



**BUILDING SUPPLY CHAIN PERFORMANCE THROUGH HALAL  
LOGISTICS PRACTICES AND ORGANIZATIONAL CAPABILITIES**

**By**

**NAJAA BINTI ABD MUBIN**

**Thesis Submitted to the School of Graduate Studies, Universiti Putra  
Malaysia, in Fulfilment of the Requirements for the Degree of Doctor of  
Philosophy**

**May 2021**

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Abstract of thesis presented to the Senate of Universiti Putra Malaysia in  
fulfilment of the requirement for the degree of Doctor of Philosophy

## **BUILDING SUPPLY CHAIN PERFORMANCE THROUGH HALAL LOGISTICS PRACTICES AND ORGANIZATIONAL CAPABILITIES**

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**May 2021**

**Chairman : Prof. Azmawani Abd Rahman, PhD**  
**Faculty : School of Business and Economics**

Halal industry is expanding worldwide. Therefore, it requires strong supply chain management to enhance halal business efficiency and preserve credibility through halal logistics process. However, studies on halal logistics remain limited and isolated. Therefore, this study aims to examine factors of implementation of halal logistics practices towards supply chain performance. The criteria of halal logistics practices consist of whole logistics operations, management, risk analysis, and risk process. The firms can implement these practices by analyzing their capabilities and stakeholder influences. Besides, the knowledge management process acted as a moderator while halal logistics practices mediate the relationships between organizational capabilities and supply chain performance.

Meanwhile, knowledge management process is tested as a moderator on the relationships between organizational capabilities and stakeholders' influence towards halal logistics practices. A total of 4405 questionnaires were distributed to manufacturers of halal foods, cosmetics and pharmaceutical in six states within Malaysia. At the end of data collection period, a total of 270 useful questionnaires were collected for further analysis. The IBM SPSS statistics and SmartPLS 3.0 were applied to validate the research model and test the proposed hypotheses.

The result confirmed that organizational capabilities and stakeholders' influences are positively related to halal logistics practices. Meanwhile, halal logistics practices are positively related to supply chain performance. Besides that, halal logistics practices were found to mediate the relationship between organizational capabilities and supply chain performance. Finally, this study found that the knowledge management process moderates the relationship between

organizational capabilities and stakeholders' influences towards halal logistics practices. Overall, the findings of this study provide empirical evidence and insight that firms can build supply chain performance through holistic halal logistics practices. Building strong organizational capabilities and well-managed stakeholder influence can enhance the halal logistics practices in the firm's management responsibilities, risk management analysis, risk management process, and operation. This study has provided theoretical and practical implications to the existing body of research and manufacturers in Malaysia. The industry practitioners can use the results of this study as a strategy to improve their halal logistics practices if superior supply chain performance is desired.

Keywords: Halal Logistics Practices, Supply Chain Performance, Organizational Capabilities, Stakeholder Influences, Knowledge Management, Malaysia

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia  
sebagai memenuhi keperluan untuk Ijazah Doktor Falsafah

**PEMBANGUNAN PRESTASI RANTAIAN BEKALAN MELALUI PRAKTIKAL  
LOGISTIK HALAL DAN KEUPAYAAN ORGANISASI**

Oleh

**NAJAA BINTI ABD MUBIN**

**Mei 2021**

**Pengerusi : Prof. Azmawani Abd Rahman, PhD**  
**Fakulti : Sekolah Perniagaan dan Ekonomi**

Industri halal telah berkembang pesat di seluruh dunia. Oleh itu, ia memerlukan pengurusan rantai bekalan yang kuat untuk meningkatkan kecekapan perniagaan halal dan menjaga kredibiliti melalui proses logistik halal. Walau bagaimanapun, kajian mengenai logistik halal masih terhad dan terencil. Oleh itu, kajian ini bertujuan untuk mengkaji faktor-faktor dalam pelaksanaan amalan logistik halal terhadap prestasi rantai bekalan. Kriteria amalan logistik halal terdiri daripada keseluruhan operasi logistik, pengurusan, analisis risiko and proses risiko. Firma boleh melaksanakan amalan ini dengan menganalisis keupayaan dan pengaruh pihak berkepentingan. Selain itu, proses pengurusan pengetahuan bertindak sebagai moderator sementara amalan logistik halal menjadi penghubung hubungan antara kemampuan organisasi dan prestasi rantai bekalan.

Sementara itu, proses pengurusan pengetahuan diuji sebagai moderator di antara hubungan kemampuan organisasi dan pengaruh oleh pihak berkepentingan terhadap amalan logistik halal. Sebanyak 4405 soal selidik diedarkan di kalangan pengurus pengeluar produk halal, termasuk pengeluar makanan halal, kosmetik dan farmasi di enam negeri di Malaysia. Pada akhir tempoh pengumpulan data, sejumlah 270 soal selidik yang berguna dikumpulkan untuk analisis lebih lanjut. Statistik IBM SPSS dan SmartPLS 3.0 digunakan untuk mengesahkan model kajian dan menguji hipotesis yang dicadangkan.

Hasil kajian telah mengesahkan bahawa keupayaan organisasi dan pengaruh oleh pihak berkepentingan mempunyai hubungan positif dengan amalan logistik halal. Sementara itu, amalan logistik halal adalah secara positif berkait dengan

prestasi rantaian bekalan. Selain itu, amalan logistik halal didapati dapat mempengaruhi hubungan antara kemampuan organisasi dan prestasi rantaian bekalan. Akhirnya, kajian ini mendapati bahawa proses pengurusan pengetahuan telah memoderasi hubungan antara keupayaan organisasi dan pengaruh oleh pihak berkepentingan terhadap amalan logistik halal. Secara keseluruhannya, penemuan kajian ini memberikan bukti kukuh serta pandangan bahawa firma dapat membina prestasi rantaian bekalan melalui amalan logistik halal secara menyeluruh. Membina kemampuan organisasi yang kuat dan pengaruh pihak berkepentingan yang terurus dapat meningkatkan amalan logistik halal dalam tanggungjawab pengurusan firma, analisis pengurusan risiko, proses pengurusan risiko dan operasi. Kajian ini telah memberikan implikasi dari segi teori dan praktikal kepada badan penyelidikan dan pengeluar yang ada di Malaysia. Pengamal industri boleh menggunakan hasil kajian ini sebagai strategi untuk meningkatkan amalan logistik halal mereka sekiranya prestasi rantaian bekalan yang unggul diinginkan.

Kata kunci: Amalan Logistik Halal, Prestasi Rantaian Bekalan, Keupayaan Organisasi, Pengaruh Pihak Berkepentingan, Pengurusan Pengetahuan, Malaysia

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I certify that a Thesis Examination Committee has met on (date of viva voce) to conduct the final examination of Najaa binti Abd Mubin on her thesis entitled "**Building Supply Chain Performance through Halal Logistics Practices and Organizational Capabilities**" in accordance with the Universities and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U.(A)106] 15 March 1998. The Committee recommends that the student be awarded the Doctor of Philosophy.

Members of the Thesis Examination Committee were as follows:

**Haslinda binti Hashim, PhD**

Associate Professor  
School of Busines and Economics  
Universiti Putra Malaysia  
(Chairman)

**Nor Siah binti Jaharudin, PhD**

Senior Lecturer  
School of Busines and Economics  
Universiti Putra Malaysia  
(Chairman Assistant)

**Suhaimi bin Ab. Rahman, PhD**

Professor  
School of Busines and Economics  
Universiti Putra Malaysia  
(Internal Examiner)

**Nolila binti Mohd Nawi, PhD**

Associate Professor  
Faculty of Agriculture  
Universiti Putra Malaysia  
(Internal Examiner)

**Irdrianawati Usman, PhD**

Associate Professor  
Faculty of Economics and Business  
Universitas Airlangga  
Indonesia  
(External Examiner)

---

**(ZURIATI AHMAD  
ZULKARNAIN, PhD)**  
Professor and Deputy Dean  
School of Graduate Studies  
Universiti Putra Malaysia  
Date:



This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfillment of the requirement for the degree of Doctor Philosophy. The members of the Supervisory Committee were as follows:

**Azmawani binti Abd. Rahman, PhD**

Professor,  
School of Business and Economics  
Universiti Putra Malaysia  
(Chairman)

**Nitty Hirawaty binti Kamarulzaman, PhD**

Associate Professor,  
Faculty of Agriculture  
Universiti Putra Malaysia  
(Member)

**Raja Nerina binti Raja Yusof, PhD**

Associate Professor,  
School of Business and Economics  
Universiti Putra Malaysia  
(Member)

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Name of Member of  
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## LIST OF ABBREVIATIONS

APEC	Asia-Pacific Economic Cooperation
AVE	Average Variance Extracted
CB-SEM	Covariance-based Structural Equation Modelling
CEO	Chief Executive Officer
CFA	Confirmatory Factor Analysis
CMV	Common Method Variance
CR	Composite Reliability
DC	Dynamic Capabilities
DV	Dependent Variable
EFA	Exploratory Factor Analysis
$f^2$	Effect size
GDP	Gross Domestic Product
GMP	Good Manufacturing Practices
HACCP	Hazard Analysis Critical Control Point
HDC	Halal Development Corporation Berhad
IHI Alliance	International Halal Industry Alliance
ISO	International Organization for Standardization
IV	Independent Variable
JAKIM	Department of Islamic Development Malaysia
LSP	Logistics Service Provider
MAQIS	Department of Malaysian Quarantine and Inspection Services
MS	Malaysian Standard
NGO	Non-governmental Organization

OIC	Organizational of Islamic Cooperation
PLS-SEM	Partial Least Square-Structural Equation Model
PPIM	Persatuan Pengguna Islam Malaysia
Q <sup>2</sup>	Predictive Relevance
R <sup>2</sup>	Coefficient of Determination
RBV	Resource-based view
RM	Ringgit Malaysia
SC	Supply Chain
SCM	Supply Chain Management
SCOR	Supply Chain Operations Reference
SCP	Supply Chain Performance
SME	Small and Medium-sized Enterprises
SPSS	IBM SPSS statistics
TPP	Trans-Pacific Economic Partnership
USA	United States of America
VIF	Variance Inflation Factor
WTO	World Trade Organization

## CHAPTER 1

### INTRODUCTION

This chapter covers the background of the study, followed by an overview of the halal industry in Malaysia and halal certification. Next, the research problem that comprised industrial players and gaps from previous studies on halal logistics was stated. Five (5) research questions and seven (7) specific objectives were formulated based on the research problem. Additionally, this chapter provides the study's significance that explains why the investigation into SCP in the halal logistics industry was timely and relevant. Furthermore, the working definition and determinants of SCP used and the scope of this study were highlighted. Last but not least, a summary is provided to conclude this chapter.

#### 1.1 Background of Study

Global Muslims population in 2019 was reached 1.9 billion, which anticipated doubling in size by 2060 by reaching 3 billion people and accounting for 31.1 percent of the global population (Thomson Reuters, 2020). Malaysia led the overall Global Islamic Economy Indicator rankings for the eighth year in 2020. Malaysia continues to show robust growth in all industries, with export to OIC numbers rising in food, pharmaceuticals, and media and recreational. Strong motivation and governance capabilities have enabled Malaysia to score higher than other countries with more significant export volumes. These factors had strengthened Malaysia's role in the global regulation of halal products. According to Thomson Reuters (2019), Muslims spending on halal foods has grown at 6.3 percent with estimated market size of USD 1,972 billion in 2024, Islamic finance (estimated market size of USD 3,472 billion), modest fashion (estimated market size of USD 402 billion), halal media and recreation (estimated market size of USD 309 billion), halal travel (estimated market size of USD 274 billion), halal pharmaceutical (estimated market size of USD 134 billion), and cosmetics (estimated market size of USD 95 billion) are significant opportunities for future investment in global halal brands.

Since Muslims are obligated to use halal products or services, the demand and supply for the halal market continue to grow. In addition, the increase of awareness of the importance of compliance with the halal standard, raising personal income, and a growing number of Muslim populations can contribute to the raising factors of the halal market (Abdul-Talib and Abd-Razak, 2013; Adams, 2011). Furthermore, the halal market received significant acceptance from non-Muslims because it brings the perception of quality, hygiene, and safety (Ambali and Bakar, 2013). For instance, Wilson and Liu (2010) discussed that halal brands were accepted by non-Muslim because it offers the characteristics of fair trade, ethical, and honesty in a business transaction.

On the other hand, supply chain management has evolved as an essential field in providing firms with long-term rivalry strategies (Sundram, Chandran, and Bhatti, 2016). Supply chain management can help firms increase their productivity by boosting the integration of previously independent firms. The research on measuring supply chain performance is replete with measures for multiple evaluation purposes and measurement frameworks that provide a theoretical structure for comprehending supply chain performance and meeting firm business requirements (Lai, Ngai, and Cheng, 2012; Sezen, 2008; Whitten, Green, and Zelbst, 2012; Cirtita and Glaser-Segura, 2021; Anatan, 2014). As a result, the literature acknowledges that supply chain performance measurements are dynamic and offer specific tools to facilitate SCM. Thus, the study of measuring supply chain performance in halal logistics practices is feasible and will have a significant impact on research and practical implications, as supply chain performance has a substantial impact on firms' sustainability.

Furthermore, when halal products are exposed to contamination during transport or storage, their status is easily jeopardized. As a result, halal logistics control is critical for ensuring the integrity of halal goods during consumption. Halal manufacturers must take the initiative to integrate halal logistics requirements throughout their supply chain. This study can improve supply chain performance by illustrating to logistics players the key to managing firms' resources and capabilities. Ability to understand this relationship will aid halal product manufacturers in strengthening their supply chain performance and boosting their market position.

In addition, with expanding global markets, innovative companies are leading the charge by carving new and niche marketing to gain a competitive edge. However, even though halal is a lucrative business with strong support from various countries towards the halal economy, the halal industry is still facing challenges in its global outreach. As of February 2019, statistics from the Department of Islamic Development Malaysia (JAKIM) displayed 78 foreign halal certification bodies and authorities from 45 countries recognized by JAKIM, as shown in Table 1.1.

**Table 1.1: Foreign halal certification bodies and authorities**

No	Country	No of Organization	No	Country	No of Organization
1	Australia	6	24	Lithuania	1
2	Austria	1	25	Maldives	1
3	Argentina	1	26	Morocco	1
4	Bangladesh	1	27	Netherlands / Holland	3
5	Belgium	1	28	New Zealand	2
6	Bosnia and Herzegovina	1	29	Pakistan	2
7	Brazil	2	30	Philippines	3
8	Brunei	1	31	Poland	2
9	Canada	2	32	Singapore	1
10	China	5	33	South Africa	3
11	Chile	1	34	South Korea	1
12	Croatia	1	35	Spain	1
13	Egypt	1	36	Sri Lanka	1
14	France	1	37	Switzerland	1
15	Germany	1	38	Taiwan	1
16	India	3	39	Thailand	1
17	Indonesia	1	40	Turkey	2
18	Iran	1	41	Ukraine	1
19	Ireland	1	42	United Arab Emirates	1
20	Italy	2	43	United Kingdom	2
21	Japan	7	44	United States of America	2
22	Kazakhstan	2	45	Vietnam	1
23	Kenya	1		<b>TOTAL</b>	<b>78</b>

(Source: JAKIM, 2019)

The multiple authorized halal certification bodies coming from various countries, as indicated in Table 1.1, signify the non-standardization of halal certificates worldwide, which may cause issues and difficulties to the supply chain activities. In addition, different firms of halal certification bodies have produced other logos for their halal goods. Thus, cross-border activities require extensive logistics functions to avoid halal products become contaminated with the raw material during the change of custody. As such, knowledge adoption of halal logistics is pertinent to ensure the development of the halal industry. Malaysia aims to



become the gateway of access for the Muslim market to provide a steady and efficient supply of halal products to Muslims worldwide (HDC, 2016).

Knowledge management has the ability to act as a moderator in connecting firms strategy and effectiveness. The success of knowledge management is believed to have the potential of enhancing firm's competitive advantage, employee relations and development, innovation and lower costs (Zheng, Yang and McLean, 2010). In halal logistics, knowledge management is undoubtedly a key component of supply chain control (Samsi, Ibrahim, and Tasnim, 2012). All supply chain stakeholders need to improve their business operations by understanding the learning process and understanding halal logistics best practices. As a result, firms may reach their desired competitive advantage by applying knowledge management processes to oversee the development of halal logistics practices.

Introducing new practices such as halal logistics practices in firms requires advanced understanding, in which it should be consistent with the firm objectives and purpose of the implementations. At the same time, Tieman (2012) highlighted that Halal requires a supply chain strategy in which the value chain activities are entirely aligned with Syariah requirements. Increased demand for Halal products should impact demand for other Halal services, particularly Halal transportation and warehousing, because all products must use these services. Thus, these theoretical gaps are further discussed in research problem section.

## **1.2 Overview of Halal Industry in Malaysia**

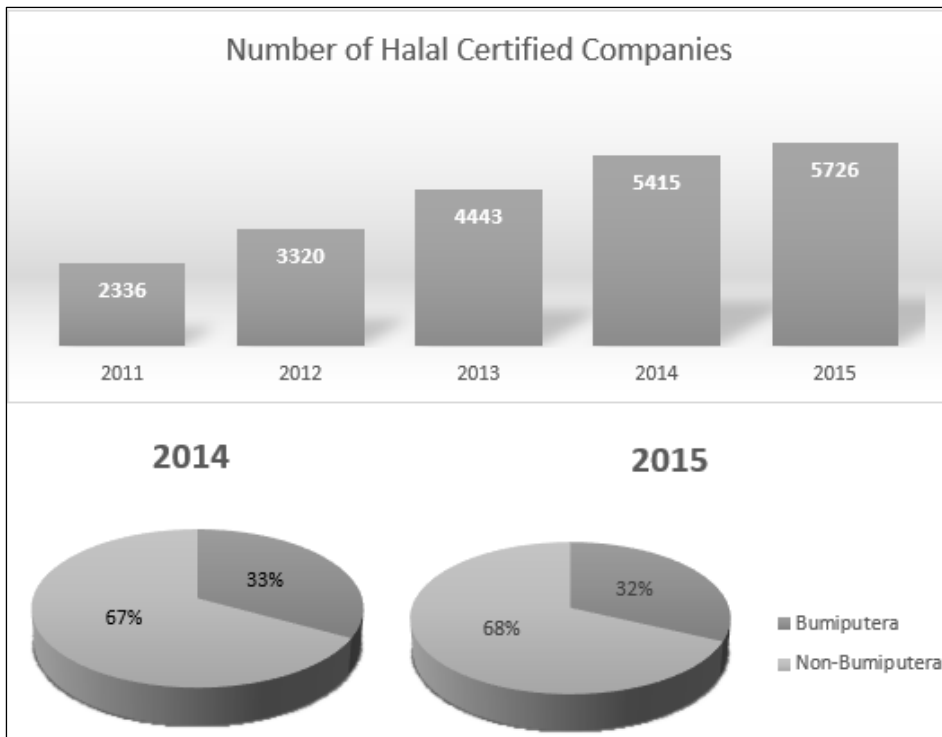
Nowadays, halal is no longer a religious issue. It is in business and trade to become a global symbol for quality assurance and lifestyle choice. In addition, a unified halal standard is not only on the ingredients of the products but also includes the activities along the supply chain. Consumers in both Muslim and non-Muslims countries are incredibly selective with the products offered in the markets. Halal products are benchmarks for the selections since they provide reliable assurance that represents hygiene, quality, and safety (Kadir et al., 2016). It does not contain non-halal and unclean ingredients and is processed and produced through equipment that is not polluted with non-halal materials.

Malaysia acts as a pioneer of the halal industry with more than 40 years of experience in halal industry development. It began when the Research Centre for Islamic Affairs Division in the Prime Minister Office started issuing halal certification letters for those products that met the halal requirement in 1974. In 2000, Malaysia became the first country to document halal standards (JAKIM, 2018). Malaysia establishes halal standards ranging from production, preparation, handling, and food storage to general guidelines for halal products. Various halal products have been found and expanded in Malaysia, including foods, cosmetics, pharmaceutical, banking, and nowadays modest fashion,

medical tourism, and medical devices. Thus, robust standards and practices in halal logistics are essential to control the integrity of halal emerging markets.

The halal industry in Malaysia started to become a topic of discussion officially in 2008. As a result, Malaysia has come out with one specific plan called Halal Industry Master Plan (HIMP), which covers 2008 to 2020. In addition, HIMP 2.0 (2018-2030) launched a focus on halal traceability services, enhancing human capital development, formulating policies and legislation, strengthening capacity building, and promoting halal through halal programs and upgrading skills (HDC, 2018). According to HIMP 2.0, there is a gap in logistics awareness that needs to be deeply interpreted by expertise to support the growth of halal industry demand and ensure global trust in maintaining halal integrity 'from farm to fork.' By focusing on that, various halal logistics barriers and challenges can be overcome and resolved by multiple parties.

Demands for halal products are increasing following by the enforcement of halal self-declaration using a generic halal logo. As of December 2015, the number of halal-certified companies by JAKIM increased 59% to 5,726 firms compared with 2,336 firms in 2011. Based on the result, 75% are small-medium enterprises (SMEs), and the remaining are multinational companies. Referring to Figure 1.1, JAKIM has highlighted that 68% of halal-certified manufacturers in 2015 were owned by non-Bumiputera, and they are also non-Muslims. Halal basic knowledge is essential for each person who is responsible for managing halal goods. Managing halal logistics principles, including segregation of goods, Islamic cleansing, and selecting specific warehouse locations, requires a person with halal knowledge. Thus, this study has provided a clear process flow on halal logistics implementation and help all industry players to understand halal practices further and directly increase the firms' supply chain performance.



**Figure 1.1: Halal Certified Companies by JAKIM (2011-2015)**  
 (Source: Halal Hub Department JAKIM, 2016)

HDC (2019) reported that the group of countries in the Asia-Pacific Economic Cooperation (APEC) was Malaysia's biggest halal export market in 2018 with RM26.8 billion, followed by the group of countries in the Trans-Pacific Economic Partnership (TPP) with an export value of RM13.6 billion. Furthermore, the most prominent Malaysian halal export destinations include countries where most of its population are non-Muslims, implying halal products can penetrate any market. For example, Singapore (RM 4.6 billion), China (RM 4.5 billion), Japan (RM 2.5 billion), and USA (RM 2.4 billion) have the main population of non-Muslims (HDC, 2019).

Even though Halal Malaysia is recognized worldwide, it faces challenges in staying ahead of its competitors. The flaw was caused by a lack of collaboration between parties in logistics activities and Halal certification authorities (Zailani et al., 2017; Haleem and Khan, 2017; Ibrahimi et al., 2012). Transportation is a complicated function to establish Halal logistics truthfulness. Logistics companies that use Halal transportation can be convinced that all goods in their services are handled according to Shariah principles. However, if the other parties are not practicing Halal logistics, the chances of spoilage and pollutants are increased due to a lack of collaborative efforts between logistics parties.

Accordingly, Malaysia has developed the Halal Industry Master Plan 2030 (HIMP 2030) to facilitate Malaysia's capabilities towards the upliftment of its halal industry. The HIMP 2030 compiles an analysis of halal industry trends and projections, both globally and locally. In 2020, Malaysia are expected to contribute 8.7% of its Gross Domestic Product to halal contribution exports. Malaysia contributes approximately 7.8% of GDP, according to Halal Development Corporation Berhad (HDC), as of December 2018. Malaysia is efficient in utilizing its potential as a Muslim majority country, as evidenced by the large percentage of the halal industry's contribution to the country. Furthermore, because the halal industry is now viewed as a source of economic growth, these facts are critical to comprehend. As a result, providing halal logistics to customers in the business world is essential to ensure product safety and avoid contamination with non-halal products.

**Table 1. 2: Growth Target on Halal Industries**

Item	2013*	2018**	2020*
<b>Contribution to GDP (%)</b>	-	7.8	8.7
<b>Halal Certified Exporters</b>	645	1,401	1,600
<b>Halal Export Value (RM billion)</b>	32.8	40.8	50
<b>Employment</b>	165,000	350,00	330,000

(Source: \*Eleventh Malaysia Plan, Strategy Paper 18: Transforming Services Sector; \*\*Halal Industry Master Plan 2030)

Malaysia is the most developed halal food economy. The commitment to become the biggest halal product exporter among countries in the Organization of Islamic Cooperation (OIC) was proven via the Global Islamic Economic Report 2018/2019. Malaysia overall leads the Islamic economy ecosystem for the fifth year. As the halal industry is incredibly accepted worldwide globally, the integrity or reliability of the products is crucial for Muslims' loyalty. Halal demand was addressed throughout the supply chain from the point of origin until the end consumer. Therefore, offering halal logistics to the consumer in business industries is essential to protect product safety and avoid contamination with non-halal products. Thus, logistics players have an indispensable role in facilitating global halal products, including halal foods, halal cosmetics, and halal pharmaceutical supply chains.

#### Halal certification

The halal industry is a strong promoter of socio-economic growth in Malaysia. Therefore, tremendous efforts from the government to improve governance, capacity-building programs, and promotions within industries have been intensifying. As a result, Malaysia has developed a halal Malaysian Standard (MS) to meet the demand for halal products and market relevance. As a result, MS is highly regarded at the national and international level as the development

is according to the principles laid by the World Trade Organization (WTO) and the International Organization of Standardization (ISO).

According to the Standards of Malaysia Act 1996, standard means

*"a document established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context, with which compliance is not mandatory." (Section 2, Act 549)*

Meanwhile, Malaysian Standard means *a standard declared under section 15. (Section 15, Act 549)*. Thus, the Department of Standards Malaysia mandate was to develop national standards and accredit conformity assessment bodies. MS was developed in 25 sectors in Malaysia and Halal Standards within one of their authorities. In the first quarter of 2019, several Malaysian standards on halal being revised, including a review of the MS1500:2019, MS2200-1, and MS2400 series on halal logistics. The Malaysian Standard *Halalan-Toyyiban* Pipeline Assurance (MS2400:2010) was reviewed and changed to Halal Supply Chain Management System (MS2400:2019). Some improvements were made to the Arabic terminology, such as *halalan-toyyiban* is replaced with halal, shariah ritual cleansing is replaced with sertu, and *halalan-toyyiban* committee is replaced with the internal halal committee. A revised version in the Malaysian halal standard is mostly to enhance the content of the standards in line with recent changes in the processing and production of the halal product. These standards are developed to suit the requirement and needs of the country. The list of MS on halal are as below:

**Table 1. 3: List of Halal Malaysian Standard**

No	Malaysia Standard Code	Malaysia Standard Name
1	MS1500:2019	Halal Food– General guidelines
2	MS2424:2012	Halal Pharmaceuticals – General Guidelines
3	MS 2634:2019	Halal Cosmetics – General Guidelines (First Revision)
4	MS 2200-2:2008	Islamic Consumer goods – Part 2: Usage of Animal Bone, Skin and Hair – General guidelines
5	MS 2400-1:2019	Halal Supply Chain Management System – Part 1: Transportation – General Requirements (First Revision)
6	MS 2400-2:2019	Halal Supply Chain Management System – Part 2: Warehousing – General Requirements (First Revision)
7	MS 2400-3:2019	Halal Supply Chain Management System – Part 3: Retailing – General Requirements (First Revision)
8	MS 1900:2005	Quality management systems – requirements from Islamic perspectives
9	MS 1900:2014	Shariah-based quality management systems – Requirements with guidance

**Table 1.3: continued**

10	MS 2300:2009	Value-based management system – Requirements from an Islamic perspective
11	MS 2393:2013	Islamic and halal principles – Definitions and interpretations on terminology
12	MS 2565:2014	Halal packaging – General guidelines
13	MS 2594:2015	Halal chemicals for using portable water treatment – General guideline
14	MS 2610:2015	Muslim friendly hospitality services - Requirements
15	MS 2627:2017	Detection of porcine DNA – Test method – Food and food products

(Source: Department of Standards Malaysia, as of 3 January 2019)

Stakeholders are engaged and participate actively in the development process of standards. In this research, there are three significant certificates covered which are MS1500:2019 (halal food), MS2424:2012 (halal pharmaceuticals), and MS2634:2019 (halal cosmetics). Respondents for this research are halal-certified manufacturers, either certified halal foods, halal pharmaceuticals, or halal cosmetics. However, they have yet to be certified with the Malaysia Standard Halal Supply Chain Management System (MS2400:2019) (Formerly known as *Halalan-Toyyiban* Pipeline Assurance (MS2400:2010)).

### 1.3 Research Problem

Globalization has pressured many businesses to broaden their resources and improve their internal practices to new levels. Outside of the organization, the focus is increasingly shifting to external collaboration and networking. This requirement has become critical for remaining competitive both locally and across borders. Organizations must have upstream solid and downstream integration of their complex network of business relationships to achieve this. Many businesses have implemented supply chain management (SCM) to improve operational effectiveness and achieve organizational goals such as increased customer satisfaction, efficient resource allocation, and increased profitability (Lai, Ngai, and Cheng, 2002). Firms must measure their performance through the supply chain (SC) as they transition to supply chain management (SCM). Supply Chain Performance (SCP) can achieve the ultimate customers' quality and cost requirements (Whitten, Green, and Zelbst, 2012; Chen and Paulraj, 2004). Although managers eventually took responsibility for firm performance, the firm's success depends on the performance of the supply chain. Several studies have been conducted in various sectors to measure performance, including textiles sectors (Ülgen and Forslund, 2015), tourism industry (Babu, Arshinder, and Rajendran, 2013), and automotive industry (Schmitz and Platts, 2004). As a result, halal firms must accelerate their halal practices by emphasizing the importance of internal capabilities and external pressure and implementing best practices within their organizations.

Furthermore, none of the SCP measurements focuses on the integrity in new practices implementation which is a massive gap that needs to be analyzed. Inadequate coordination and collaboration in firms lead to the lack of flexibility in halal practices, leading to halal integrity breaches. Thus, best logistics practices can motivate key halal industry players to identify areas for improvement to maximize SC efficiency.

Thomson Reuters has reported that Malaysia has been leading the Islamic Economy ecosystem. Malaysia was led by its robust and comprehensive halal standards, extensive halal ecosystem by creating halal hubs, and well-developed halal product manufacturers (2018). Islamic economy companies played an important role in addressing consumer needs and played a critical role in driving economic growth and activity. Thus, many researchers have investigated the various issues in halal industry development, especially in Malaysia. One of the challenges to providing halal products and services is creating new competitive advantages for the company. Halal is beyond food consumption, restriction, or even ritual slaughter (Abdul-Talib and Abd-Razak, 2013; Lada, Tanakinjal, and Amin, 2009; Wilson and Liu, 2010). Instead, halal is considered a business trademark and a symbol of quality (Lada et al., 2009). The halal product does not only concern food products or matters during the point of consumption. It includes all SC networks from the start of origination of raw materials until final consumption (Omar, 2015; Ab Talib, Rubin, and Zhengyi, 2013), which is known as from "*farm-to-fork*" (Tieman, Vorst, and Che Ghazali, 2012). Logistics functions as a bridge between production points of goods until the end of a consumer asking to purchase. Thus, halal logistics is fundamental in ensuring halal products' integrity, including foods, cosmetics, and pharmaceuticals. Previous research has encountered halal logistics specifically for logistics services providers, halal products, halal SC, and halal value chain. Many researchers have expressed that main issues regarding halal logistics such as lack of halal certification authority (Ab Talib and Abdul Hamid, 2014b), halal integrity (Haleem and Khan, 2017; Tieman et al., 2012), on certification process (Ab Talib et al., 2013), on halal transparency (Zailani, Afriffin, Wahid, Othman, and Fernando, 2010) and also lack of certified halal logistics services providers (Zailani, Iranmanesh, Aziz, and Kanapathy, 2017; Ab Talib et al., 2013). The importance of addressing these issues and challenges could enhance the opportunity to motivate the practitioners to start halal logistics practices. This study tests the actual environment of halal logistics practices and their impact on the SCP of halal companies.

Managers are more likely to take actions when they foresee needs from stakeholders, which is essential to the firm's survival. Previous researchers have investigated the broader scope of stakeholder contributions to the firm's long-term value and the influence of stakeholders towards the firms' responses on innovation implementation (Meixell and Luoma, 2015). However, the previous research on stakeholder influences was in conventional logistics such as environmental practices (Sarkis, Gonzalez-Torre, and Adenso-Diaz, 2010) and sustainability (Sharma and Henriques, 2005). On the other hand, halal logistics practices required a few additional implementations and regulations bound with shariah requirements, such as segregation of halal and non-halal goods (Tieman, Ghazali and Vorst, 2013) and spiritual cleaning (*sertu*) (Ahmad and

Shariff, 2016). Halal products also involve consistent monitoring and controlling activities to maintain the quality of halal goods. Due to this unique environment of the halal industry and the complexity of the supply chain resulting from the inconsistency of the halal certification, there is a specific need to study stakeholder influences towards halal logistics practices. Therefore, empirical evidence of stakeholder influences on halal logistics practices is pertinent. Previous research by Samsi, Tasnim, and Ibrahim (2011) and Haleem et al., (2018) demonstrated that the challenges of stakeholders in a halal supply chain could be an obstacle towards halal logistics practices. A quantitative study is required to generalize the idea, test the empirical study hypothesis, and apply it to industry players and consumers.

Halal manufacturers must anticipate how and when to embrace halal SCM to ensure halal integrity for Muslim consumers and safeguard their products (Asiaei, Aziz, and Zailani, 2014). A guideline for manufacturers to assist them in managing and designing efficient halal SC flows to deliver trust and credibility to Muslim consumers is becoming increasingly important. As logistics control is at the heart of the SC model (Tieman et al., 2012), industry players must implement halal logistics practices to support the efficient SCP. Previous research has identified issues such as a lack of shariah compliance personnel with knowledge of halal management (Ab Talib and Abdul Hamid, 2014b; Pahim, Jemali, and Mohamad, 2012) and halal logistics as being inefficient and requiring significant capital investment (Ab Talib et al., 2013). These hurdles have contributed to Malaysia's halal logistics implementation slowing growth compared to the demand for halal food. High halal logistics costs are incurred when the operation handles various products. In addition, there is a risk of contamination with halal and non-halal products due to the additional cleaning and segregation procedure that must be followed. It demonstrates that organizational capabilities such as financial capabilities must be considered when adopting halal practices in logistics activities. The level of the economic power of Malaysian manufacturers is critical to supporting halal logistics practices.

JAKIM reported in 2016 that 49 logistics operators had obtained halal logistics certification, whereby in 2020, only 66 companies possess halal logistics certification. It signifies that halal logistics certification accreditation grew by only 34% over the same period, compared to 72% for halal food certification accreditation. The slow growth in the number of halal logistics certified companies signalled the inability to sustain the halal logistics operations, especially for small companies. It was reported that some key reasons might due to the lack of preparation among firms on their management aspects (Ahmad Tarmizi, Kamarulzaman, Abd Latiff, and Abd Rahman, 2014). In addition, halal logistics could lead to a higher cost of operations due to the preparation of dedicated facilities, equipment, and infrastructure and its requirement for additional capital of investment. The literature claimed that some companies invested in halal logistics operations were underutilized (Ab Talib, Hamid, Zulfakar, et al., 2015). As a firm, logistics players need to be prepared in various aspects of consequences, including financial capabilities, management capabilities, skill and knowledge capabilities, and operational capabilities in adopting halal logistics practices for their operations.



According to The Star Online (2018), JAKIM expected a 10% growth of the halal exports for 2018 from RM45 billion in 2017. The development is due to an increase in demand for hygienic processes and safety goods preparation by the manufacturers in Malaysia. The reliable system and systematic method of halal logistics practices can ensure the halal integrity of the products (Abd Rahman and Abdul, 2017). Thus, controlling the product's supply chain is the manufacturer's responsibility to preserve and sustain halal integrity for end users. Although logistics is pertinent, there are no specific studies on halal logistics practices. Previous researchers have investigated various issues on halal logistics such as halal risk management logistics management as part of supply chain management, sertu cleansing (Ahmad and Shariff, 2016), control and assurance activities (Tieman and Che Ghazali, 2014), as well as halal compliance critical point (Kamaruddin, Ibrahlim, and Shabudin, 2012a). Despite these previous researches, the measurement of halal logistics remains limited and in isolation. A comprehensive review of *Halalan-Toyyiban* Assurance Pipeline (MS2400:2010) by Malaysia Standard on halal logistics practices includes management responsibility, risk management (analysis and process), and operation. Thus, this study will look at a holistic perspective on halal logistics practices. Since the research has to be holistic guidelines for the industry players, a comprehensive measurement of halal logistics practices has been conducted in this study.

Previously, Malaysians were shocked when the Department of Malaysian Quarantine and Inspection Services (MAQIS) discovered four containers containing a mix of halal and non-halal frozen meat (lamb meat and pig intestines) stored together at Tanjung Pelepas Port (NST,2017). In addition, at the end of 2020, Malaysia was stunned by the news of the detention of 1,500 tonnes of illegal meat cartel smuggling syndicates from four foreign countries, namely China, Ukraine, Brazil, and Argentina. The meat cartel syndicate revelation has intrigued the interest of several parties because it is claimed to have been operating in Malaysia for many years. These criminal syndicates denied the safety of imported meat, supply chain integrity, legal slaughterhouses, and halal meat processing. Because of the rise in food crime in Malaysia, Malaysians are becoming more cautious about eating foods derived from imported meat-based products. Consumers in Malaysia have recently shown a preference for fresh meat products, affecting the source of income for imported meat traders. This incident has demonstrated that contamination occurs when halal and non-halal foods are mixed, which can happen quickly if proper enforcement and monitoring by the relevant parties are not in place (Rezai et al., 2009; Rezai, Mohamed, and Shamsudin, 2012; Ab Talib et al., 2015; Sham et al., 2017). This problem could recur in the future, jeopardizing the halal specialty as a whole. As a result, maintaining the integrity of halal food and regaining consumer confidence is critical. Controlling and closing the doors of harm requires an effective halal assurance system. This study has convinced the importance of knowledge management in halal goods by emphasizing the knowledge management process.

Even though a halal logistics certificate is not yet required for a logistics service provider in Malaysia when transferring halal products, this pattern implies that industry players are insensitive to halal products. As a result, to avoid product contamination, each logistics player must understand halal logistics practices. To ensure that knowledge and skills meet halal and human capital standards among halal industry players, logistics players should implement an appropriate knowledge management process (Hashim and Shariff, 2016). A new study in halal logistics will incorporate a knowledge management process to test the relationship between organizational capabilities and stakeholder influence with halal logistics practices.

In a nutshell, halal is a concern for Muslims and non-Muslims who consume and prefer halal products due to their high quality and cleanliness. As a result, halal SC implementation, enforcement, and integrity are critical to the success of halal logistics in Malaysia. In response to these gaps in the literature, the researcher created and tested a comprehensive model to explore the relationship between stakeholders' influences, organizational capabilities, knowledge management processes, halal logistics practices, and SCP as a whole.

#### **1.4 Research Questions**

Based on the research problems above, these are the questions that need to be answered:

- RQ1: Do organizational capabilities and stakeholder influences have a relationship with halal logistics practices?
- RQ2: What is the relationship of halal logistics practices on SCP's firm?
- RQ3: Do organizational capabilities have a relationship with SCP?
- RQ4: Is there any mediating effect of halal logistics practices between organizational capabilities and SCP?
- RQ5: Does the knowledge management process moderate the relationship between organizational capabilities, stakeholder influences, and halal logistics practices?

#### **1.5 Research Objectives**

Based on the above research questions, the main aim of this research is to test a comprehensive model on the relationship between stakeholders' influences, organizational capabilities, knowledge management process, halal logistics practices, and SCP as a whole. This model is tested using SmartPLS 3.0. The specific objectives of the present study are as follows:

1. To examine the relationship between organizational capabilities and halal logistics practices.
2. To examine the relationship between stakeholder influences and halal logistics practices.

3. To examine the influence of halal logistics practices towards SCP.
4. To examine the relationship between organizational capabilities and SCP.
5. To determine the mediation effect of halal logistics practices on the relationship between organizational capabilities towards SCP.
6. To determine the moderating effect of the knowledge management process on the relationship between organizational capabilities and halal logistics practices.
7. To determine the moderating effect of the knowledge management process on the relationship between stakeholder influences and halal logistics practices.

## **1.6 Significance of the Study**

Thomas Reuters (2018) reported in 2030, an OIC country will unexpectedly become a critical billion-dollar export player in Halal food and shows the importance of halal logistics services to cater to the enormous demand of the halal export industry. This research is essential in adding new knowledge in logistics practices implementation among logistics players and their influence on SCP. The current study has the potential to provide significant theoretical and practical contributions in the area of halal logistics as well as SCP.

### **1.6.1 Theoretical Significance**

Theoretically, this study contributes to the previous knowledge in many ways. Currently, the importance of halal products is increasingly highlighted by various bodies. Thus, this study can contribute to the body of knowledge on halal logistics practices by adding the growing significance in the relationship between the external and internal factors in business operation towards halal logistics practices and SCP. Firstly, this study offers new research related to the concept of the resource-based view (RBV), dynamic capabilities, and stakeholder theories by constructing a conceptualized research framework for identifying model variables. RBV theory has been used extensively to examine the relationship, but there is limited study on halal context. However, RBV also relevant to this study because the SCP of the firms depends on the halal logistics practices implementation. The RBV literature argues that firms can gain and sustain competitive advantages by deploying valuable resources and capabilities that impact a firms' performance.

Similarly, this study adds to the current literature body in the area of SCP. This research ascertains the relationship between the implementation of halal logistics practices and SCP. RBV has not yet been tested to measure the relationship of halal logistics practices to the researcher's best knowledge. RBV theory developed by established halal logistics components that conceptualized as halal product manufacturers' ability to access particular resources and capabilities. Thus, this current study provides a new application to the existing

theories of RBV by constructing the conceptualized research framework by identifying model variables in the relationship between halal logistics practice and SCP.

Next, this research responds to new organizational capability factors to support the halal environment according to the barriers to implementing halal practices. Besides that, a new element of halal logistics practices has been introduced, including management responsibilities, risk management analysis, risk management process, and operations. It is essential to understand the underlying values of halal practices within firms since it is different from conventional logistics practices. It provides information on the various approaches which have been practiced within the rest of the manufacturing industries. Furthermore, the relationship between halal logistics practices and SCP is also vital to identify the impact of the halal sector on the total supply chain management of a firm.

Thirdly, the literature analysis also shows many studies have tested the relationship between organizational capabilities and SCP. Therefore, adding halal logistics practices as a mediating effect could determine techniques' impact on organizational capabilities and SCP. Furthermore, the knowledge management process moderates the relationship between organizational capabilities and stakeholders' influences towards halal logistics practices. Previous researchers in the halal industry did not consider this.

### **1.6.2 Managerial and Practical Significance**

From a practitioner standpoint, this study adds to the attempts at bridging the gap between theory and practices. This research has contributed to the current supply chain performance knowledge related to halal practices implementation, specifically halal logistics. It will improve the understanding of the public concerning halal logistics issues. Besides, it appraised the application of halal in logistics management which is considered a competitive advantage. Thus, it is anticipated that this research will help industry players understand the halal logistics environment and indirectly assist them in implementing halal logistics practices.

Concurrent with the prior research, this research study highlights areas for organizations on their capabilities. The external strength from stakeholders plays an active part in the implementation of halal logistics practices. The halal product manufacturers can take the results of this study on internal factors as it helps in the execution of halal logistics practices. While highlighting essential areas such as financial, management, skill and knowledge, and operational, it could be a step in the right direction towards maximizing the SCP of the firm. Furthermore, customers, suppliers, competitors, government, NGOs, community media, and the community who benefit from the implementation of halal would be satisfied if halal products are halal to be consumed at the point of consumption.

In addition, knowledge is usually distributed within the firm, and the firm requires integrating the ability to produce the products or services and improve the business performance. The knowledge management process not only applicable within the firm but also externally. However, fewer firms know how to integrate and manage organizational knowledge, which resulted in successful performance. Hence, the importance of the knowledge management process as a critical driving force for business success can help practitioners optimize their business.

Furthermore, this study identifies the importance of halal logistics practices towards SCP when the organizational capabilities and stakeholder influences are high. It suggests that the firm plays an active part in implementing halal logistics practices for the success of SCP and its survival. These findings can allow the firm to build a close relationship with stakeholders to achieve maximum SCP.

### **1.7 Scope of the Study**

This study focused on manufacturing companies that offer halal-certified products and warehouse handling from raw material to finished goods. These companies manufacture halal foods (MS 1500:2019), halal pharmaceuticals (MS 2424:2012), and halal cosmetics (MS 2634:2019) products. Even though these companies offer halal products, they are yet to be certified with Halal Supply Chain Management System (MS 2400:2019) at their warehouse and transportation. Halal Supply Chain Management System (MS2400:2019) was a revision made by JAKIM in 2019 from the previously called MS2400:2010 (*Halalan-Toyyiban Assurance Pipeline*). The questionnaires were adapted from MS2400:2010 (*Halalan-Toyyiban Assurance Pipeline*), the first version of halal logistics certification, which mentioned earlier in this thesis that no major changes were made to the component halal logistics from both standards. The main difference between MS2400:2010 and MS2400:2019 is that Islamic terms such as *halalan-toyyiban* changed to halal and *sertu* changed to Islamic cleansing. It is not much different, and during the announcement of the revised version, the student in the midst of data collection.

Cross-sectional data are collected from halal product manufacturers selected in Malaysia, including Selangor, Kuala Lumpur, Perak, Penang, Kedah, and Johor. These states are chosen according to the highest population numbers of halal-certified manufacturers operating in that states listed by Halal Directory JAKIM. A different area of states was gathered to understand better how each manufacturer has adapted the halal logistics practices and obtain more insights on the different perceptions of halal logistics practices.

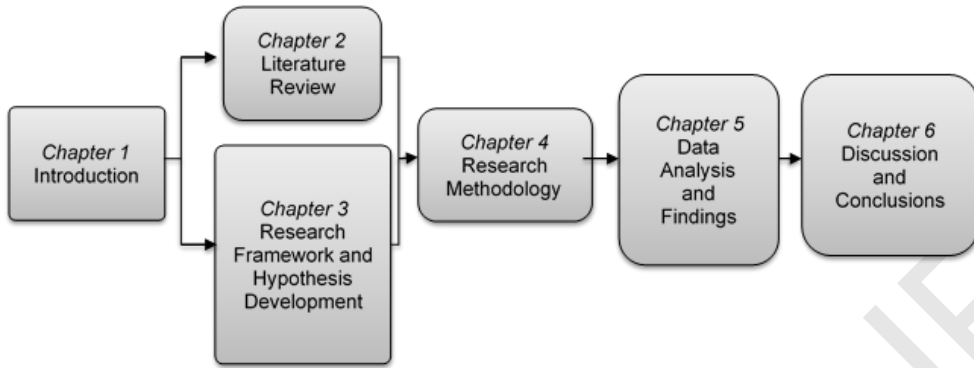
Thus, the novelty of the research is through integration and development of the concept of halal logistics practices from the *Halalan-Toyyiban* Assurance Pipeline which focuses on transportation and warehouse and has yet to be tested in the previous study. Since this study focuses on a specific standard to highlight best practices in halal logistics, it is critical to emphasize the factors that must be understood before implementation, such as organizational capabilities and stakeholder influences. Furthermore, the unit of analysis for this study is halal product manufacturers compared to previous studies through third-party logistics as their unit of analysis for halal logistics analysis. Thus, it also has provided new contributions to current research.

The research also focuses on the knowledge management process, which impacts the relationship between organizational capabilities, stakeholder influence, and halal logistics practices. Consequently, measuring supply chain performance emerged to be more relevant in the logistics sector and has been a competitive advantage for business owners.

## **1.8 Thesis Organization**

This thesis is organized into six chapters: introduction, literature review, hypothesis development, methodology, findings, discussion, and conclusion. Chapter One introduces the background, rationale, contribution, and organization of this research. Chapter Two presents the literature review of halal implementation in Malaysia, the main variables in this study, and the key outcome of the performance. Chapter Three discusses the foundation theories of the research and illustrates the development of the study. Research hypothesis based on relevant theories has been developed in this chapter.

On the other hand, the methodology used in the study, including the research design, philosophy, and research methods, is described in Chapter Four. The main findings and analyses are presented in Chapter Five, and lastly, Chapter Six summarises the answer to the research questions and concludes with the study's findings. It also discusses the limitations of the research and suggests future avenues of the research. The structure of the chapters for this study is presented in Figure 1.2.



**Figure 1.2: Structures of the chapters**

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