquire the respondent on their opinion on costs reasonability, perspective whether halal logistics service deliver benefits than what they would pay, expected cost for halal logistics service, willingness to pay even for a higher cost, and consideration on the worthiness of cost pay.

#### Section C: The Willingness To Pay For Halal Logistics

This section investigates the willingness of non-Muslims to pay for halal logistics. The questionnaire is adapted from Fathi et al. (2016); Ngah., Jeevan., et al. (2020); and Dg Ku Zunaidah (2018). The question asks whether the respondent is willing to pay for halal logistics on the benefits brings outweigh cost. The questionnaires also inquire the acceptance on product by halal 3PL, the perception of paying more in exchange on a more safety product, the willingness of respondent to pay more for non-contamination guarantee, and the willingness of respondent to pay more for a halal guarantee.

## 3.7 Validity and Reliability

The two most crucial key criteria in the evaluation and analysis of any measurement equipment or tool to ensure a good study project are reliability and validity (Mohajan, 2017). In order to reduce measurement error and thus ensure the study is of quality, validity and reliability could be the two vital characteristics of measures (Hair et al., 2010). In a quantitative study, validity refers to the setting in which a concept is measured accurately. While reliability is concerned with a measure's consistency (Heale & Twycross, 2015). The multivariate approach known as structural equation modelling (SEM), which is often used in scientific research, is being utilised in this study to test and evaluate multivariate causal relationships (Fan et al., 2016). SEMs are unique among modelling tools or software because they

evaluate at both indirect and direct impacts on pre-assumed causal relationships (Fan et al., 2016). SEM is being used in this study in order to conduct the evaluation or test on the validity and reliability of this study.

In this research, the construct validity of the measurement tool will be first confirmed through convergent validity test to check whether the set of questions in the measurement tool indeed measuring the constructs that the researcher intends to measure (Saunders et al., 2019). The convergent validity of the study can be confirmed if the average variance extracted (AVE) value surpass the threshold value of 0.5 with composite reliability higher than 0.7 (Hair et al., 2018; Ngah, Ramayah, et al., 2019). To confirm that each construct is unique from the others, the discriminant validity test may also be used to evaluate the construct validity (Ngah et al., 2019). Discriminant validity can be confirmed if the result of heterotrait-monotrait (HTMT) values are all lower than 0.9 (Franke & Sarstedt, 2019). Another test for discriminant validity that will be tested is the full collinearity test. This test is more suitable for this study since it suits to test for both formative and reflective constructs while the HTMT will only be suitable for reflective constructs validity test. For full collinearity test, the discriminant validity is confirmed if the variance inflation factors (VIFs) is smaller than 3.3. (Kock & Lynn, 2012) refer to Petter et al. (2007) and Cenfetelli & Bassellier (2009) that the threshold of 3.3 for VIF value is being recommended.

In contrast, the reliability can be assessed or tested through the Cronbach's Alpha. Cronbach's Alpha is being widely used by scholars or researchers to test for interior consistency. In this study reliability will be tested through Cronbach's Alpha in order to examine the internal consistency of returned questionnaires as well as corrected item-total r2 (correlation coefficients) values in this study (Pang & Shan Lu, 2018). Aa according to Tavakol & Dennick (2011), the acceptable range of alpha values is 0.70 to 0.95. It is said to have greater reliability if the Cronbach Alpha Values is higher and vice versa. The following table show a better understanding on the Cronbach's Alpha Value range.

Cronbach's alpha	Internal consistency
$\alpha \ge 0.9$	Excellent
$0.8 \le \alpha < 0.9$	Good
$0.7 \le \alpha < 0.8$	Acceptable
$0.6 \le \alpha < 0.7$	Questionable
$0.5 \le \alpha < 0.6$	Poor
α < 0.5	Unacceptable

Table 3.1: Cronbach's Alpha Values Source: Johari (2013)

# 3.8 Time Horizon

According to Saunders et al (2019), the 'snapshot' viewpoint relates to crosssectional time, whereas the 'diary' viewpoint relates to longitudinal time. are crosssectional and longitudinal time frames are the two types of time horizons. Longitudinal studies are ones that have been conducted repeatedly across time. A time frame is imposed on cross-sectional studies. The cross-sectional time horizon is used in this study since it is also bound by a time period.

BIL	ACTIVITY	WEEK														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Discussion															
	and finalize															
	the topic															
2	Prepare and															
	identifying															
	the RO and															
	RQ															
3	Identifying															
	the variables															
	and															
	developing															
	the															
	framework															
4	Research the															
	sources of															
	secondary															
	data															
5	Determining															
	the															
	methodology															
	to be used in															
	the research															
6	Drafting the															
	research															
	proposal															
7	Submit the															
	draft to															
	supervisor															
8	Re-draft the															
	research															
	proposal															

9	Correction								
	and								
	submission								
	the final draft								
	for								
	supervisor's								
	review								
10	Proposal								
	presentation								
	and proposal								
	defence								

Table 3.2: Gantt Chart

# 3.9 Data Analysis

Data analysis will be the vital part of a research since it needs to deal with the data collected and thus sorting out the outcome of a research. Therefore, techniques that being used to deal with multivariate data analysis such as in this study needs to be considered in order to get used of the appropriate and suitable techniques for the study. In this study, the researcher employs the Partial Least Squares Stuructural Equation Modeling (PLS-SEM) technique by using the SmartPLS 3.3.9 version software. The software was founded by Ringle, Wende, and Willi (2005) and it gained prominence once it was released in the academic world since it is free to academicians and researchers while still having a user-friendly design and strong reporting features. (Wong, 2013). SmartPLS is widely regarded as an effective tool for calculating, creating, and validating models, and it is frequently utilised by academics and researchers in their research. (Sander & Teh, 2014).

According to Sander & Teh (2014), SmartPLS model explains causality, validates hypotheses empirically, and employs predictive measures. Furthermore, the

path model that provided by SmartPLS in defining the relationships between the indicators and variables can definitely provide a clear visual to demonstrate or support the study's findings. Another reason of using SmartPLS is to deal with the issue of sample size. Some SEM require the sample size of at least 200 samples, while SEM-PLS (for example, SmartPLS) doesn't have to or depends. The minimum sample size required for a SEM-PLS technique is being discussed in the previous part of survey sampling. Last but not least, Other SEM considers a normal distribution of data, however SmartPLS makes no distributional assumptions. (Ringle et al., 2012; Shackman, 2013). This is due to the PLS-SEM is a "non-parametric" technique that uses small sample sizes and makes no distributional assumptions (Ravand & Baghaei, 2016). PLS-SEM has also been reported to operate well even when assumptions of distribution such as normality are violated (Jannoo et al., 2014). As a result, SmartPLS is being used to analyse the data in this study.

#### 3.10 Summary

This chapter has provided an overview of research methods. The methods and techniques that being used to conduct this study is being explained and identifies by researcher in this chapter in order to provide a better and clearer view on the procedures and process flow to conduct the study. In this study, quantitative research method is being implemented to conduct the study regarding the topic willingness to pay for halal logistics: a study on non-Muslims in Melaka. Besides, this chapter also explain on the research strategy the being employed for this study including the sampling method and questionnaire design. The SmartPLS software will be employed for the further data analysis, validity, and reliability test.

# **CHAPTER FOUR**

## **DATA ANALYSIS**

# 4.0 Introduction

This chapter presents the findings on the data that being collected during the study. The validation of constructs and the assessment of data measurement is being presented by researcher in this chapter. Data are collected from the questionnaires that distributed to the non-Muslims in Melaka. The data was being analyzed using SmartPLS 3.2.9 in order to determine whether the hypotheses held are supported or not supported. Results of analysis are being discussed in this chapter as well as the result of reliability and validity test. There are few sections will be discussed in this topic including the pilot test analysis result, respondent's demographic information analysis, analysis result of structural equation modelling (outer model and inner model), and hypothesis testing.

## 4.1 Pilot Test

A pilot study or test can be regarded as a crucial prerequisite before the large study as it acts as a mean of ensuring utility and trustworthiness (Malmqvist et al., 2019). Fraser et al (2018) refer to Eldridge et al (2016) that starting a pilot as precedes relates closely to a bigger study. Pilots essentially act as a risk mitigation tool to lessen the likelihood of failure in a bigger project (Fraser et al., 2018). Besides, Malmqvist et al. (2019) also reveals that a polit study will have the potential for a quality improvement of the research if the pilot study is being well managed and organized. Therefore, a pilot test is being done for this study in order to test for the reliability and validity of the questionnaires before taking the data in a larger manner. A sample of 30 non-Muslims respondents are being distributed with the questionnaire on behalf of taking their responses on the willingness to pay for halal logistics. Table 4.1 below show the reliability and validity analysis that being assess via SmartPLS 3.2.9.

# 4.1.1 Pilot Test Reliability and Validity Analysis

The result of the pilot test has been assessed by checking on the internal consistency, indicator reliability, and also the convergent validity. Outer loading of items is being used as a measurement to determine the indicator reliability of the questionnaire while a composite reliability result is being used to determine the internal consistency and the discriminant validity of the data in the pilot test (Hamid et al., 2017). Besides, internal consistency of the pilot test can also be determined by the value of Cronbach's Alpha (Hamid et al., 2017).

	Items	Outer Loading
	KAA1	0.903
	KAA2	0.895
	KAA3	0.771
Knowledge and Awareness (KAA)	KAA4	0.808
	KAA5	0.864
	KAA6	0.859
	PD1	0.887
	PD2	0.860
Perceived Demand (PD)	PD3	0.840
	PD4	0.896
	PD5	0.858
	PC1	0.866
	PC2	0.859
Perceived Cost (PC)	PC3	0.799
	PC4	0.794
	PC5	0.838
	WTP1	0.831
	WTP2	0.860
Willingness to Pay for Halal Logistics (WTPFHL)	WTP3	0.791
<pre></pre>	WTP4	0.880
	WTP5	0.772

Table 4.1: Outer Loading Result for Pilot Test

(Source: SmartPLS output)

As according to Hamid et al (2017). The outer loading value of each items should exceed 0.70 and a consideration for remove of item if the outer loading of the item range between 0.40 and 0.70. From Table 4.1, the outer loading for each indicator in this study is in great condition since all of them had surpass the threshold value of 0.70 for their outer loading. Therefore, the indicator reliability is established.

Variables	Composite Reliability
Knowledge and Awareness (KAA)	0.940
Perceived Demand (PD)	0.939
Perceived Cost (PC)	0.918
Willingness to Pay for Halal Logistics (WTP)	0.916

# Table 4.2: Composite Reliability Result for Pilot Test (Source: SmartPLS output)

Next, by referring the result Table 4.2, composite reliability has also been tested in the pilot study of this research study. In order to determine whether the convergent validity is established, (Basbeth et al., 2018) refer to (Nunnally & Bernstein, 1994) that values that > 0.70 can be classified as satisfactory, whereas values between 0.60 and 0.70 are acceptable for composite reliability. Internal consistency reliability is considered lacking of if the composite reliability is less than 0.60. From the analysis result, all the variables are recording for a composite value which higher than 0.70. For instance, composite reliability of KAA (0.940 > 0.70), PD (0.939 > 0.70), PC (0.918 > 0.70), and WTP (0.916 > 0.70). Therefore, it can be said that composite reliability is established, the convergent validity also established in this pilot test.

Variables	Cronbach's Alpha
Knowledge and Awareness (KAA)	0.924
Perceived Demand (PD)	0.918
Perceived Cost (PC)	0.889
Willingness to Pay for Halal Logistics (WTP)	0.885

Table 4.3: Cronbach's Alpha Result for Pilot Test (Source: SmartPLS output)

Another common way to determine the internal consistency reliability is the popular Cronbach's Alpha (Paudyal, 2020). By checking on the Cronbach's Alpha value, the reliability of each construct can be determined or assessed. As according to the reliability metrics thumb rule, Cronbach's Alpha value must reach 0.70 (Hair Jr Howard et al., 2020). This is also supported by (Paudyal, 2020) who referring to (Nunnally, 1994) that when the alpha coefficient exceeds or above 0.70, it gives a great estimate for the data reliability and internal consistency. By using the Smart PLS 3.2.9, the result of Cronbach's Alpha in the pilot test is shown in Table 4.3. From the table, the value of Cronbach's Alpha of each variable: KAA (0.924), PD (0.918), PC (0.889), WTP (0.885) are all recording values which higher than 0.70. Therefore, the variables and data's reliability are established.

## 4.2 Descriptive Analysis

Demographic characteristics of this study is being presented by using the IBM SPSS Statistics 27.0 descriptive statistics tool. The demographics of the respondents are interpreted from raw data to an easy and understandable form of table below. The information in the tables has clearly summarize the information of demographic. For

instance, the age, gender, religious, educational level, employment status, and income level are being presented respectively in the tables below.

Statistics											
					Educational	Employment	Income				
		Age	Gender	Religious	Level	Status	Level				
N	Valid	150	150	150	150	150	150				
	Missing	0	0	0	0	0	0				

Table 4.4: Statistics of the respondents

Table 4.4 show that there are 150 respondents had participated in filling up the questionnaires of this study and they are being analysed with their demographic and responses to the questionnaires. From the Table 4.4, it is clear that the demographic profile of the respondents was based on their age, gender, religious, educational level, employment status, and income level. The descriptive statistics in the table also determined that the study on these 150 responses are valid and no missing data.

## 4.2.1 Age

	Age										
		Frequency	Percent	Valid Percent	Cumulative Percent						
Valid	Below 20	25	16.7	16.7	16.7						
20 - 30	81	54.0	54.0	70.7							
----------	-----	-------	-------	-------							
30 - 40	25	16.7	16.7	87.3							
40 - 50	12	8.0	8.0	95.3							
Above 50	7	4.7	4.7	100.0							
Total	150	100.0	100.0								

Table 4.5 Statistics of Respondents' Age



Figure 4.1: Frequency of Respondents' Age

Table 4.5 and Figure 4.1 above showing the statistics of respondents' age and bar chart of respondents' age frequency. From Table 4.5, the respondents are built up by five different age group of people which were below 20, 20 - 30, 30 - 40, 40 - 50, and above 50 years old. In accordance to the age statistics result above, respondents who aged between 20 - 30 years old are seemed to be the majority within the total respondents. Respondent of age 20 to 30 occupy 54% of the total respondent which is 81 persons. Meanwhile, both the respondents with age below 20 and 30 - 40 years old are recording the second largest number of respondents in this study. Both age below 20 and age 30 to 40 respectively recording of 25 respondents which was 16.7%

respectively from the overall 150 respondents. In addition, there were 12 respondents which is 8% in the 40 - 50 years old group and followed by 7 respondents which was 4.7% who is under the age group 50 years old and above.

# 4.2.2 Gender

			Gender		
					Cumulative
		Frequency	Percent	Valid Percent	Percent
Valid	Male	74	49.3	49.3	49.3
	Female	76	50.7	50.7	100.0
	Total	150	100.0	100.0	

Table 4.6: Statistics of Respondents' Gender



Figure 4.2: Frequency of Respondents' Gender

Based on the result table and figure above, the number of female respondents who involves for the questionnaires responses are more than the number male respondents. From the Figure 4.2, it can be clearly seen that there are 76 number of female respondents which occupy of 50.7% from the total respondents. In contrast, there are 74 male respondents from a total of 150 respondents which is equivalent to 49.3%.

# 4.2.3 Religious

	Religious					
		Frequency	Percent	Valid Percent	Cumulative Percent	
Valid	Buddhism	108	72.0	72.0	72.0	
	Christianity	17	11.3	11.3	83.3	
	Hinduism	14	9.3	9.3	92.7	
	Other	11	7.3	7.3	100.0	
	Total	150	100.0	100.0		

Table 4.7: Statistics of Respondents' Religious



Figure 4.3: Frequency of Respondents' Religious

Based on the religious result table, Buddhism possess the highest number of respondents with the frequency of 108 respondents which equivalent to 72% of the total 150 respondents. The second ranked highest number of respondents comes from Christianity which occupy 11.3% from total respondents which was 17 Christianity respondents, followed by Hinduism which are 14 respondents (9.3%). From the figure, it can be clearly seen that there are also of 11 respondents who come from some other religious which is rare to known by researcher. As according to the raw questionnaires' responses, there are 3 Taoism, 2 Confucianism, 2 Catholics, 1 Jainism, 1 Bahai Faith, and 1 Sikhism. From these respondents' religious statistics, it seemed to give a good react that Malaysia is really a place which is freedom of faith and enriched with different cultures.

# 4.2.4 Educational Level

Educational Level						
					Cumulative	
		Frequency	Percent	Valid Percent	Percent	
Valid	SPM	29	19.3	19.3	19.3	
	STPM	17	11.3	11.3	30.7	
	Diploma	32	21.3	21.3	52.0	
	Degree	57	38.0	38.0	90.0	
	Master	5	3.3	3.3	93.3	
	Other	10	6.7	6.7	100.0	
	Total	150	100.0	100.0		

Table 4.8: Statistics of Respondents' Educational Level



Figure 4.4: Frequency of Respondents' Educational Level

Table 4.8 shows the educational level of the respondents. Most of the respondents are coming from a degree education background. Respondents with degree educational level consists of 57 people which is 38% from the overall 150 respondents. Next, there are 32 respondents which is 21.3% of total respondents are holding a Diploma educational level. Meanwhile, there are 29 respondents (19.3%) who complete for their educational level at secondary school with a SPM certificate follow with 17 respondents (11.3%) who complete for a pre-university certificate, STPM. From the total 150 respondents, there are only 5 respondents (3.3%) who hold with a master educational background. The remaining 10 respondents (6.7%) are having other educational level which 8 of them were no schooling completed, 1 with ACCA professional qualification, and 1 with polytechnic education.

#### 4.2.5 Employment Status

	Employment Status						
		Frequency	Percent	Valid Percent	Cumulative Percent		
Valid	Employed	64	42.7	42.7	42.7		
	Unemployed	3	2.0	2.0	44.7		
	Student	73	48.7	48.7	93.3		
	Retired	4	2.7	2.7	96.0		
	Other	6	4.0	4.0	100.0		
	Total	150	100.0	100.0			

Table 4.9: Statistics of Respondents' Employment Status



Figure 4.5: Frequency of Respondents' Employment Status

Table 4.9 shows the employment status of the questionnaire respondents. Almost half of the total respondents are students. Based on Table 4.9, there are 73 respondents (48.7%) are students. Most of the respondents are students as they are the group of people who is easier to approach and they prone and more willing to participate for the questionnaire comparing to others. The second highest percentage employment status of respondents is employed which consists of 64 respondents (42.7%). There are 6 respondents (4%) are having "other" employment status which is self-employed as according to the raw questionnaires' responses. Besides, there are 4 respondents (2.7%) are of retired status. The employment status with the least respondents is the unemployed status which consists of 3 respondents or 2% of total respondents.

# 4.2.6 Income Level

	Income Level					
				Valid	Cumulative	
		Frequency	Percent	Percent	Percent	
		1 2				
Valid	No Income	72	48.0	48.0	48.0	
	Less than RM 3,000	30	20.0	20.0	68.0	
	RM 3,000 - RM 6,000	28	18.7	18.7	86.7	
	RM 6,000 - RM 9,000	11	7.3	7.3	94.0	
	RM 9,000 and above	9	6.0	6.0	100.0	
	Total	150	100.0	100.0		

Table 4.10: Statistics of Respondents' Income Level



Figure 4.6: Frequency of Respondents' Income Level

The income level of the respondents is being shown in Table 4.10 and Figure 4.6. Most of the respondents which are 72 respondents (48%) are having no income. This may due to the reason that most of the respondents are students and they are currently pursuing their studies and have no income. Income level which Less than RM 3,000 has of the second largest number of respondents, which is 30 respondents (20%), follow by income level of RM 3,000 – RM 6,000 with 28 respondents (18.7%). There are 11 respondents (7.3%) out of the total 150 respondents are from the group which income level within RM 6,000 – RM 9,000. The group of Income level that has the least number of respondents is RM 9,000 and above which it has only 9 respondents (6%).

# 4.3 Measurement Model Analysis (Outer Model Evaluation)

To complete the evaluation of the measurement model, it is important to determine the validity and reliability of the constructs examined in the study. It is crucial to assess for indicator reliability and internal consistency reliability when evaluating the validity and reliability of constructs and instruments in the PLS-SEM measurement model. In the meantime, the constructs' validity is assessed using convergent and discriminant validity. The Figure 4.7 below shows the research model of this study in the SmartPLS algorithm software.



Figure 4.7: Research Model in SmartPLS Source: SmartPLS

# 4.3.1 Indicator Reliability

Indicator reliability is being firstly assessed by researcher to check how much the indicators is captured in common by the latent variables as it can be said as a crucial context to ensure validity (Wong, 2019). Ismail et al (2021) refer to Hair et al (2010) that indicator reliability shows how well-suited and capable the indicators are for a construct in a study. In this study, indicators and path in outer model are being calculated by using the SmartPLS in order to check for the loading performance. Outer loading is being used as a measurement to check for the indicator reliability. Outer loading can be used to describe reflective model's path of the constructs to the respective indicators (Paudyal, 2020). The loading results in SmartPLS can range from 0 to 1. As according to Garson (2016), the higher the loading, the better the measuring result for the indicator. There are several perspectives to be refer regarding the threshold value of outer loading. However, in most of the reference, all of the items or indicator should higher than the threshold value of 0.5 for its outer loading in order to be consent as the achieving of satisfactory provided that the value (Ghozali, 2014; Purwanto & Sudargini, 2021). There is also other opinion on the factor loading threshold which the outer loading results of each indicator should be higher than 0.70, however, items or indicator with its outer loading which < 0.4 should considered for elimination (Hamid et al., 2017; Hair et al., 2021). Table 4.11 below show the outer loading value or result of SmartPLS.

	Knowledge and Awareness (KAA)	Perceived Cost (PC)	Perceived Demand (PD)	Willingness to Pay (WTP)
KAA1	0.793			
KAA2	0.811			
КААЗ	0.725			
KAA4	0.738			
KAA5	0.748			
КААб	0.784			
PC1		0.801		
PC2		0.861		
PC3		0.765		
PC4		0.789		
PC5		0.855		
PD1			0.827	
PD2			0.808	
PD3			0.825	

PD4	0.839
PD5	0.802
WTP1	0.820
WTP2	0.802
WTP3	0.811
WTP4	0.847
WTP5	0.836

Table 4.11: Outer Loading

From the outer loading result table above, it can be seen that all of the outer loading value for each construct are achieving satisfactory by exceeding the required outer loading threshold value of 0.7. None of the indicator variable are need to be removed. Therefore, the indicator reliability is established.

# 4.3.2 Internal Consistency Reliability

Internal consistency reliability needs to be assessed in order to estimate the reliability of the reflective model as according to the intercorrelations of the items that being observed (Hair et al, 2017). Internal consistency reliability is traditionally being assessed by Cronbach's alpha. However, Cronbach's alpha has its limitation since it assumes all items have the same reliability and more sensitive to the number of indicators which will prone to have the situation of underestimate for the result of the internal consistency reliability results (Hair et al, 2017). Some literature of previous researcher had suggested to use Composite Reliability in determining the internal consistency reliability of a study (Nunnally & Bernstein, 1994; Hair et al, 2012; Hamid et al, 2017). Since PLS-SEM emphasize the individual reliability of each respective items or indicators, therefore both Cronbach's alpha ( $\alpha$ ) and Cronbach Composite

(composite reliability (CR)) are being measured in this study. The thumb rule for internal consistency reliability is that the result metrics should reach 0.70 (Paudyal, 2020; Hair et al, 2020).

	Cronbach's Alpha	Composite Reliability
KAA	0.860	0.895
PC	0.873	0.908
PD	0.879	0.911
WTP	0.881	0.913

 Table 4.12: Cronbach Alpha and Composite Reliability for Internal Consistency

 Reliability

The Cronbach Alpha and composite reliability for each latent variable in Table 4.12 above showing satisfaction in the measurement for internal consistency reliability. The composite reliability results values ranging from 0.895 to 0.913 and all of the result values of the Cronbach's Alpha are higher than the threshold value 0.7. It can be clearly seen that the measure results of the study achieve the internal consistency reliability.

# 4.3.3 Convergent Validity

Convergent validity test is crucial in order to assess for the degree or level which an indicator of a construct positively correlated with other indicators of the same construct (Hair et al, 2017; Hamid et al., 2017). Convergent validity can be assessed for a reflective construct by testing for the loading factor (outer loading) of each items or indicators and the AVE value of each latent variable or construct. The assessment for factor loading (outer loading) has been discussed in the part indicator reliability

which an item's factor loading should exceed 0.70. Figure 4.8 below give a better illustration of the outer loading analysis results for each indicator.



Figure 4.8: Outer loading and AVE for Convergent Validity in SmartPLS

Source: SmartPLS

From the figure above, it can be clearly seen that all indicators have outer loading > 0.70 and it considered the existence of convergent validity for each construct in the model. However, in order to ensure there is an establishment of convergent validity, the average variance extracted (AVE) also need to be considered (Hamid et al, 2017; Purwanto & Sudargini, 2021). AVE can be known as a metric which represent the grand mean value of the squared loadings of the items with its respective construct (Hair et al, 2021). As according to Hair et al (2021), the value of AVE should be of a minimum of 0.50 or higher that 0.50 (AVE  $\geq$  0.50).

	Average Variance		
	Extracted (AVE)		
KAA	0.588		
РС	0.664		
PD	0.673		
WTP	0.678		

Table 4.13: Average Variance Extracted (AVE) for Convergent Validity

The result for convergent validity test is shown by the Table 4.13 regarding the result value for average variance extracted (AVE). From the table above, all constructs' AVE value is greater than 0.5 which is the minimum acceptable threshold value for AVE metrics. Therefore, the model is valid and convergent validity is established for this study.

# 4.3.4 Discriminant Validity

Another step for outer model analysis is assessing the discriminant validity. Test for discriminant validity needs to be conducted in order to justify whether the measurement items for a construct is empirically distinct from the measurement items for other constructs in the research model (Hair et al., 2021). In this study, the discriminant validity is being assessed through three metric or criteria which are Cross-Loading, Fornell and Larcker's (1981) criterion, and Heterotrait-Monotrait (HTMT).

# 4.3.4.1 Cross-Loading Criterion

	Knowledge			
	and	Perceived	Perceived	Willingness
	Awareness	Cost (PC)	Demand (PD)	to Pay (WTP)
	(KAA)			
KAA1	0.793	0.484	0.416	0.419
KAA2	0.811	0.556	0.430	0.473
KAA3	0.725	0.458	0.381	0.420
KAA4	0.738	0.585	0.576	0.552
KAA5	0.748	0.546	0.562	0.527
KAA6	0.784	0.554	0.470	0.522
PC1	0.546	0.801	0.494	0.602
PC2	0.614	0.861	0.603	0.675
PC3	0.507	0.765	0.513	0.528
PC4	0.600	0.789	0.609	0.647
PC5	0.574	0.855	0.527	0.715
PD1	0.653	0.585	0.827	0.532
PD2	0.459	0.521	0.808	0.578
PD3	0.557	0.598	0.825	0.519
PD4	0.467	0.542	0.839	0.529
PD5	0.446	0.525	0.802	0.607
WTP1	0.582	0.706	0.609	0.820
WTP2	0.491	0.638	0.547	0.802
WTP3	0.501	0.604	0.484	0.811
WTP4	0.472	0.618	0.512	0.847
WTP5	0.581	0.645	0.621	0.836

Table 4.14: Cross-Loading Criterion for Discriminant Validity

Discrimination validity test of this study is being approached by the crossloading criterion. Table 4.14 above exhibit the cross-loading criterion which showing each indicator's loading value respectively to its assigned or corresponding constructs and other constructs. As according to Hair et al (2017), the outer loading of an item or indicator with its corresponding construct should higher than its outer loading to other constructs. For a better illustration, Table 4.14 has indicated that all indicators load highest for its own constructs and lower for other constructs. For instance, the crossloading value for KAA1 with the constructs KAA is 0.793, for KAA2 is 0.811, for KAA3 is 0.725, for KAA4 is 0.738, for KAA5 is 0.748, and for KAA6 is 0.784. These 6 KAA indicators load higher in its corresponding variables (KAA) than other variables or constructs (eg: PD, PC, WTP). Therefore, the test result indicates the achieving of discriminant validity through the measurement of cross-loading criterion.

# 4.3.4.2 Fornell and Larcker's (1981) criterion

Another approach for discriminant validity assessment is using the Fornell Larcker's criterion. The Fornell Larcker's Criterion is a classical way that being used to check for discriminant validity by observing the root of Average Variance Extracted (AVE) of the constructs. As according to the Fornell Larcker (1981), the square root value of each construct's AVE should be higher or greater in its assigned or corresponding constructs than other constructs.

	KAA	PC	PD	WTP
KAA	0.767			
PC	0.699	0.815		

PD	0.627	0.675	0.820	
WTP	0.642	0.783	0.678	0.823

Table 4.15: Fornell Larcker's Criterion for Discriminant Validity

Table 4.15 indicates the observed result of Fornell Larcker's Criterion for discriminant validity. From the diagonal of the table, the square root of Average Variance Extracted (AVE) of constructs is being bold at its corresponding constructs. From Table 4.13, we can know that the AVE of latent variable PC is found to be 0.664 hence its square root becomes 0.815 in Table 4.15. This square root value is higher than the other correlation values in PC's column (0.675 and 0.783) and row (0.699). The same observation is also reached for constructs of KAA, PD, and WTP. Therefore, discriminant validity is well established based on the observation result of Fornell Larcker's criterion.

# 4.3.4.3 Heterotrait-Monotrait (HTMT)

Discriminant validity is usually being assessed through the classical method by examining the Cross-Loading Criterion and Fornell and Larcker's (1981) criterion (Wong, 2019). However, Henseler et al. (2015) proposed an alternative approach to determine the discriminant validity by assessing the Heterotrait-monotrait (HTMT) ratio of correlation. As according to Henseler et al. (2015), it is able to evaluate greater sensitivity and precision rates in assessing the discriminant validity by the HTMT ratio approach. The HTMT tested result should be lower than 0.9 as the threshold value (Hair et al, 2017). In contrast, it considered to be lack of discriminant validity if the HTMT value is greater than the threshold value of 0.9 (Henseler et al., 2015; Hair et al, 2017).

	KAA	PC	PD	WTP
KAA	-			
PC	0.797	-		
PD	0.711	0.771	-	
WTP	0.723	0.883	0.761	-

Table 4.16: Heterotrait-Monotrait (HTMT) for Discriminant Validity

The result Table 4.16 is being extracted from the SmartPLS 3.2.9. From the table above, it can be clearly seen that all of the HTMT matrix value are lower than the threshold of 0.9. Besides using the measurement of threshold 0.9 criterion, HTMT can also be measure in statistical analysis approach by checking on the confidence interval of HTMT in the bootstrapping of SmartPLS. Discriminant validity is said to be establish if the lower confident interval and the upper confident interval does not appear to be the value 1. Table 4.17 below shows the result of SmartPLS for the bootstrapping.

	Original Sample (O)	Sample Mean (M)	Bias	2.5%	97.5%
PC -> KAA	0.797	0.796	-0.000	0.694	0.874
PD -> KAA	0.711	0.709	-0.002	0.560	0.829
PD -> PC	0.771	0.770	-0.001	0.652	0.861
WTP -> KAA	0.723	0.723	-0.001	0.594	0.817

WTP -> PC	0.883	0.883	0.000	0.800	0.948
WTP -> PD	0.761	0.761	-0.001	0.606	0.877

Table 4.17: HTMT Bootstrapping for Discriminant Validity

The Table 4.17 above shown the lower bound (2.5%) and upper bound (97.5%) of bias corrected confidence interval at 0.05 significance level. The results of the confident interval do not include the value of 1 for all constructs. In short, the results shown represent that the ratio of HTMT are significant from 1 and the discriminant validity is established and confirmed in this study.

# 4.4 Structural Model Analysis (Inner Model Evaluation)

Apart from outer model, inner model also needs to be evaluated. Inner model also is normally being known as the structural model. Structural model analysis can help to specify the structural relationship among the independent and dependent constructs (Thakkar, 2020). In order to complete the evaluation of the structural model, this study will assess the coefficient of determinant ( $R^2$ ), effect size ( $F^2$ ), and predictive relevance ( $Q^2$ ). The analysis of structural model in this study will be done by using the SmartPLS 3.2.9.

# **4.4.1** Coefficient of Determinant (R<sup>2</sup>)

One of the crucial parts for structural model evaluation is assessing for the coefficient of determinant ( $R^2$ ).  $R^2$  is the coefficient used to measure how much of an endogenous construct's variance can be accounted for by all of its related exogenous constructs (Basbeth et al., 2018). As according to Hair et al. (2017), the value of  $R^2$  can range from 0 to 1, a higher value of  $R^2$  can indicate that there is a presence of higher accuracy in endogenous variable's predictive value. As according to the thumb rule for  $R^2$ , a value of 0.25, 0.50, and 0.75 respectively indicates as weak, moderate and substantial result (Henseler et al., 2009; Hair et al., 2011; Hair et al., 2017; Basbeth et al., 2018).

	R Square	R Square Adjusted
WTP	0.659	0.652

Table 4.18: Coefficient of Determinant (R<sup>2</sup>)

Based on Table 4.18 above, the statistical result of coefficient of determinant (R<sup>2</sup>) that being computed by SmartPLS 3.2.9 is 0.659. This R<sup>2</sup> value can be interpreted that 65.9% of willingness to pay for halal logistics among the non-Muslims (WTP) can be explained by knowledge and awareness (KAA), perceived demand (PD), and perceived cost (PC). In other words, the variables KAA, PD, and PC explain 65.9% of variances in WTP for this study. Meanwhile, 34.1% of willingness to pay for halal logistics among the non-Muslims may influence by other factor variables which is not being tested in this study.

# 4.4.2 Effect Size $(f^2)$

Effect size  $(f^2)$  is being encouraged by reviewers and journal editors in order to measure the change or effect of an exogenous variable on endogenous variable once it is being omitted from the model (Hair et al., 2017; Wong, 2019). Hair et al. (2017) refer to Cohen (1988) guideline that  $f^2$  value of 0.35, 0.15, and 0.02 represent large, medium, and small size effect respectively.

	KAA	PC	PD	WTP
KAA				0.017
PC				0.360
PD				0.086
WTP				-

# Table 4.19: f square matrix

Table 4.19 shows the  $f^2$  values for all endogenous variables (KAA, PD, PC) to exogenous variables (WTP). It can be said that perceived cost (PC) has a large effect size of 0.360 on willingness to pay for halal logistics among the non-Muslims (WTP). In contrast, perceived demand (PD) has small effect of 0.086 on WTP while knowledge and awareness (KAA) has medium effect of 0.017 on WTP.

# 4.4.3 Predictive Relevance (Q<sup>2</sup>)

The constructs in this study can thus being assessed for their predictive relevance  $(Q^2)$  via the blindfolding procedure in SmartPLS. This calculation criterion

is crucial to evaluate for the cross-validated predictive relevance of the model. If  $Q^2$  value is higher than 0, the model is considered to have predictive relevance for endogenous variable or construct (Basbeth et al., 2018). On contrary, if the value of  $Q^2$  is equal or below 0, it considered lacking of predictive relevance.

	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
KAA	900.000	900.000	
PC	750.000	750.000	
PD	750.000	750.000	
WTP	750.000	423.548	0.435

Table 4.20: Construct Cross Validated Redundancy

From Table 4.20 above, the  $Q^2$  value of the endogenous variable (WTP) is 0.435 which is above the threshold value of 0. Therefore, the model of this study has sufficient predictive relevance which support by the result above.

# 4.5 Collinearity (Variance Inflation Factor, VIF)

Collinearity could be an assessment on the causal effects of constructs of the evaluated framework in this study. In order to check whether there is an existence of collinearity problem, Variance Inflation Factor (VIF) is being recognized as the collinearity measurement (Basbeth et al, 2018). The statistics analysis of VIF is being extracted from SmartPLS. Table 4.21 below shows the outer and inner VIFs result.

	Outer VIF Values	Inner VIF Values
KAA1	2.775	
KAA2	2.888	
KAA3	1.829	2 139
KAA4	1.566	2.137
KAA5	1.915	
KAA6	1.995	
PC1	2.077	
PC2	2.499	
PC3	1.842	2.385
PC4	1.869	
PC5	2.338	
PD1	2.388	
PD2	2.049	
PD3	2.442	2.009
PD4	2.352	
PD5	1.910	
WTP1	1.995	
WTP2	1.966	
WTP3	2.103	-
WTP4	2.515	
WTP5	2.181	

Table 4.21: Collinearity Statistics (VIF)

In order to ensure there is no collinearity problem, the statistics of variance inflation factor (VIF) should be less than 5 (VIF < 5) (Hair et al., 2017). Based on Table 4.21 above, all the outer and inner VIF values are fulfilling the requirement of collinearity assessment which VIF < 5. Therefore, there is no collinearity problem in this model of study.

# 4.6 Hypothesis Testing

After the evaluation on the structural model, this chapter will continue the data analysis in testing the hypotheses that are being developed. In this study, hypothesis testing was done by a significance test under a significance level of 5% ( $\alpha = 0.05$ ). The independent variables are being tested in order to see their hypothesised relationships between the variables or constructs. A bootstrapping procedure is also being conducted by using the SmartPLS 3.2.9 in order to test the significance of path coefficients ( $\beta$ ) to check whether all constructs or variables that being tested are statistically related significantly (Basbeth et al., 2018). Besides, t-values and p-values of the path coefficient that has been analysed by SmartPLS is being assessed in order to identify whether each hypothesis that being proposed were supported or not supported. A hypothesis is supported at a significance level of 5% if the t-statistics > 1.96 or p-value < 0.05 (Basbeth et al., 2018). The results of the SmartPLS estimation are shown in Figure 4.9 and Table 4.22 below.



Figure 4.9: Path coefficient

Source: SmartPLS Partial Least Square (PLS) Algorithm analysis output

Hypothesis	Path/ Relationship	Path Coefficient (β)	T Statistics ( O/STDEV )	P Values	Hypothesis Testing
H1	KAA -> WTP	0.111	1.304	0.192	Not Supported
H2	PD -> WTP	0.243	2.425	0.015	Supported
H3	PC -> WTP	0.541	6.148	0.000	Supported

Table 4.22: T-value and P-value of path coefficient

H1: Knowledge and awareness will positively influence the willingness of non-Muslims to pay for halal logistics.

Based on the result table 4.22 above, it can be seen that the path coefficient for the relation between (knowledge and awareness towards halal logistics) KAA and (willingness to pay for halal logistics) WTP shows the value of ( $\beta$ =0.111). As according to Basbeth et al. (2018), there is a strong positive relationship which typically statistically significant if path coefficients near +1. However, this path coefficient value is low and close to 0 which indicates that it is not much different from 0. Therefore, the relationship between the KAA and WTP is not significant. Besides, the p-value and t-value for KAA->WTP shows (p=0.192; t=1.304) which p=0.192 (>0.05) and t=1.304 (<1.96). This represent that knowledge and awareness towards halal logistics does not significantly influence the willingness of non-Muslims to pay for halal logistics. Hence, the first hypothesis that "knowledge and awareness will positively influence the willingness of non-Muslims to pay for halal logistics" was not supported as according to the SmartPLS statistical result of this study.

# **Hypothesis 2: Perceived Demand**

H2: Perceived demand for halal logistics from people around will positively influence the willingness of non-Muslims to pay for halal logistics.

Based on the assessment for coefficient result table above, it can be seen that perceived demand (PD) towards willingness to pay (WTP) has a path coefficient value of 0.243 which indicates that there was a positive relation between perceived demand (PD) and willingness to pay (WTP). Moreover, the p-value and t-value for the relation between perceived demand (PD) towards willingness to pay (WTP) shows 0.015 (<0.05) and 2.425 (>1.96) respectively. This result indicates that perceived demand

for halal logistics significantly influence the willingness of non-Muslims to pay for halal logistics. Hence, it can be concluded that the second hypothesis that "perceived demand for halal logistics from people around will positively influence the willingness of non-Muslims to pay for halal logistics" is supported and accepted statistically by the results of path coefficient, p-value, and t-value assessment.

#### **Hypothesis 3: Perceived Cost**

H3: Perceived cost towards halal logistics will positively influence the non-Muslims' willingness to pay for halal logistics.

Based on the assessment for coefficient result table above, it can be seen that perceived cost (PC) towards willingness to pay (WTP) has a path coefficient value of 0.541 which indicates that there was a positive relation between perceived cost (PC) and willingness to pay (WTP). Moreover, the p-value and t-value for the relation between perceived cost (PC) towards willingness to pay (WTP) shows 0.000 (<0.05) and 6.148 (>1.96) respectively. This result indicates that perceived cost towards halal logistics significantly influence the willingness of non-Muslims to pay for halal logistics will positively influence the non-Muslims' willingness to pay for halal logistics" is supported and accepted statistically by the results of path coefficient, p-value, and t-value assessment.

# 4.7 Summary

In summary, this chapter has discussed primarily on the pilot testing of the study and data analysis which being assessed using SmartPLS 3.2.9 software. This software is being used to analyse the 150 respondents who involved in this study regarding the willingness of non-Muslims to pay for halal logistics: a study on the non-Muslims in Melaka. Descriptive analysis on the demographic of respondents is being done by using IBM SPSS Statistics 27.0 descriptive statistics tool. Moreover, measurement model analysis and structural model analysis is being done respectively to evaluate the outer and inner model of the study while checking for the reliability and validity issues of the study. Furthermore, hypotheses that being held are being evaluated with the path coefficient, p-value, and t-value. According to the result, it is showed that first hypothesis is being rejected while the rest of the second and third hypothesis is being supported or accepted. Table below shows the summary of the hypothesis testing:

Hypothesis	Results	
H1: Knowledge and awareness will		
positively influence the willingness of	Not supported	
non-Muslims to pay for halal logistics.		
H2: Perceived demand for halal logistics		
from people around will positively	Supported	
influence the willingness of non-		
Muslims to pay for halal logistics.		
H3: Perceived cost towards halal		
logistics will positively influence the	Supported	
non-Muslims' willingness to pay for	Supported	
halal logistics.		

# **CHAPTER FIVE**

# DISCUSSION AND RECOMMENDATIONS

# 5.0 Introduction

In this chapter, summary of findings will be discussed in related with the research objectives. Besides, contribution of research will also be discussed in this chapter. Research limitation will also be mentioned as well as the suggestion or recommendation for future studies.

# 5.1 Summary of Findings

The aim of this research was to investigate the factors that influence the willingness of non-Muslim in Melaka to pay for halal logistics. In this study, there are three independent variables such as knowledge and awareness, perceived demand, and perceived cost that being examined for each of their extent in affecting the willingness of non-Muslims to pay for halal logistics.

The first research objective is to find out whether attitude such as the knowledge and awareness towards halal products affects the willingness of non-Muslims to pay for halal logistics. The result of the first hypothesis ( $\beta$ =0.111, t-statistics= 1.304 (<1.96), p-value=0.192 (>0.05)) indicated that there was no significant influence of knowledge and awareness towards halal products on the willingness of non-Muslims to pay for halal logistics. This finding or result suggesting that knowledge and awareness of non-Muslims towards halal or halal products does not significantly affect or influence their willingness to pay for halal logistics. This finding was seemed to be consistent with the research done by Kamaruddin et al. (2012) and Majid et al. (2020) which knowledge and awareness had no significant influence on the willingness of non-Muslims to pay for halal logistics.

However, most of the past studies such as Syukur and Nimsai (2018), Bashir (2019), and Ngah et al. (2019) found that knowledge and awareness as well as the attitude had a positive relationship towards the willingness to pay for halal logistics. These studies' respondents are typically focusing on the Muslims society which might had a higher level of knowledge and awareness on "halalness" while in this study, the respondents are focusing on the potential non-Muslims consumers. Therefore, it could be the reason why the result of this study was differed from the past studies. As what we know, the knowledge and awareness towards halal and halal product were related to the degree of knowledge of non-Muslims consumers on halal. The degree or level of knowledge on halal may be differ depends on the environment, education, and degree of exposure to "Halalness".

Besides, there is also a possibility that halal industry still in its of initial phase of development, publics especially the non-Muslims society do not have sufficient knowledge regarding what halal logistics was and how importance the appearance of halal logistics to preserve the products' "halalness" (Fathi et al., 2016). Therefore, more halal exposure is needed especially in emphasizing the advantages and importance of halal logistics in order to increase the awareness and knowledge of publics towards halal industry especially the non-Muslims who had less exposure to the halal context. This can also be done through the sharing of halal logistics knowledge among the scholars, lecturers, and students. In short, the result implies that the awareness and knowledge of non-Muslims towards halal or halal products had no effect on their willingness to pay for halal logistics.

# Research Objective 2: To examine whether subjective norm such as the perceived demand towards halal products affects the willingness of non-Muslims to pay for halal logistics.

The next objective was been examined by using the SmartPLS whether subjective norm such as the perceived demand towards halal logistics affects the willingness of non-Muslims to pay for halal logistics. The result from SmartPLS reflected that there was a significant effect of subjective norm such as perceived demand towards halal logistics on willingness of non-Muslims to pay for halal logistics with  $\beta$ = +0.243, t-statistics= 2.425 (>1.96), and p-value= 0.015 (<0.05). This result was supported by the previous study of Kamaruddin et al. (2018) and Fathi et al. (2016) which consumers' willingness to pay for halal logistics positively impact or influence by their demand for halal logistics. Besides, this result also seemed to stand consistently with most of the past researches which reveal that subjective norm have positive relationship with the willingness to pay (Ngah et al., 2020; Damit et al., 2019; Haro, 2018; Afendi et al., 2014).

As we known, subjective norms are an individual's perception on societal pressure in general which might cause an individual's viewpoint to engage in or refrain from engaging in a particular behaviour. In this study, subjective norm can also be an expectation of demand for halal logistics from people around such as peers, relatives, colleagues, and others. Since the result of this study showed that subjective norm such as the perceived demand for halal logistics from people around significantly influence the willingness of non-Muslims to pay for halal logistics, therefore, it is being supported that influences from the people around could affect or influence the potential non-Muslims consumer to have more consideration to pay for halal logistics. In simple, the higher the perceived demand for halal logistics from people around, the higher the

motivation of non-Muslims to comply or the higher the willingness of non-Muslims consumer to pay for halal logistics.

# **RO3:** To determine whether perceived behavioral control such as perceived cost affects the willingness to pay for halal logistics.

In the third research objective, researcher aimed to determine whether perceived behavioral control such as perceived cost affects the willingness to pay for halal logistics. According to the result or finding of this study, researcher found out that perceived cost towards halal logistics have a significant positive relationship with the willingness of non-Muslims to pay for halal logistics. From the Table 4.22 in chapter 4, the independent variable as such perceived cost towards halal logistics significantly influence the willingness to pay for halal logistics with  $\beta$ = +0.541, t-statistics= 6.148 (>1.96), and p-value= 0.000 (<0.05). This result gave an indication that the highest the perceived cost towards halal logistics would greatly affect the willingness to pay for halal logistics.

The finding of this study stands constant with the past study of Kamaruddin et al. (2018), and Kamaruddin et al. (2012) which cost act as a strong indicator which will influence the decision on the willingness of consumers to pay for halal logistics. Apart from the context of halal logistics, the finding of this study regarding the third objective also supported by the previous study made by Nazir & Tian (2022) where there is a significant positive relationship between the cost as influential determinant and the intention to purchase.

From the finding, consumers may be sensitive to the value during the consideration of willingness to pay for halal logistics. Perceived cost for halal logistics service may affect the potential non-Muslims consumers to pay for it with the consideration the behavior affordability and value worthily. This is due to the reason that consumer may perceive that halal logistics services might carry for a higher cost compare to conventional logistics as there may be extra charges or fees undertaking to ensure the "halalness" and building up a more systematic system for the services in terms of facilities and equipment. This can be relating to a term which is "quality". As

according to De Mooij (2019), the consumers would favor high-quality products and services. Rahman et al. (2018) also refer to Vegiayan et al. (2013) that in the context of consumer satisfaction, purchase quality and information quality associated with the post-buy quality are statistically significant. In other words, when compared to low-quality goods or services, consumers are more willing to pay more (Zhang et al., 2018).

As according to the price-quality effect law that being introduced by Lichtenstein et al. (1993), customers believe that high price equals great quality. A greater price denotes higher quality. Therefore, a positive significant relationship between perceived cost and willingness to pay for halal logistics in this study also indicates that consumers' willingness to pay affected by their perceived cost for a better "halalness" logistics service which may be perceived as a more quality handling procedure compare the conventional logistics. Consequently, perceived cost towards halal logistics services is vital and need for a higher attach of attention to it.

# 5.2 Contribution of the Research

The topic of this study is "Willingness to pay for Halal Logistics: A study on the non-Muslims in Melaka". This study works for an attempt to fill up research gaps and make significant contributions. For instance, this study expands on the scant research on the understanding of desire to pay for halal logistics and the additional aspects that may influence the readiness to pay. Additionally, previous studies on respondents' willingness to pay for halal logistics have mostly concentrated on Muslim respondents' settings. This study can be said as one of the earlier studies to assess non-Muslims' willingness to pay for halal logistics in Melaka, Malaysia.

Besides, Muslim customers are willing to pay Halal logistics in order to obtain halal products, according to previous research like those conducted by Kamaruddin et al. (2018) and Fathi et al. (2016). However, only few or no studies have yet been conducted to ascertain non-Muslim consumers' willingness to pay for Halal logistics. As a result, this study can undoubtedly offer some suggestions or guidelines to the appropriate government as well as logistics service provider (LSP) regarding the readiness of non-Muslim customers to pay for halal logistics service. In short, this study is beneficial in terms of offering ideas and information for potential investments, government and policy makers, knowledge, researcher, and industry.

# 5.2.1 Contribution for Potential Investment

The global halal logistics market, according to a Grand View Research (2020) analysis, was estimated to be worth 286.96 billion in 2019 and is projected to rise with a CAGR of 8.4% from 2020 to 2027. This analysis can be thus supported since more than RM 16 billion of investment has been attracted by the Halal Malaysia Industrial Parks and 59% of it which is RM 9.5 billion are of foreign direct investment (FDI) (Mardhiah, 2022). These has given out hint that halal industry especially the halal logistics could be a hot trend for future investment taking into consideration of its potentiality and capability of market boosting. This study can definitely provide some information on the boost opportunity of halal logistics and its future market capabilities in a deeper insight on the willingness of non-Muslims to pay for halal logistics.

As according to the 2018-2019 report by Thomson Reuters (2016), Malaysia been ranked as the first or top best country to seize the opportunities in Islamic economy. The opportunity has called for future investment in Malaysia in order to develop a more integrated ecosystem framework which not only increase the economy but also the integration between countries. From the study result, there is certain degree of demand of non-Muslims consumers towards halal logistics services and their willingness to pay for this service. Indicators that might affect the willingness to perform behaviour on paying halal logistics can also give a brief extend of understanding to the investors on the current halal logistics consumers behavior. This also provide the potential investors with better insight on the potentiality of halal logistics services which thus cultivate the future investments on halal logistics.

# 5.2.2 Contribution for Government and Policy Makers

In order to establish logistics infrastructure and sustain this industry's growth, Government as a government meddling is liable for Halal logistics, which involves the plan, development, execution, regulation, teach, and market the Halal logistics sector (Kasim et al., 2017). By looking at the potentiality of future emerging of halal market, Malaysia government did take initiatives to encourage the development of this industry especially in halal logistics. As according to Sham et al. (2017), Malaysia government have taken initiatives on halal logistics operation by introducing the halal transportation standard (MS2400), mandatory call for all halal-business logistics providers to apply for Halal Jakim certification, organizing halal programs, exempting taxes and providing incentives for halal industry players to promote on halal services' trade and investment.

From this study, by understanding the factors that might influence the willingness to pay for halal logistics, Malaysia government can know better on the demand of non-Muslims consumers and their willingness to pay for halal logistics industry. Government will also be having a clearer sight to put efforts in creating the policy and giving sustain supports by intervening in the Halal business affairs especially in the development of halal logistics areas. To list some examples, government can also organize halal-exhibitions or activities promoting halal products, and educate the consumers on halal and the halal supply chain or logistics procedures.

In contrast, policy makers also important in driving the development of this emerging halal market especially on the halal logistics service. Since halal logistics industry is still new and much of its elements is still under the stage of initial exposed or developing stage (Shah, 2017). Therefore, policy makers are playing important roles in understanding the internal and external drivers in order to create better policies that help in promoting the development of halal market (Azam et al., 2020). In this study, the findings provide information regarding the perception of non-Muslims consumers in terms of the knowledge, perceived demand, and also the perceived cost which beneficial for policy makers. To ensure that there is no contamination of non-halal materials or substances along the supply chain, appropriate standards ad process during logistics operation, and appropriate policies or rules should be implemented (Azam &
Abdullah, 2020). This study can act as a reference for policy makers when considering the policies such as policies in halal product or logistics assurance law, halal logistics certification and standardization, the halal logistics development roadmap and the lists go on. In simple, this study contributes to the policy makers in establishing the relevant policies in a more realistic and efficient way in order to make sure that the policies implemented are acceptable by publics taking into consider both Muslims and non-Muslims.

#### 5.2.3 Contribution to Knowledge

This study contributes theoretically by enriching literature regarding the willingness to pay. Past research of Fathi et al. (2016) and Zunaidah (2018) studied the variables or factors on concern, perception, awareness, and knowledge on halal. However, this study discovers two new factors which are the perceived demand and perceived cost towards halal that might influence the willingness to pay for halal logistics. These two factors contribute in expanding the framework to investigate for the willingness to pay for halal logistics from the past researches.

From the findings, researcher had found out that these two new factors are significantly influence the willingness of non-Muslims to pay for halal logistics. Therefore, this study is seemed to make some contribution on the literature and knowledge sharing on the consumers' behavior and intention to pay especially in the aspect of halal logistics.

From another angle, this has also aided in the expansion of the Theory of Planned Behavior study because it added new or additional constructs to identify the intention or willingness to pay behavior, which improved the TPB's ability to predict customer behavior, particularly with regard to halal issues. These have made an important contribution in understanding the variables influencing non-Muslims' willingness to pay for halal logistics from a different angle. Besides, most of the past studies are more focusing on the consumers' intention or willingness to pay halal products such as the studies made by Iranmesh et al. (2019), Haro (2018), Ahmed et al. (2018) which studies on the halal food, halal cosmetics, and halal products. However, this study has extensively investigating on the willingness to pay for halal logistics, a service that is likely to be understudied. In addition to this, most of these previous studies are more focusing on the "Muslims" consumers while this study researcher focused on the "non-Muslims" as the respondents which exploring another scope of potential consumers' willingness to pay which can thus contribute in providing insight and beneficial for future researchers or scholars who are interested to continue the study.

#### 5.2.4 Contribution for Researcher

This research has found out that two new factors that significantly influence the willingness of non-Muslims to pay for halal logistics which is perceived demand and perceived cost. These two factors had completely build up the proposed framework in this research with another one factor which is knowledge and awareness which has been investigated from the conceptual framework before in previous research such as the research made by Fathi et al. (2016) and Zunaidah (2018).

The proposed framework in this research contribute for researcher who interested to discover deeper in the context of halal logistics. Future researcher can make further improvement on this framework by exploring new factors or even investigating the mediator or moderator that could affect the willingness to pay by taking the proposed framework in this research as conceptual framework during their new idea generalized before conducting for future analysis or study (Indeed Editotial Team, 2022).

Apart from that, previous researches are more focusing on the willingness to of Muslims to pay for halal logistics or halal products and there are only less or few studies being made by focusing on the scope of non-Muslims respondents. This study had definitely contributing by reducing the gap of studies by investigating into a wider scope of respondent criteria. In addition to this, researcher of this study has been focusing in one of the states of Malaysia which is Melaka. Future researcher may further investigate for other states in Malaysia, Peninsular Malaysia, or even the whole Malaysia. This study has contributed in reducing the gap for future researcher in terms of location scope.

# 5.2.5 Contribution for Industry (Logistics Service Provider (LSP) and Manufacturers)

This study can also contribute to logistics service provider (LSP) and manufacturers by providing some information on the less investigated group of people which are the non-Muslims and their willingness to pay for halal logistics service. As according to the research of Ngah et al. (2017), there are still many of manufacturers refuse to include halal logistics services in their operation. Besides, the adoption of halal transportation is also comparatively low as only 15% of halal manufacturers are adopting the services of halal transportation from halal LSP (Ngah, et al., 2014; Ngah, et al., 2019). Apart from that, logistics service providers also seemed to have a relatively low adoption of halal logistics in operation compare to other halal certified product or market such as restaurant, cosmetics and pharmaceuticals.

The low adoption of halal logistics maybe arises due to the concerning of LSP on the perception and willingness of consumers to pay for the services not only in terms of Muslims but also the non-Muslims consumers. This study is seemed can be contributed in disclosing the willingness of non-Muslims to pay for halal logistics service. The information provided in this study can act as a reference to LSP which might have high intention to adopt halal logistics and encourage the LSP to adopt or implement halal logistics in their operations.

In addition, manufacturers or halal product players may be hesitate to adopt halal logistics services from LSP even though they have the intention to do so. There may be certain degree of scruple on the large investment or capital for them to include the halal logistics services. High operation cost due to additional investment or expenditure to adopt tools, equipment, and facilities to adopt halal logistics will be thus incurred on the charge or bills that being bear by the final consumers. Therefore, this study contributes by providing a better insight for the potential halal logistics adopters on the willingness of non-Muslims to pay for this service and this encouraging them to implement halal logistics operations.

#### 5.3 Limitation of the Research

There are some limitations when conducting this study. One of the limitations of this study is that there might be some accuracy limitation of the information or result in this study since the study is taken only for 150 respondents which might not represent all the potential non-Muslims consumers in Melaka. In addition, other variables which might moderate or mediate the relationship between the independent and dependent variables are not being considered to test on this study.

Besides, another limitation in this study is the technique of sampling that being used which is a non-probability convenient sampling. This is due to the reason that this type sampling method may be easily susceptible to unfairness which can also draw a greater criticism. However, convenience sampling enables the researcher to obtain data quickly and efficiently within the time constraints with less complexity comparing to other sampling technique (Saunders et al., 2019). Even though all the necessary measures for convenient sampling are meticulously performed, the probability sampling method should be taken into consideration for future study.

#### 5.4 **Recommendations for Future Research**

There are a few suggestions for future research. Since this study just focus on the potential non-Muslims consumers in Melaka, It is advised that similar research be conducted in the future with broader criteria of respondents. For example, future similar studies can conduct the research in more other states in Malaysia. Consequently, the future researches or studies can obtain a more accurate and detail information on the willingness to pay for halal logistics. Besides, a wider scope of respondent criteria can also take into consideration for future studies as on different group or criteria of people especially of different religious that may have different level of concern on halal logistics.

As according to the result in chapter four, coefficient of determination ( $\mathbb{R}^2$ ) of this study is 0.659. This interpret that the willingness of non-Muslims to pay for halal logistics is 65.9% influence by knowledge and awareness (KAA), perceived demand (PD), and perceived cost (PC). Meanwhile, the rest 34.1% may be influence by other factor variables which is not being tested in this study. Therefore, future studies are recommended to explore other factors which may influence the willingness to pay such as the quality, certification, and so on. Additionally, other variable factors which may moderate or mediate the relationship of independent and dependent variables were not considered in this study. With this, future research is advised to take the mediator and moderator into account, such as initial trust and demographic profile.

Last but not least, one of the limitations in this study is the use of nonprobability convenient sampling which may be easily susceptible to unfairness which can also draw a greater criticism. This can be address with a future similar studies suggestion to use probability sampling technique since this sampling technique prone to get the data and information more precisely and accurately.

## 5.5 Conclusion

In conclusion, this study aims to find out the factors influence the willingness of non-Muslims to pay for halal logistics in Melaka. This study had concerned on the knowledge and awareness on halal logistics, perceived demand for halal logistics, and perceived cost for halal logistics influences on the willingness to pay for halal logistics. In light of the study's findings, only two independent variables perceived demand and perceived cost were discovered to have a significant influence on non-Muslims' willingness to pay for halal logistics. However, the knowledge and awareness were found not to have any influence on the willingness of non-Muslims to pay for halal logistics.

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# Appendices A

## Gantt Chart of Final Year Project (FYP) 1

BIL	ΑСΤΙVIТΥ	WEEK														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Discussion and finalize the topic															
2	Prepare and identifying the RO and RQ															
3	Identifying the variables and developing the framework															
4	Research the sources of secondary data															
5	Determining the methodology to be used in the research															

6	Drafting the research proposal								
7	Submit the draft to supervisor								
8	Re-draft the research proposal								
9	Correction and submission the final draft for supervisor's review								
10	Proposal presentation and proposal defence								

Appendices B

## Gantt Chart of Final Year Project (FYP) 2

BIL	ACTIVITY								Ţ	WE	EK					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Questionnaire Development															
2	Revised for Questionnaire															
3	Distribute Questionnaire															
4	Data Collection															
5	Data Analysis															
6	Chapter 4 – Data Analysis															

7	Chapter 5 – Conclusion and Recommendations								
8	Final Edit for FYP report 2								
9	Proposal Presentation								
10	FYP Report submission								

**Appendices B** 

## Questionnaire



# SURVEY ON FACTORS INFLUENCING THE WILLINGNESS OF NON-MUSLIMS TO PAY FOR HALAL LOGISTICS

**Instruction** / Arahan

This questionnaire is designed to obtain primary data for my Final Year Project. The purpose of this research is / Soalan kaji selidik ini direka untuk memperolehi data utama bagi Projek Sarjana Muda saya. Tujuan kajian ini dijalankan adalah:

- i. To find out whether the attitude towards halal products affects the willingness of non-Muslims to pay for halal logistics / Untuk mengetahui sama ada sikap terhadap produk halal mempengaruhi kesanggupan orang bukan Muslim untuk membayar logistik halal.
- ii. To examine whether the subjective norms towards halal products affects the willingness of non-Muslims to pay for halal logistics / Untuk mengkaji sama ada norma subjektif terhadap produk halal mempengaruhi kesanggupan orang bukan Muslim untuk membayar logistik halal.

iii. To determine whether perceived behavioral control affects the willingness to pay for halal logistics / Untuk menentukan sama ada kawalan tingkah laku yang dirasakan mempengaruhi kesanggupan membayar logistik halal.

**The data collected is used for academic purpose only** / Data yang dikumpul digunakan untuk tujuan akademik sahaja.

 For further information and clarification, please contact: / Untuk maklumat lanjut

 dan penjelasan, sila hubungi:

 Name:
 Lim Li Shan

 Email:

Address: Faculty of Technology Management and Technopreneurship, Universiti Teknikal Malaysia Melaka, Hang Tuah Jaya, 76100 Durian Tunggal Melaka Malaysia.

No. Phone:

Supervisor: Eng. Dr. Mohd Fazli Bin Mohd Sam Email:

## PART A: DEMOGRAPHIC

Please tick (✓) your answer in following box / Sila tandakan (✓) jawapan anda dalam kotak berikut.

1. Age / Umur :

Below 20 / Bawah 20		40 - 50	
20 - 30		Above 50/ Lebih daripada 50	
30 - 40			
2. Gender / Jantina :			
Male		Female	
3. Religious / Keagama	aan :		
Buddishm		Christianity	
Hinduism		Other / Lain-lain:	

4. Educational Level / Tahap Pembelajaran :

SPM	Master	
STPM	PhD	
Diploma	Other / <i>Lain-lain</i> :	
Degree		

## 5. Employment Status / Status Pekerjaan :

Employed / <i>Bekerja</i>	Retired / Bersara	
Unemployed / Tidak Bekerja	Other / Lain-lain :	
Student / Pelajar		

## 6. Income Level / Tahap Pendapatan :

No Income / Tiada Pendapatan	RM 6,000 – RM 9,000	
Less than RM 3,000 / Kurang daripada RM 3,000	RM 9,000 and above / Melebihi RM 9,000	
RM 3,000 – RM 6,000		

## PART B: THE WILLINGNESS TO PAY FACTORS

This section is to collect your data on factors that influencing willingness of non-Mulims to pay for halal logistics. Kindly answers all questions and circle the appropriate options/ number for each statement. Each number is a representative of the following scale:

Bahagian ini adalah untuk mengumpul data mengenai faktor-faktor yang mempengaruhi kesanggupan orang bukan Muslim untuk membayar logistik halal. Sila jawab semua soalan dan bulatkan pilihan / nombor yang berkenaan bagi setiap kenyataan. Setiap nombor adalah wakil kepada skala yang berkenaan:

- (1) Strongly Disagree / Sangat Tidak Setuju
- (2) Disagree / Tidak Setuju
- (3) Neutral / Neutral
- (4) Agree / Setuju
- (5) Strongly Agree / Sangat Setuju

## Knowledge And Awareness / Pengetahuan dan kesedaran:

No	Question	1	2	3	4	5
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	I have enough	1	2	3	4	5
	knowledge about halal					
	logistics services to give					
	other advice about it /					
	Saya mempunyai					
	pengetahuan yang					
	cukup tentang					
	perkhidmatan logistik					
	halal untuk memberi					
	nasihat lain					
---	--------------------------	---	---	---	---	---
	mengenainya.					
2	I feel that I have	1	2	3	4	5
	sufficient knowledge of					
	Halal logistics /					
	Saya merasakan					
	bahawa saya					
	mempunyai					
	pengetahuan yang					
	mencukupi tentang					
	logistik Halal.					
3	I know the difference	1	2	3	4	5
	between Halal product					
	and Halal logistics					
	service / Saya tahu					
	perbezaan antara					
	produk Halal dan					
	perkhidmatan logistik					
	Halal.					
4	Halal logistics services	1	2	3	4	5
	gives a good health and					
	better services to the					
	users using Halal					
	sources and Islamic					
	Syariah / Perkhidmatan					
	logistik halal					
	memberikan kesihatan					
	yang baik dan					
	perkhidmatan yang					
	lebih baik kepada					
	pengguna yang					
	menggunakan sumber					

	Halal dan Syariah Islamiah.					
5	Non-Muslims are aware with benefits of Halal logistics services / Orang bukan Islam sedar dengan faedah perkhidmatan logistik Halal.	1	2	3	4	5
6	I am aware of the availability of halal logistics service / Saya sedar tentang ketersediaan perkhidmatan logistik halal.	1	2	3	4	5

## Perceived Demand / Persepsi Permintaan:

No	Question	1	2	3	4	5
		Strongly	Disagree	Neutral	Agree	Strongly
		Disagree				Agree
1	I am sure the closest	1	2	3	4	5
	people (family &					
	friends) will choose to					
	pay for halal logistics					
	services / Saya pasti					
	bahawa orang terdekat					
	(keluarga & kawan-					
	kawan) akan memilih					
	untuk membayar					

	perkhidmatan logistik					
	halal.					
2	People can influence	1	2	3	4	5
	me to pay for halal					
	logistics services /					
	Orang boleh					
	mempengaruhi saya					
	untuk membayar					
	perkhidmatan logistik					
	halal.					
3	My family will	1	2	3	4	5
	emphasize to me the					
	importance of choosing					
	a halal logistics service					
	/ Keluarga saya akan					
	menekankan kepada					
	saya tentang					
	kepentingan memilih					
	perkhidmatan logistik					
	halal.					
4	People who influence	1	2	3	4	5
	my decision think that I					
	should use halal					
	logistics services /					
	Orang yang					
	mempengaruhi					
	keputusan saya berfikir					
	bahawa saya harus					
	menggunakan					
	perkhidmatan logistik					
	halal.					
5	I will pay for halal	1	2	3	4	5
	logistics service that					

recommended by the	
people closest to me /	
Saya akan membayar	
perkhidmatan logistik	
halal yang disyorkan	
oleh orang yang	
terdekat dengan saya.	

## Perceived Cost / Kos yang Dipersepsikan

No	Question	1	2	3	4	5
		Strongly	Disagree	Neutral	Agree	Strongly
		Disagree				Agree
1	I think the cost of a	1	2	3	4	5
	halal logistics service is					
	reasonable / Saya rasa					
	kos perkhidmatan					
	logistik halal adalah					
	berpatutan.					
2	Halal logistics service	1	2	3	4	5
	delivers more benefits					
	than I would spend /					
	Perkhidmatan logistik					
	halal memberikan lebih					
	banyak faedah					
	daripada yang saya					
	akan belanjakan.					
3	I want to pay for halal	1	2	3	4	5
	logistics service, albeit					
	at a higher cost / Saya					
	ingin membayar					

	perkhidmatan logistik halal, walaupun dengan kos yang lebih tinggi.					
4	I think the cost of halal logistics service is worth to pay for / Saya rasa kos perkhidmatan logistik halal berbaloi untuk dibayar.	1	2	3	4	5
5	I think the cost of halal logistics service is reasonable for customers / Saya rasa kos perkhidmatan logistik halal adalah berpatutan kepada pelanggan-pelanggan.	1	2	3	4	5

## PART C: THE WILLINGNESS TO PAY FOR HALAL LOGISTICS

This section is to collect your data on willingness of non-Muslims to pay for halal logistics. Kindly answers all questions and circle the appropriate options/ number for each statement. Each number is a representative of the following scale:

Bahagian ini adalah untuk mengumpul data mengenai kesanggupan orang bukan Islam untuk membayar logistik halal. Sila jawab semua soalan dan bulatkan pilihan / nombor yang berkenaan bagi setiap kenyataan. Setiap nombor adalah wakil kepada skala yang berkenaan:

- (1) Strongly Disagree / Sangat Tidak Setuju
- (2) Disagree / Tidak Setuju

(3) Neutral / Neutral

- (4) Agree / Setuju
- (5) Strongly Agree / Sangat Setuju

Willingness To Pay For Halal Logistics / Kesanggupan untuk membayar logistik halal.

No	Question	1	2	3	4	5
		Strongly	Disagree	Neutral	Agree	Strongly
		Disagree				Agree
1	I'm willing to pay for	1	2	3	4	5
	halal logistics because					
	the benefits outweigh					
	the cost / Saya sanggup					
	membayar logistik					
	halal kerana faedahnya					
	melebihi kos.					
2	It is easier for me to	1	2	3	4	5
	accept products					
	handled by well-					
	established and highly					
	reputable halal 3PL /					
	Lebih mudah bagi saya					
	untuk menerima					
	produk yang					
	dikendalikan oleh 3PL					
	halal yang mantap dan					
	bereputasi tinggi.					
3	I believe paying extra	1	2	3	4	5
	cost could help to					
	ensure the halal					

	product is safety to					
	consume /					
	Saya percaya					
	membayar kos					
	tambahan boleh					
	membantu memastikan					
	produk halal adalah					
	selamat untuk					
	dimakan.					
4	I am willing to pay	1	2	3	4	5
	more to make sure the					
	halal product is					
	transported without any					
	contamination / Saya					
	sanggup membayar					
	lebih untuk memastikan					
	produk halal diangkut					
	tanpa sebarang					
	pencemaran.					
5	I am willing to pay	1	2	3	4	5
	more for halal logistics					
	service to purchase					
	100% halal product /					
	Saya sanggup					
	membayar lebih untuk					
	perkhidmatan logistik					
	halal untuk membeli					
	produk halal 100%.					