A STUDY ON THE RELATIONSHIP BETWEEN SERVICE INNOVATION AND FIRM PERFORMANCE OF LOGISTIC COMPANIES IN MALAYSIA

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DEDICATION

The study is dedicated to my father, **M.Amin**, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, **Meriam**, who taught me that even the largest task could be accomplished if it is done one step at a time. I also dedicated the study to my husband, **Aris**, who has been a constant source of motivation and support each step of the way.



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ABSTRACT

The study's main objective is to examine the relationships between service innovation and firm performance through the mediating role of service quality among logistic firms. Empirical studies that analysed the innovation-performance relationship appear to focus on manufacturing firms. This brought questions about why service innovation analysis remains a less studied area where the central objective of the current study is to address this gap. The present study believes that service quality modifies the original relationships between service innovation and firm performance. In other words, the relationship between service innovation and firm performance depends on service quality. There is scarce research on service innovation and firm performance with the mediating effect of service quality in the Malaysian logistic industry. There is a need to exploit this knowledge. The current study tests four hypotheses built on existing theoretical models. The current study employed a structural equation model (SEM) with a PLS approach to achieve our research objectives and analyse the measurement and structural model. Three hundred self-administered questionnaires were returned, yielding a response rate of 30% using convenience sampling approach. The results show that service innovation significantly affects firm performance and service quality. Also, service quality has a significant effect on firm performance. The study found that service quality mediates the relationship between service innovation and firm performance. It can be derived from this study that firms should emphasise service innovation, as these innovations are found to be important instruments for achieving employee and customer satisfaction

ABSTRAK

Objektif utama tesis ini adalah bertujuan mengkaji peranan penggunaan kualiti perkhidmatan sebagai perantara ke atas hubungan antara inovasi perkhidmatan dan prestasi di kalangan firma logistik.. Kajian empirikal yang menganalisis hubungan inovasi-prestasi perkhidmatan tertumpu kepada firma pembuatan. Ini membawa persoalan tentang mengapa analisis inovasi perkhidmatan kekal sebagai topik yang kurang dikaji di mana matlamat utama kajian ini untuk menangani jurang ini. Kajian ini meramalkan bahawa kualiti perkhidmatan mengubah suai hubungan asal antara inovasi perkhidmatan dan prestasi firma. Dengan kata lain, hubungan antara inovasi perkhidmatan dan prestasi firma bergantung kepada kualiti perkhidmatan. Penyelidikan yang terhad mengenai inovasi perkhidmatan dan prestasi firma dengan kesan pengantaraan kualiti perkhidmatan dalam industri logistik Malaysia. Tesis ini dikemukakan sebagai memenuhi keperluan untuk mengeksploitasi pengetahuan ini. Tesis ini menguji empat hipotesis yang dibina berdasarkan model teori sedia ada. Tesis ini menggunakan model persamaan struktur (SEM) dengan menggunakan PLS untuk mencapai objektif penyelidikan ini dan menganalisis pengukuran dan struktur model. Dalam meneliti hubungan tersebut, kaedah persampelan mudah telah digunapakai, manakala pengumpulan data melalui pengedaran tiga ratus soal selidik,yang ditadbir sendiri telah dikembalikan, menghasilkan kadar tindak balas sebanyak 30%. Keputusan menunjukkan bahawa inovasi perkhidmatan memberi kesan ketara kepada prestasi firma dan kualiti perkhidmatan. Selain itu, kualiti perkhidmatan mempunyai kesan yang ketara ke atas prestasi firma. Hasil dapatan kajian juga mendapati bahawa kualiti perkhidmatan menjadi pengantara antara hubungan inovasi perkhidmatan dan prestasi firma. Dapatan kajian ini membuktikan bahawa firma harus memberi penekanan terhadap inovasi perkhidmatan, kerana ia dapati penting untuk mencapai kepuasan pekerja dan pelanggan.

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LIST OF ABBREVIATIONS

AFFA - Asian Freight Forwarders Association

FAPAA - Federation of Asia Pacific Air Cargo Associations

FIATA - International Federation of Freight Forwarders

Association)

FMFF - Federation of Malaysian Freight

MNSC - Malaysian National Shippers Council

ROA - Return on Assets

ROE - Return on Equity

ROI - Return On Investment

FP - Firm performance

FPG1 - Firm performance group 2

FPG2 - Firm performance group 2

SI - Service innovation

SIG1 - Service innovation group 1

SIG2 - Service innovation group 2

SIG3 - Service innovation group 3

SIG4 - Service innovation group 4

SIG5 - Service innovation group 5

SQ - Service quality

SQG1 - Service quality group 1

SQG2 - Service quality group 2

SQG3 - Service quality group 3

SQG3 - Service quality group 3

SQG4 - Service quality group 4

SQG5 - Service quality group 5

C.R: - Composite Reliability

AVE - Averagre Variance Extracted

PLS-SEM - Partial Least Square Structure Equation Modelling



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APPENDIX

CHAPTER 1

INTRODUCTION

1.1 Overview

The first section of this chapter outlines the significance and motivation of this study in understanding the relationship between service innovation and firm performance within logistic companies. The following section provides an overview of the literature related to this topic. It then discusses the theoretical foundation of this study. The two following sections then outline the study's aims, research questions, and the research method. This is followed by a discussion on the theoretical and practical contributions of the research. Finally, the structure of the study is outlined with a brief description of each chapter. The final section is the summary of this chapter.

1.2 Background of the Research

Logistics' share of GDP in developing countries is approximately 30%, whereas this ratio is only about 10% in developed economies. In Malaysia and other parts of this world, logistics has been regarded as a strategic industry on its own, especially in the Asia Pacific region (Muhammad, aahar@Saabar, *et al.*, 2014). Developing countries, particularly in Africa and Central Asia, have the most limited supply because they usually suffer from difficult geographical locations and features, poor access to logistics services in neighbouring countries and high transportation costs (Yildiz, 2014).

Logistics has started to emerge from only a supporting activity that facilitates trade to a vital sector by which the nation's competitiveness is measured. This is contrary to the situation in developed countries such as the United States of America and the United Kingdom, where logistic sectors have evolved to become prominent and acknowledged as a critical factor of competitive advantage because of the expansion of international trade as well as the globalization strategy of companies in their respective business and Malaysia has no exception on this particular issue.

With the supply-chain approach, the logistics industry constitutes the centre of economic, social and environmental sustainability (Jiménez-Zarco *et al.*, 2015). Thus, logistics has begun to be viewed as a significant tool for differentiation in competition, and this has resulted in the development of increased competition among logistics firms, which, in turn, has led these firms to obtain significant changes through the supply of innovative logistics services for customers (Nge, Rattanawiboonsom, 2016).

Thus, the most important objectives for innovation are modularising logistics services and reducing logistics costs (Klein *et al.*, 2022) have shifted to generation of new services to cover existing requirements and stimulate new ones (Jiménez-Zarco *et al.*, 2015). Logistics innovation at individual firms is a very important mechanism in developing the logistics industry (Muhammad, Saabar, *et al.*, 2014).

So this study give special attention to the logistics sector's innovation due to its significant contribution to Malaysia's economy.

1.3 Significance and Motivation of the Research

The innovation process can be designed, intentional, or unintentional, such that it emerges through an interactive learning process initiated by any involved parties (Carlborg *et al.*, 2014). The difference between product and service innovation is a distinction between innovations in manufacturing versus service sectors. With this observation, innovation studies focus on product and process (e.g., production systems) innovation by Mele *et al.* (2014), mostly overlooking service innovation and its natural opportunities, even though service innovation is not a new concept (Gallouj & Djellal, 2014).

The services sector is becoming an essential driver of the global economy development and continues to grow dynamically. Service innovation is gaining more attention due to its potential value for creating competitive advantage and improving organizational performance (Noorani, 2014 & Ferraz & Santos, 2016). Service innovation "introduces something new into the way of life, organization, timing and placement of what can generally be described as the individual and collective processes that relate to consumers (Lillis, Szwejczewski, & Goffin, 2015).

In the past decade, global trade in services has developed faster than business in products (Malhotra *et al.*, 2005). This research aims to aid service firms in their competitiveness because service innovation is now acknowledged as one of the key forces behind economic growth and as essential for the competitive process. The role of service innovations in services is undeniable as they can influence strategic planning. It has been recognized that service innovation leads to wealth design. Even though efficiency is essential for service business success, it cannot sustain business growth in the long run. The study contribution intends to build a model that will shed light on the mediating role of service quality in the relationship between service innovation and firm performance in logistics industries. This insight contributes to research on several dimensions. With the answers to the raised research questions, findings on either service innovation do influence firm performance in direct or indirect ways.

The potential role in the innovation-driven economy as envisioned by the New Economic Model is vast, but innovation in the services sector has received less attention in Malaysia (Narayanan & Hosseini, 2014). The Ministry of Science, Technology and Innovation reported that Malaysia was ranked 25th in the Innovation Competitiveness and 25th in the Global Competitiveness Index for 2021 (Department of statiste, Malaysia, 2022). One of the main contributions of this achievement was embedded in the service sector (Lillis *et al.*, 2015). They also added that the current launch of the Economic Transformation Program (ETP) by the government of Malaysia is predictable to have a more positive impact on the sector.

Intense competition in logistics has driven many logistics companies to the verge of dilemma. Huge expenditure is needed in their operations to improve performance, but logistics companies are not getting sufficient returns on

investment(Wai-Peng Wong *et al.*, 2015). Further, revenue is diminishing due to the rising cost of operations. In the current highly dynamic and competitive business environment, logistics companies need to be innovative in their services and support their customers to improve operating performance. The goal of improving operating performance in this environment thus strongly suggests a closer analysis of the various facets of performance. This motivates the attempt to characterize performance from a multi-dimensional systems perspective instead of a simple indicator.

1.3.1 Logistic Sector Overview in Malaysia

Malaysia remains an attractive destination for high-value manufacturing and global services in Asia due to its favorable investment environment with the availability of excellent infrastructure, telecommunication services, financial and banking services, supporting industries, and a skilled workforce, among other factors. is supported by more new requirements and space expansion from e-Commerce players and last-mile logistics service providers. The recent RM 300 million (US\$ 71 million) allocation for e-commerce campaigns under the RM15 billion Malaysian Economic and Rakyat Protection Assistance Package (PERMAI) has been a boon to the nation's e-commerce players (Economic Planning Unit, 2022). It has helped to expand further e-Commerce activities, eventually leading to higher demand for logistics and warehousing space in the region, especially in strategically located centres (Goosen and GoosenLeila, 2019). For as long as the nation's economy remains robust and its trade volumes grow, the logistics sector has a bright future. The outlook for the demand for Integrated Logistics Services and multimodal transport is especially bright as the country capitalises on growing intra-regional and international trade. By 2023, the Transport and storage sub-sector is targeted to contribute 4% to the national GDP, grow 8.5% annually, and generate an additional 146,000 jobs (Economic Planning Unit, 2022)

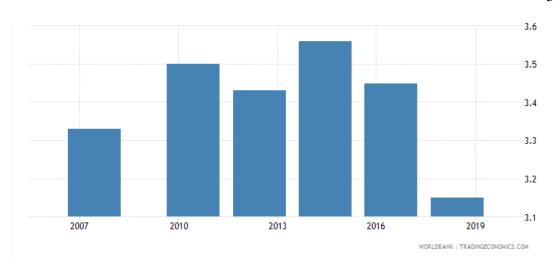


Figure 1.1: Logistics Performance Index

Data are from Logistics Performance Index surveys conducted by the World Bank in partnership with academic and international institutions, private companies, and individuals engaged in international logistics. 2009 round of surveys covered more than 5,000 country assessments by nearly 1,000 international freight forwarders (Malaysian Investment Development Authority, 2019). Since 2006, the government has classified logistics as a priority industry with several initiatives introduce such as the National Transport Policy (2019-2030). The logistic industry in Malaysia has much room for improvement to be the preferred logistic destination in ASEAN and Malaysia has a comprehensive infrastructure for the logistics industry to tgrive while having good connectivity via land, sea and air. With variuos initiatives in place for the years to come, it is projected that the logistic sector's contribution to gross domestic product (GDP) will increase to 6.5 per cent by 2030 and the total workforce of logisticians to hit one million at the same year. (Logistic Productivity Nexus, 2022)

Despite the ambitious target, Malaysia's logistics performance has dropped to No 41 out of 160 countries, according to the World Bank's Logistics Performance Index (LPI) 2018. The Organisation for Economic Co-operation and Development (OECD) no ted that Malaysia has slid down 16-place in over four years, putting it behind Thailand and Vietnam. OECD's recent assessment review found this has far-reaching implications for policymaking for its logistics industry.

1.4 Problem Statement

Firm performance facilitates firms to evaluate the organizational activities and maintain the competitive advantage that leads to greater organizational performance to bring benefits in terms of profitability and sustainability of a company to assess organizational success and compete in a globally competitive market (Saunila (2014; Lopez-Cabarcos et al. 2015; Bowlby 2014). Some studies highlighted the problems with firm performance, such as increasing operational costs by Riratanaphong and Van (2015), getting an insufficient return on investment by Smyth et al. (2016), globalization, and recession in the economy by Caplan and Caplan (2014). In addition, Lai (2016) mentioned the spiralling cost of operation and tighter profit margin has made it imperative for logistics companies to rethink their value propositions to their customers. In addition, there has been no agreement on the selection of measurement and little consideration of its dimensionality; the concept of performance remains ambiguous, problems of consistency as to what constitutes organizational performance (Al-Matari et al., 2014). Therefore an approach that simplified the issues was needed. Hence the approach adopted here, that of researching high and average performing operations in the same organisation, where many of the contextual, process and content variables are the same. This enabled us to focus on "how the differences in use of performance measurement have different impact on business performance?" within a "controlled" environment.

Service innovation is a critical issue that concerns businesses. The need for innovation can be attributed to the growth drivers over the next three to five years (Soken & Barnes, 2014) and firms' competitiveness (Žitkienė, Kazlauskienė, & Deksnys, 2015). Ferraz and Santos (2016) have focused on service innovations. Besides, services are more instantly perishable and inseparable and tend to be more heterogeneous, making them harder to identify and measure (Jonas, 2015). The advantage of services in many countries makes up most of the economic foundation and growth potential (Ehret, 2015), gaining a competitive advantage through service innovation. There is typically no physical product associated with service innovation. Hence many studies have been carried out in this area in different types of industries (Dorson, 2015).

Other issues that have been studied are customer-driven qualities. Customerdriven quality is a critical strategic business issue that is a crucial part of overall strategic business planning (Sadeh & Garkaz, 2014) and the good management practices involved (Geng, Mansouri & Aktas, 2017). Service companies constantly need to explore new products, methods, tools and services that fulfil the rapidly changing customer requirement to meet or satisfy customer needs and expectation as it keeps changing, which can be more expensive (Ngigi, 2013; Sok & O'Cass, 2015; Carlborg et al., 2014). Customers are becoming more complex (Sok & O'Cass, 2015); increasingly sophisticated and have preferences (Yaşlıoğlu, Çalışkan & Şap, 2013). Overall, service quality can be referred to as how well the conformance of service performance has met customers' expectations. The nature of the service quality construct makes it extremely difficult to define and measure (Oyeobu et al., 2014); with no overall consensus emerging regarding either aspect; this may be due to SQ's dimensions (Parasuraman et al., 2005), limited empirical study has been conducted using the SERVQUAL model to assess service quality, especially in the transport sector (Oyeobu et al., 2014). These facts show the customers' basic criteria and standards for evaluating service quality. Therefore, it seems logical that these dimensions are remarkably significant to the customers.

Service innovation affects financial (Cascio, 2011; Dorson, 2015; Yang, Yang, & Chen, 2014);non-financial performance (Ganesan & Sridhar, 2016). On the other hand, service innovation efforts often fail (Santos-Vijande, López-Sánchez & Rudd, 2016). The impact of service innovation on business performance is less directly observable and consumes more time than manufacturing (Chen *et al.*, 2014); the uncertainty and competitiveness of the external environment (Lichtenthaler, 2016); globalization of economies (Ferraz & Santos, 2016). According to the literature, service innovation positively affects firm performance (Arshad, Wang, & Su, 2016; Kingdom *et al.*, 2015; Olaleke, Ibidunni, & Adetowubo-King, 2014; Tugores & García, 2015). The relationship between innovation, exporting, and productivity is complex (Castellacci, 2014), whereas service innovation does not affect firm performance (Olaleke Oluseye, 2014). Many research studies analysed the impact of innovation and firm performance. The relationship between service innovation and organizational performance is predominant. Previous research has indicated that there

are often mixed results. They fluctuate between positive and negative results. Service quality act as a mediator role between service innovation and firm performance. Service innovation has a strong and direct impact on the organization's performance. Firm performance is positively linked with service innovation, and service quality act as a mediator for their direct positive impact. Service quality is the core indicator of firm performance.

With regards to Malaysia, especially in the West Coast of Peninsular Malaysia, major Malaysian ports have both road and rail access but the quality of the connectors need to be improved (Zuraimi *et al.*, 2013). Southeast Asia is an attractive region for manufacturers due to its geographic, regulatory, economic and demographic advantages (Boldyrieva *et al.*, 2019). The logistics industry is currently experiencing the highest constant peak in increased *cost.*. Companies are bracing for more steep increases in shipping and logistics prices next year after supply-chain costs soared in the scramble to move goods. (Oyeobu *et al.*, 2014). The issue of transport logistics development has been widely researched by scientists.(Boldyrieva *et al.*, 2019). Malaysia are still struggling in providing the sufficient logistics infrastructure. With regards to Malaysia, especially in the West Coast of Peninsular Malaysia, major Malaysian ports have both road and rail access but the quality of the connectors need to be improved (Zuraimi *et al.*, 2013)

In summary, a few gaps found in the literature (i) growing operational costs, globalization, and recession in the economy, and tighter profit margin, no agreement on the selection of measurement. Our review identifies the issues that are believed to impact the effectiveness of performance measurement. Given the significant number of the contextual, process and content variables identified, studying of the impact of performance measurement on performance is difficult.(ii) inconsistently identified service innovation affects firm performance. These inconsistent results suggest that the relationship between service innovation and firm performance is more complicated and must be examined within the context in which it occurs. This study examined the relationship between service innovation and firm performance in the logistics context. (iii) There are innovation-related activities in logistic companies and performance implications in service firms but do not focus on service quality which acted as an intermediate role in mediating the relationship between innovation input and business

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