SERVICE SUPPLY CHAIN PERFORMANCE IN MALAYSIAN NATIONAL CAR SERVICE CENTRES: THE ROLE OF SERVICE SUPPLY CHAIN MANAGEMENT PRACTICES, SERVICE INNOVATION CAPABILITY AND VALUE CO-CREATION

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by

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TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

LIST OF ABBREVIATIONS

AFTA	Asean Free Trade Area
ASEAN	Association of Southeast Asian Nations
AVE	Average Variance Extracted
CB-SEM	Covariance Based-Structural Equation Modelling
CMV	Common Method Variance
CR	Composite Reliability
CSI	Customer Satisfaction Index
DOPU	Drop Off/Pick Up
DV	Dependent Variable
GDP	Gross Domestic Product
IV	Independent Variable
LV	Latent Variable
PLS	Partial Least Square
RBV	Resource-based View
RV	Relational View
SEM	Structural Equation Modelling
SIC	Service Innovation Capability
SC	Supply Chain
SCM	Supply Chain Management
SPSS	Statistical Package for Social Science
SSC	Service Supply Chain
SCMPs	Supply Chain Management Practices
SSCMPs	Service Supply Chain Management Practices
SCP	Supply Chain Performance
SSCP	Service Supply Chain Performance
VCC	Value Co-creation
VIF	Variance Inflation Factor

LIST OF APPENDICES

PRESTASI RANTAIAN BEKALAN PERKHIDMATAN DI PUSAT SERVIS KERETA NASIONAL MALAYSIA: PERANAN AMALAN PENGURUSAN RANTAIAN BEKALAN PERKHIDMATAN, KEUPAYAAN INOVASI PERKHIDMATAN DAN NILAI CIPTA SAMA

ABSTRAK

Rantaian bekalan perkhidmatan adalah strategi perniagaan dari perspektif pengurusan rantaian bekalan. Ia membolehkan organisasi untuk mencapai kelebihan daya saing dan keuntungan. Walaubagaimanapun, kajian mengenai ukuran prestasi rangkaian bekalan perkhidmatan adalah terhad dalam literatur. Oleh itu, matlamat kajian ini adalah untuk mengkaji hubungan antara amalan pengurusan rantaian bekalan perkhidmatan ke arah peningkatan prestasi rantaian bekalan perkhidmatan melalui peranan pengantara keupayaan inovasi perkhidmatan. Untuk membangunkan pandangan secara menyeluruh mengenai rantaian bekalan perkhidmatan, nilai cipta sama dimasukkan dalam model penyelidikan sebagai penyederhana dalam meningkatkan prestasi rantaian bekalan perkhidmatan. Teori Resource-based dan Relational View digunakan untuk menjelaskan hubungan antara pembolehubah dalam model yang dicadangkan. Sebanyak 240 borang soalselidik telah diedarkan dan 150 borang soalselidik berjaya dikutip dan dapat digunakan untuk fasa penganalisaan data. Data tersebut dianalisa menggunakan pendekatan Structural Equation Modelling (SEM) dengan menggunakan perisian SmartPLS (v.3.2.8). Dapatan kajian menunjukkan bahawa keupayaan inovasi perkhidmatan dipengaruhi oleh pengurusan permintaan, pengurusan proses tempahan, dan pengurusan maklumat dan teknologi. Di samping itu, prestasi rantaian bekalan perkhidmatan dipengaruhi oleh keupayaan

inovasi perkhidmatan. Kajian ini juga mendapati bahawa keupayaan inovasi perkhidmatan memainkan peranan secara signifikan sebagai pengantaraan di antara pengurusan maklumat dan teknologi dengan prestasi rantaian bekalan perkhidmatan. Akhirnya, nilai cipta sama telah disahkan tidak menyederhana hubungan di antara keupayaan inovasi perkhidmatan dengan prestasi rantaian bekalan perkhidmatan.

SERVICE SUPPLY CHAIN PERFORMANCE IN MALAYSIAN NATIONAL CAR SERVICE CENTRES: THE ROLE OF SERVICE SUPPLY CHAIN MANAGEMENT PRACTICES, SERVICE INNOVATION CAPABILITY, AND VALUE CO-CREATION

ABSTRACT

Service supply chain is a business strategy from the perspective of supply chain management. It enables organisations to achieve competitive advantage and profitability. However, studies on service supply chain performance measurement are limited in literature. Therefore, the aim of this study is to investigate the relationship of service supply chain management practices towards service supply chain performance through the mediating role of service innovation capability. To develop a comprehensive view of service supply chain, value co-creation is included in the research model as moderating variable in enhancing service supply chain performance. Resource-based and Relational theory were used to explain the relationship among variables in the proposed model. A total of 240 questionnaires were distributed and 150 questionnaires were collected and can be used for the data analysis phase. The data were analyzed using Structural Equation Modeling (SEM) approach using SmartPLS software (v.3.2.8). The findings show that service innovation capability is influenced by demand management, order process management, and information technology management. In addition, the service supply chain performance is influenced by the service innovation capability. The study also found that service innovation capability plays a significant role as mediator between information technology management and service supply chain performance. Lastly, value co-

creation was confirmed not moderate the relationship between service innovation capability and service supply chain performance.

CHAPTER 1

INTRODUCTION

1.1 Introduction

This chapter addresses the background to the study, the problem statement and the preliminary analysis. Research questions and research objectives will also be discussed. The scope of the study and the significance of the study will then be discussed. This chapter concludes with the definition of key terms and a summary of the thesis structure. Several previous related studies were referred to support the discussion.

1.2 Background of the Study

1.2.1 Automotive Service Centre Industry in Malaysia

The automotive industry has a tremendous impact on society and the environment. It is one of the world's largest, most dynamic and most important manufacturing sectors (Mathivathanan, Kannan, & Haq, 2018). As it relates directly to the manufacturing and services sectors, the automotive industry is seen as one of the most important contributors to the economy (Nazir & Shavarebi, 2019). The number of vehicles manufactured in factories in recent times due to globalisation, the increase of ASEAN population of more than 600 million and the growing competition in the automotive industry has made the automotive sector a powerful worldwide (Nazir & Shavarebi, 2019). Malaysia’s automotive industry is the primary driver of economic development in the 21st century. The important of automotive industry attracted researchers to explore more on the automotive industry’s contribution to the country in the future. In Malaysia, the automotive sector listed as a significant

contributor to the Gross Domestic Product (GDP) on economic activity. It means that automotive industries remained the main contributor to the Malaysian economy.

The automotive after-sales business is one of the vital automotive markets with a high potential to earn foreign exchange. The positive growth of the automotive industry shows that the Malaysian government is entirely dependent on the automotive industry and makes the automotive industry a significant source of income (Saidin, Sanuri, Mokhtar, Saad, & Yusoff, 2018). All Malaysian national car manufacturers have after-sales facilities other than the selling of cars. After-sales service is all the help and information sharing provided by carmakers to customers after purchasing a car such as maintenance and repair services (Saccani et al., 2006). The critical role of after-sales facilities is also expressed in the National Automotive Policy (NAP) as illustrated in the policy on model development and implementation of products, services and spare parts. As a consequence, after-sales operation in the automotive sector may potentially generate additional revenue as a source of income, profitability and return on investment in most manufacturing industries.

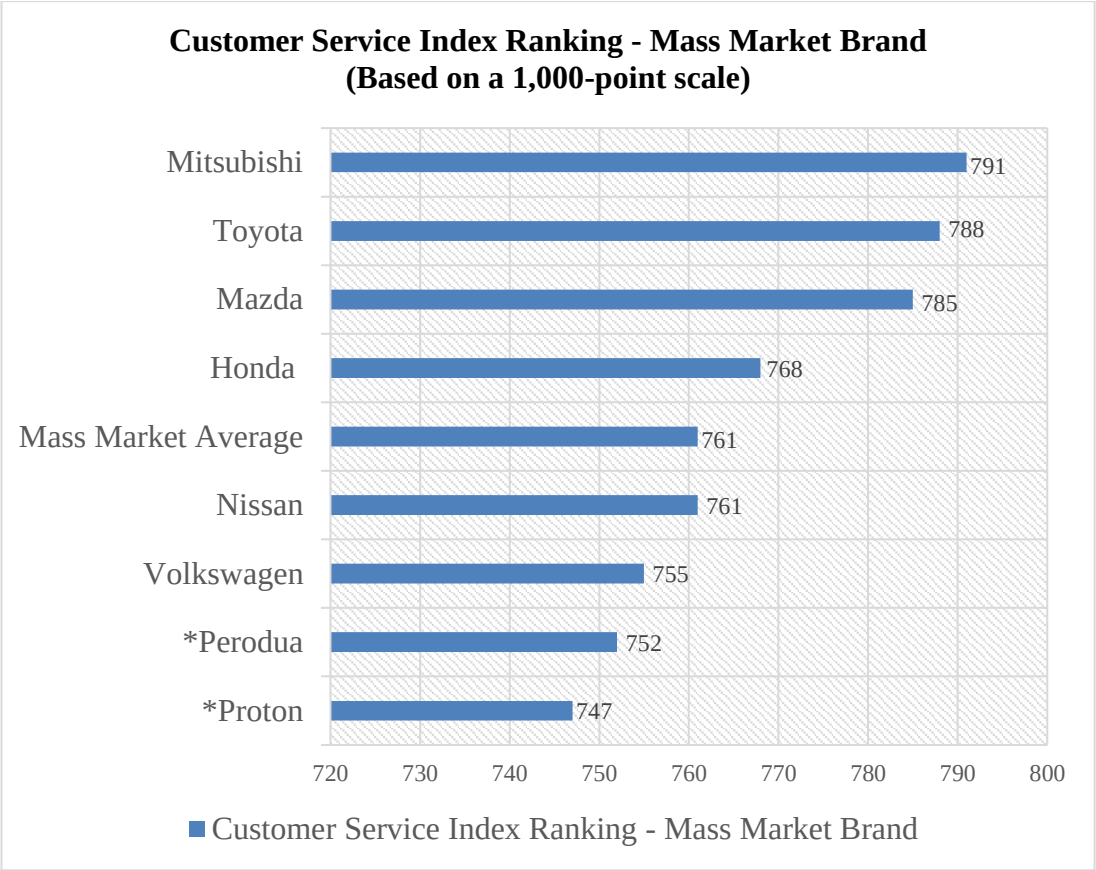
1.2.2 Market Trends for Automotive After-sales Industry in Malaysia

The after-sales service industry has the potential to generate additional income to automotive manufacturer companies and provide the best service for customers. In the manufacturing sector, after-sales facilities attract more attention. After-sales support and spare parts can produce more than three times the turnover of the original purchase (Lin, Shi, & Zhou, 2009). According to Malaysian Automotive Association (2017), Proton and Perodua also increased investment in the car manufacturing and aftermarket business, which has led to the thriving automotive ecosystem of more than 25 vehicle manufacturers and assemblers, 600 local suppliers and 50,000 aftermarket

establishments. The industry continues to contribute to economic progress and sustaining more than 600,000 jobs.

Today the competition in the automotive industry is increasingly challenging and competitive. New vehicle sales have become less because of the increasing competition from vehicle manufacturers. Therefore, the company needs to focus on after-sales service as an additional income and enhance good relationships with customers. After-sales market opportunities are still widely available for discovery, including spare parts, vehicle repairs, used car sales and leasing, and policy replacement, which is an integral part of brand building and sales management. In the automotive sense, after-sales operation becomes a critical source of brand building, as it reflects constant communication between car manufacturers and consumers through their designated distributor networks during the lifecycle of the product. Thus, while profit margins for new car purchases are low, after-sales service provides potentially high returns when dealers and original equipment manufacturers (OEMs) deliver customized offers and customized services to customers.

The after-sales service performance in the automotive industry measured by customer service index (CSI). It is a recognition, as evaluated by the customer of the service provided. Customer service index assessment includes a number of factors that influence overall satisfaction, such as service quality, service initiation car pick-up, service advisor and service centre (J.D. Power Asia Pacific, 2017). The after-sales service related to the customer satisfaction index of both national and non-national makers illustrated in Figure 1.1:

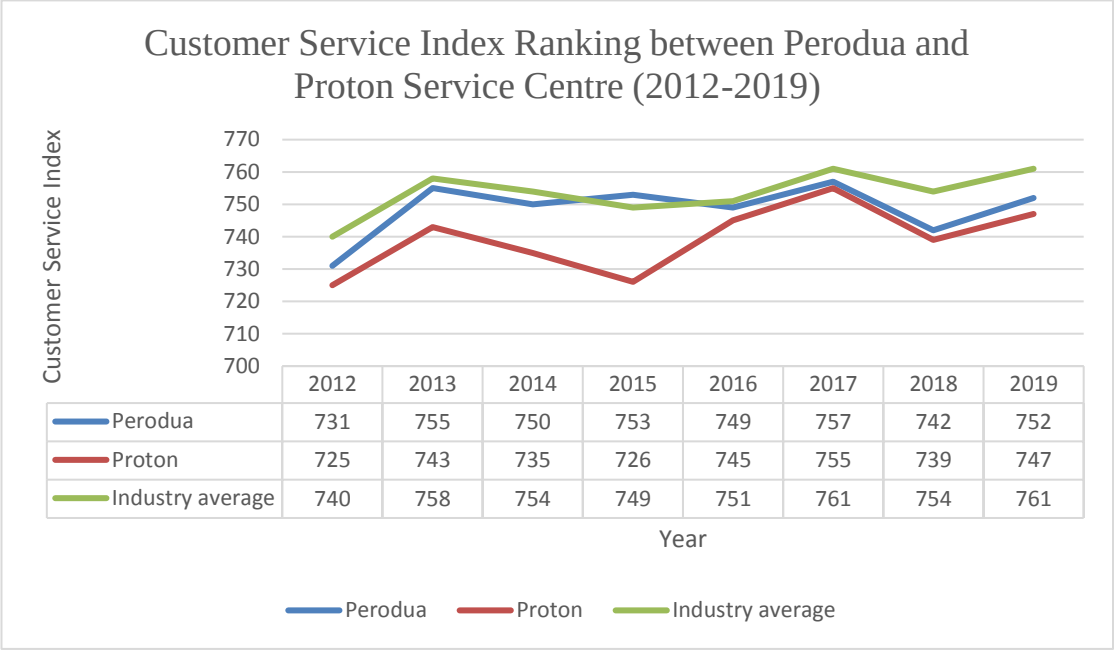


Note: *National car maker
Source: J.D. Power Asia Pacific, (2019)

Figure 1.1: Customer Service Index Ranking, 2019

Figure 1.1 shows the customer service index ranking for Malaysia in 2019. The number of Malaysian customer service index studies based on the opinions of 2,644 new vehicle owners buying multi-brand vehicles between February 2016 and June 2018 and delivering their cars to service centres in the February 2018 and June 2019. The study found that Mitsubishi scored the highest overall service level among mass-market brands with a ranking of 791 points. Toyota ranks second with a score of 788 points, and Mazda ranks third with 785 points. It found that local car maker brands are below the mass market average. Perodua is ranked seventh with 752-point scale. Proton was ranked eighth with a 747-point scale. The hints that local car maker brands are still far behind compared to international brands related to services. Therefore,

Proton and Perodua require a new after-sales service centre performance model to remain competitive with other brands.



Source: J.D. Power Asia Pacific (2019)

Figure 1.2: Customer Service Index Ranking Between Perodua and Proton Service Centres (2012-2019)

Figure 1.2 shows the customer service index ranking between Perodua and Proton service centres from 2012 to 2019. In 2012, the number of customer service index for Perodua was 731 and Proton was 725 respectively (J.D. Power Asia Pacific, 2012). It increases steadily in 2013 to 755 for Perodua and 743 for Proton. In accordance with J.D. Power Asia Pacific report, the number of customer service indexes increased that year because national brands (Perodua and Proton) are improving service standards between brands. Among them: 1) dealerships are doing an excellent job with the service advisor greeting customers when they arrive, 2) having the vehicle ready when it is promised initially, 3) informing customers when to schedule their next visit, and 4) getting the work done right the first time (J.D. Power Asia Pacific, 2013). These factors certainly helped the company to increase and positively impacts customer satisfaction that year.

The year 2014 showed a decline in the customer service index for both national brands, with only recorded 750 for Perodua and 735 for Proton respectively. The analysis further showed that this was due to the low-performance authorized service centres fulfilling the needs of consumers in Malaysia while bringing their cars in for service or repair (J.D. Power Asia Pacific, 2014). It is therefore important that the service centres of automakers aim not only to achieve but also to surpass such standards by supplying their consumers with a satisfying experience.

All Malaysian national brands managed to increase their overall customer service index by enhancing customer satisfaction and developing service facility in 2017. That year, 757 points were reported for Perodua and 755 points were recorded throughout the country. The overall customer satisfaction and loyalty improvement of the national brands has contributed significantly to the strong performance in 2017. However, recent findings from surveys on customer service satisfaction have recorded two national cars namely Proton and Perodua well below the industry average, and customers are reportedly expecting better service for vehicles sent for maintenance and repair services (J.D. Power Asia Pacific, 2019). The poor performance of both national car brand in after-sales service compared to non-national brands will have an effect on the exposure to the government's economic agenda. Consequently, it can be concluded from the graph that Malaysian national brands still have room for improvement and can excel in developing new supply chain efficiency strategies.

The above statement shows that the level of competition in the automotive industry in Malaysia is now changing from the national level to the worldwide level. The situation needs players in this industry, which are the manufacturers and automotive part manufacturers to be more competitive and absorb the pressures of huge companies growing significantly. As suggested by the Malaysian Automotive

Institute (MAI), the automotive industry should respond to some of the critical developments, namely the advancement of automotive technology in all aspects, globalisation, liberalisation, and increased competition among international automotive companies (Malaysia Automotive Institute, 2018). These key developments have a positive impact on policies and strategies at both national and regional levels. Therefore, every supply chain members must understand the progress and take appropriate measures regarding technology, product and service quality improvement and cost savings (Malaysia Automotive Institute, 2017). The Malaysia Automotive Institute's suggestion is to increase the efficiency and effectiveness of supply chain management in the automotive industry.

Supply chain management is one of the solutions that could be used by organisations to address problems in this industry. Studies have identified various challenges in making supply chain management an efficient and effective alternative. Among them is the need to restructure the management practices of the supply chain for after-sales activities that may have an impact on the performance of the supply chain (Saidin et al., 2015; Saidin et al., 2018). Improving the efficiency of the supply chain would lead to the sustainability of the sustained productivity of the company. Progress and sustainability of this investment in the supply chain can only be accomplished if there is a rational agreement between the management practices of the supply chain and the innovation capability of the organization. This form of request needs changes to fit the tradition of the supply chain involved, which is the result of proper management practices.

A study is therefore needed to explore the management of the supply chain, which requires supply chain activities and evaluation of the performance of the supply chain. This study explores the current scenario of service supply chain practices that

could contribute in improving the performance of service supply chain in the automotive industry in Malaysia. Starting with the evaluation of variables to validate the relation between service supply chain management practices for service supply chain performance in the automotive industry in Malaysia. This study seeks to examine the impact of service supply chain practices on performance in order to improve the performance of after-sales supply chain services. Performance assessment is a key aspect of effective supply chain management. According to Gunasekaran et al. (2001), performance assessment is vital for the efficacy of supply chain management. Lack of adequate performance assessment is one of the main challenges to effective supply chain management.

1.3 Problem Statement

The main issue illustrated in this study is the poor performance of automotive after-sales services for the Malaysian national car service centre. Supply chain management is introduced as a remedy to the poor quality of after-sales service issues by improving the performance of the supply chain (Othman, Hassan, Ismail, Imran, & Sharif, 2016). A review of after-sales service performance in the automotive service centre is urgently needed. It is because the service efficiency of the automotive after-sales service, which is declining as opposed to the growth of the industry itself, may be brought to the attention of the present study (Saidin et al., 2018). Unfortunately, after 37 years of the establishment of the first national car brand in Malaysia, the struggle of the lack of knowledge and limited financial resources to promote supply chain management practices remain a vital issue. The issue of the low performance of automotive national car service centres such as customer satisfaction has been raised in several reports. In 2016, the Malaysian National Consumer Complaint Centre

(NCCC) pointed out that the Malaysian automotive sector has the most significant potential loss for customers and the fourth-highest number of complaints compared to the other service provider. The NCCC received 3874 complaints, representing an increase of 1.52 per cent from 3816 received in 2015 (National Consumer Complaints Centre, 2016). The claims related to auto-workshop and services are on repair service (32.9%), routine service problem (27.6%), warranty dispute (11.8%), charges dispute (8.6%), service warranty dispute (7.2%) and other categories (11.9%). In 2017, the Malaysian Institute of Automotive (MAI) introduced the idea of supply chain management as one of the solutions to the problem of low-quality automotive after-sales facilities for local brand vehicles.

However, the data on after-sales service satisfaction shows a fluctuating trend of customer satisfaction index (CSI) in Malaysia. According to customer satisfaction research conducted by James David Power Consultant Services (J.D Power) in the automotive IT and finance studies in the Asia-Pacific region, only Mitsubishi has a better rating of the CSI measure, followed by Toyota and Mazda. Mitsubishi ranked first in all, with a total score of 791, Toyota was second with a score of 788 and Mazda was third with a score of 785 (J.D. Power Asia Pacific, 2019). On the contrary, both the national automotive service centre of Proton and Perodua are far below the industry average and demonstrated a disappointing performance in 2019. Other brands that reported below the mass market average are Nissan (761), Volkswagen (755), Perodua (752), and Proton (747). The report found that the automotive service centre for the Malaysian national car is entirely unsatisfactory and may adversely affect the perception of the community on the quality of local vehicles. The full report of the trend of CSI performance in Malaysia with the graphic presentation is in Figure 1.2.

The issues of low performance of automotive after-sales service for the Malaysian national car service centre has been addressed in previous literature, such as poor quality of after-sales service (Saidin et al., 2018). Moreover, the Malaysian national automotive carmakers reported that they did not become transparent in business operation. As reported on 16 February 2016 by Malay Mail, Proton admitted that it had previously failed to announce the faults discovered in its vehicles and quietly replaced the damaged items only when the owners brought their cars in for maintenance (Malay Mail, 2016). The issue arises referred to the news that Proton has called about 100,000 vehicles involving Preve, Exora and Suprima models due to problems of CFE oil cooler hose that would burst after 40,000 km mileage (Malay Mail, 2016). Several Proton owners reported on social media regarding the issue with the engine's oil cooler hose (Paultan.org, 2016). Proton also acknowledged that the performance of the Proton service centres was sub-par compared to its competitors. Some part of the problem because Proton has 400 sales and after-sales outlets with different service management strategy. The service centre's capabilities to provide services are different, especially dealers who have the skills barrier, expertise, and technological capabilities.

The low performance of service centre can be attributed to the weak of service innovation capability as shown in some studies which have been carried out on the controversy concerning ineffective management and poor service of national service centre from 1983 until today. For instance, Daugherty et al. (2011) claim that based on the changes in delivering effective service offerings, service innovation capability has become a significant resource for firms to create and deliver better value for customers. Additionally, multiple studies have indicated that the innovation aspect in services has a significant impact on the performance of supply chain in organization (Chong et al.,

2011; Daugherty et al., 2011; Grawe et al., 2009). In another study, how businesses add value to their services plays a crucial role in the innovation process (Fernando et al., 2018). Although service innovation capability is accepted in the effectiveness of firms performance, none have assessed the effect of innovation capability in the service supply chain to allow for improved service supply chain performance. Furthermore, as far as the author aware, there is no work carried out on automotive service centre supply chain for use in the assessment of automotive service supply chain performance. It is therefore recommended that service innovation capability be included to improve the relationship between service supply chain practices and service supply chain performance in order to exploit the full potential of service innovation capability.

The crisis of poor service performance causes the customer to be provided with insufficient service supply chain management practices, which is one of the most critical factors needed to gain the service innovation capability of the service centre. Previous studies discovered that the lack of supply chain practices is an outcome of deficient knowledge and lack of awareness of service centre regarding service supply chain management (Al-Shboul, Barber, Garza-Reyes, Kumar, & Abdi, 2017; Gandhi, Shaikh, & Sheorey, 2017; Gawankar, Kamble, & Raut, 2017; Sundram, Chandran, & Bhatti, 2016). This lack of knowledge and awareness may be the result of a breakdown in creating value between both the company and the customer. A good understanding of factors that affect value co-creation is crucial to predict the optimum service supply chain performance. Recent work has focused on service innovation to implement value co-creation perspective in new service development (Yu and Sangiorgi, 2018) because of their associated ease of process and source of competitive differentiation across firms and market (Helkkula et al., 2018). Although this type of value co-creation

process is well established for enabling a different kind of service innovation capability to be used as firm performance assessment in the market, its effect on service supply chain performance measurement for used in automotive service centre has not been extensively studied. Therefore, the preferred value co-creation evaluation is considered to be allowed to improved service supply chain performance.

The issue of value co-creation should not be underestimated. Interestingly, it was reported that national automotive service centre performance decreases rapidly because the service centre management lacks efforts to enhance customer service experience in the national automotive service centre that manages national customer car such as in Malaysia due to poor time management and less effort to boost customer satisfaction (J.D. Power Asia Pacific, 2019). Accordingly, 90% of survey participants throughout the study say that they will service their cars if the national service centre in the country is responsible and improve their management practices.

Similarly, Taghizadeh et al. (2016) reported that customers would contribute more to value creation in the organisations if they are involved actively to share idea and problem solving as well as demonstrate the significant impact of the supply chain performance. Moreover, there is a need for automotive service centres, mainly, in developing countries to communicate their functions in society, for example, provide quality service, which can increase service innovation capability in service centre resulting in erosion of any negative thinking towards national automotive service centres. Dialogue, access, risk assessment, and transparency are vital points that will build service innovation capability in service centres (Taghizadeh et al., 2016). Therefore, this study attempts to examine the issue by exploring the relationship between the assessment of service supply chain performance to increase service quality, the degree of service innovation capability among service centre, service

supply chain management practices from national automotive service centres, and value co-creation.

1.4 Preliminary Study

A preliminary study via an interview was carried out to validate the problem statement and to support research objectives of this study. A preliminary study is needed in getting up-to-date data whereby questions are tailored to address the issues of the study. This study aimed at collecting information about service managers' opinion and experiences about automotive service supply chain performance measurement in the national automotive service centre in Malaysia. Besides, this preliminary study will also identify the various factors that determine service supply chain performance for an automotive service centre in Malaysia. Telephone calls to the participants to obtain permission were made before the interview. The interviews which took place from 24th July to 28th July 2017, at a mutually convenient time at a location of the participants' choice were approximately 30 minutes in length and were semi-structured. The researcher will prepare a series of questions in a semi-structured interview, and the series of items may differ. The researcher provides participants' descriptions for more details on their experiences in managing their service centre. This approach allowed the researcher more significant potential to understand service centre management practices fully. The respondents' profiles which depicted a range of background and experiences added strength and reliability to the study undertaken.

The preliminary study took place at two different national automotive service centres in Pulau Pinang, Malaysia, namely Proton Service Centre and Perodua Service Centre. Six service managers with diverse backgrounds aged between 32 to 40 were randomly selected from two Malaysian national service centres to participate in the

preliminary study and share their experiences and provide valuable information and feedback. According to Guest et al. (2006), recommended that five to twenty-five interviews are enough for a phenomenology study. Hence, six service managers from national automotive service centres selected for this study for interview purposes. The six service managers are labelled as respondent 1 to 6. The two national automotive service centres namely; Proton service centre and Perodua service centre are labelled as SC1 and SC2 respectively, as summarised in Table 1.1.

Table 1.1: List of Respondent for Preliminary Study

Service Centre	Label	Name	Location
Proton (SC1)	Respondent 1	Spectrum Edge Automobile Sdn Bhd	Bayan Lepas
	Respondent 2	Assetpac Sdn Bhd	Jelutong
	Respondent 3	Edaran SAGA Servis & Alat Ganti Sdn Bhd	Jelutong
Perodua (SC2)	Respondent 4	Kejuruteraan Anggerik Harum Auto Sdn Bhd	Bayan Lepas
	Respondent 5	Auto Wangi Sdn Bhd	Georgetown
	Respondent 6	Perodua Service Centre	Georgetown

Source: Author

1.4.1 Findings and Implications of the Preliminary Study

1.4.1(a) Service Supply Chain Management

The results of the study have shown that the majority of respondents have a decent understanding of the automotive service centre management and some of the activities and initiatives related to automotive after-sales services, and they believe in the importance of these activities. For example, when asked about service centre management practices, respondent 1 said:

> *"The automotive after-sales service performance depending on regular management practices according to the standard operating procedure (SOP). After-sales service performance can be achieved through several methods such as hold onto Perodua pillar quality conscious, customer-centric, respect and innovative."*

Respondent 1 is a 35-year old graduate in Bachelor of Business Administration. His education background could explain the extensive knowledge he has on service centre management practices. He believes that to ensure that service centre performance is excellent by following the company's SOP through systematic management practices. Also, he suggested that companies need to focus on customer relationship management and be innovative in services so that companies can provide better services than other competitors.

Another example is respondent 2. He is a service head for a service centre in Jelutong, Penang. He has more than five years working in the after-sales service industry. Based on his experience, he shared the way in managing efficient service centre management. When asked about the service centre management practice, he said:

> *"Our service centre practices six job progress in-service maintenance and repair. First, our service centre provides and uses system appointment. Second, after the vehicle registered in the system, technician ready for vehicle maintenance and repair, Third, the next process is vehicle receiving and inspection, Fourth, job progress monitoring. Fifth, the vehicle delivery process, and Sixth, post-service follow-up."*

The description of the service maintenance experience provided in the service centre needs to have a systematic and organised procedure. The planned job progress can help employees to provide information about service maintenance schedule. The system used in registration can give clear information to customers and service centre. Therefore, vehicle service maintenance and repair can be done and monitored well.

Overall, the findings found that the customer loyalty is depending on how the service centre manage their resource and capacity to give better service experience and quality to the customers (Saidin et al., 2018). The study found that service quality from excellent service management can lead to customer loyalty. However, the result not only limited to study about great service management practices but need to investigate the relationship between innovation and performance in services. As a result, the next section will discuss finding of the impact of service innovation capability to service supply chain performance.

1.4.1(b) Service Innovation Capability

The findings revealed that an automotive service innovation capability is essential for the service centre to add value to its customers in the automotive after-sales industry. Firms also start competing for new product developments, demonstrate the latest technologies and capacities, and almost immediately meet direct competition. In order for service centres to offer superior value to their customers, they need to anticipate environmental changes as they develop new services. For example, asked about the effect of service innovation on performance, respondent 3 said:

> *"Service centre management with service innovation will enhance service centre performance. It affects customer satisfaction and will make the process flow in-service maintenance and repair flow smoothly and efficiently. The systematic and innovative service management will reduce waiting time and can monitor spare part stock in inventory efficiently."*

Respondent 3 is a service manager in a service centre in Sungai Pinang, Penang. She has more than five years of working experience in automotive sales and after-sales industry. She mentioned that a service innovation capability is a new approach in knowledge for performing management functions and new processes that produce changes in the organisation's strategy, structure, administrative procedures,

and systems. The finding agrees with the literature that innovation capability has a direct and positive effect on firm performance (Hamidi & Gharneh, 2017).

Another example is respondent 4. She is 28 years old and has a degree as the highest qualification level. She has five-year working experience in handling customer service and service quality. When asked about the advantage of having service innovation in service centre management, she said:

> *"Service innovation in service centre will enhance service centre performance. It will be an approach for the company to retain a loyal customer in terms of achieving a high customer satisfaction index (CSI). Also, service innovation will affect the smooth and efficient service operation and enhances the level of customer satisfaction.*

The way she explained about service innovation demonstrates that the firm needs to take account of efforts to increase performance through new service improvement. It will enhance the company's operations regarding providing efficient service and can improve customer satisfaction level.

1.4.1(c) Value Co-creation

The findings revealed that an automotive value co-creation contributes to building closer relationships with automotive service centre and with the customer. Having a high level of value co-creation is essential for a service centre in today's automotive after-sales service industry where co-creation is assumed as an approach to increase value for customers and service centres. For example, when asked about value creation to the customer, respondent 5 said:

> *"Service centre can create value to the customer by creating a one-stop centre in order to add more types of services offered such as car wash centre, tire service, collision repairs and many more. The idea of the one-stop centre is one of the service innovations in the service centre that can create value for the customer*."

1.4.2 Summary of Preliminary Study

In conclusion, the preliminary findings are consistent with prior literature findings in the sense that automotive after-sales service supply chain performance needs to be improved, service innovation capability and value co-creation are essential, and there is a need for highly effective service supply chain practices to be performed on service centres. With these findings, the preliminary of the study offered a clear understanding of the actual circumstance and the challenges facing by automotive industry in Malaysia and lends support to the research problem of the present study, while its findings complement the extant literature and support the proposed research framework. Lastly, the preliminary study has also contributed as part of the background information for this research leading to the development of the research objectives and research questions of the present study.

1.5 Research Questions

To date, there have been few studies that have demonstrated the relationship between service supply chain management practices and service supply chain performance. Additionally, less attention has been given to previous studies on the issue of coordination or integration of service supply chain management practices with service innovation capabilities in achieving better service supply chain performance. Besides that, to date, no studies have proven that value co-creation is acting as a moderating variable in the relationship between service innovation capability and service supply chain performance.

In the automotive service centres industry, industry players cannot compete effectively if other entities in the chain are not dynamic and responsive. This study believes that service innovation capabilities can enhance organisational capabilities

and create a dynamic and responsive chain in the long run. Therefore, a study is needed to find the way and explore the relationship between service supply chain practices and service supply chain performance so that all activities within the supply chain can be managed effectively.

In light of this statement, several research questions have been developed as follows:

1) Do service supply chain management practices are positively influenced service innovation capability in the automotive service centres industry in Malaysia?
2) Does service innovation capability is positively influenced service supply chain performance in the automotive service centres industry in Malaysia?
3) Does service innovation capability mediate the relationship between service supply chain management practices and service supply chain performance in the automotive service centres industry in Malaysia?
4) Does value co-creation enhance the relationship between service innovation capability and service supply chain performance in the automotive service centres industry in Malaysia?

1.6 Research Objectives

The main objective of this research was to determine factors that influence the effect of service supply chain management practices on service supply chain performance through the mediating variable of service innovation capability and value co-creation as a moderator in the automotive service centres industry in Malaysia.

The specific research objectives are as follows:

1. To examine the influence of service supply chain management practices on service innovation capability in the automotive service centres industry in Malaysia.
2. To examine the influence of service innovation capability on service supply chain performance in the automotive service centres industry in Malaysia.
3. To examine the mediating effect of service innovation capability on the relationship between service supply chain management practices and service supply chain performance in the automotive service centres industry in Malaysia.
4. To examine the moderating effect of value co-creation between service innovation capability and service supply chain performance in the automotive service centres industry in Malaysia.

1.7 The Scope of the Study

This study will only focus on the independent variable that is perceived as service supply chain management practices. The service supply chain management practices include demand management, capacity and resource management, customer relationship management, supplier relationship management, order process management, service performance management, and information and technology management. Therefore, this study only limits the study of these elements alone. Service supply chain performance is measured based on flexibility, responsiveness, reliability, and customer service. This study involved only the performance of service centre managers' perceptions of the service supply chain and did not include financial performance measurement.

The study also considers service innovation capability as a mediating variable in the relationship between service supply chain practices and service supply chain performance. The service innovation capability only uses five items that include service innovation activities within the vehicle service centre within the service supply chain.

Apart from that, this study also used value co-creation as a moderating variable in the relationship within service innovation capability and service supply chain performance. The value of the co-creation studied refers to only four dimensions namely dialogue, access, transparency and risk management.

This study focuses only on Malaysian national car service centres that provide after-sales service and vehicle maintenance without classifying them to service centre level either as a branch or dealer. The list of service centres is available from the official website of local vehicle manufacturers and local vehicle service centres located in Malaysia. The focus areas of the study are Peninsular Malaysia and Sabah which include service centres from all over Peninsular Malaysia and Sabah only. The researcher was unable to find respondent in Sarawak due to the cost and geographical factors.

The respondent of this study consisted of service centre managers at the Malaysian national car service centres. Service centre manager is the individual who directly involved in service supply chain activities such as customer service department and after-sales services.

1.8 The Significance of the Study

The significance of the study often called the rationale, is to try to explain to the reader or audience why the researcher's work should be done. The significance of

the study should be focused on the rationale of the study to be read and reviewed by scholars in the relevant field. Therefore, the significance of this study seen how far this study can contribute significantly to the theoretical and practical perspective.

1.8.1 Theoretical Perspective

The findings provide empirical evidence theoretically to the literature of the relationship between automotive after-sales service supply chain with service supply chain performance. A recent study will provide extensive literature on service supply chain management practices for the Malaysian national carmakers to identify which dimensions are the major contributor to indicate the service supply chain. The literature has suggested for the service supply chain to be measured with dimensions according to specific characteristics of the industry and context of the study so that it will contribute differently to the literature on service supply chain practices and service supply chain performance. Each service industry carries different characteristics of customer behaviour, and thus, an industry-specific measure of the service supply chain to capture the uniqueness of different service setting is required (Saidin et al., 2018). About that, this study has evaluated service supply chain in automotive after-sales service which allows for identification of the relative importance of each dimension in influencing the level of service supply chain performance (responsiveness, flexibility, reliability, and customer service).

To the knowledge of this study, this is a new empirical discovery that will be tested the dimension of the service supply chain with instruments adapted from service industry as measures of the service supply chain. This study will be highlighted the significance of the service supply chain in measuring service supply chain performance. The outcome of this research provides empirical evidence to the

literature of the relationship between automotive after-sales service supply chain towards service supply chain performance in Malaysian national car service centres. This study endeavours to fill the current gap regarding the impact of automotive after-sales service supply chain practices towards Malaysian national car makers service centres performance. However, there are limited studies in the investigation of the performance measurement of the automotive after-sales service supply chain. The research will therefore grab the attention of scholars and practitioners to investigate the effect of the service supply chain dimensions on automotive after-sales service and how it affects the efficiency of the service supply chain to Malaysia's national car service centres.

The findings will be contributed to the resource-based theory and relational view theory on the mutual rewards gained by both parties in the continuous relationship between customer and service provider. This study validates the resource-based theory and relational view theory, which support this framework in managing the supply chain although it has widely proven in other industries.

This study will be expected to fill the knowledge gap in the literature as there is no discovery of any research focusing on the overall relationship between the service supply chain management practices and service supply chain performance. This study is expected to prove empirically about the existence of the link in the measurement of mediation effects of service innovation capability on the relationship of service supply chain management practices and service supply chain performance. This study is also expected to contribute to the development of knowledge of the value co-creation and service innovation capability in the service supply chain management.

The findings of this study thus lead to the academic world in determining whether the influence of the service supply chain is similar to other management

systems in the automotive industry as well as to other industries focused on the above-mentioned theory.

1.8.2 Practical Perspective

This study offers some managerial implications. First, by developing and validating a multidimensional construct of supply chain management practices and by exhibiting its value in improving supply chain performance of automotive aftersales services, it provides supply chain management managers with a useful tool for evaluating the efficiency of their current supply chain management practices.

Second, the analysis of the relationship between service supply chain activities and service supply chain performance indicates that supply chain management practices might directly influence supply chain performance of automotive aftersales services. The supply chain management managers should also realise the intermediating effect of supply chain performance that supply chain management related to organisational performance could only be enhanced by improving supply chain performance in the first place.

Third, the findings of this study tend to support the view that the implementation of supply chain management practices has a significant impact on the supply chain efficiency of automotive aftersales services in an emerging country context. Researchers can use the findings of the study to generate ideas for future studies, and top managers can gain valuable knowledge about how effective supply chain management impacts supply chain performance.

This study will provide some understanding of supply chain management implementation. In business management perspective, this study will explore the relationship between supply chain practices, service innovation, and service supply