

The Relationship Between Supply Chain Management Practices and Firm Performance in Logistic Companies in Johor Bahru.

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Abstract

This research aimed to assess the connection between the various dimensions of supply chain management (internal integration, information sharing and customer relationship in supply chains) and the firm performance in the logistics companies in Johor Bahru. Questionnaires were distributed through convenience sampling method to collect data from a sample of 50 management staff working in 8 different logistics companies in Johor Bahru. Data analysis was done by using Smart PLS and Statistical Package for Social Sciences (SPSS) software. Based on the findings, customer relationship has the most significant impact on the firm performance in the logistics industry followed by information sharing, whereas internal integration does not have a significant relationship on firm performance. The findings of the study provide implication and a clearer insight to the leaders on the firm performance particularly in the logistics industry.

Key words: Supply chain management, firm performances, customer relationship, internal integration, information sharing, logistic industry

Introduction

The World Competitiveness Yearbook 2021 ranks Malaysia 25th, 27th in the Global Competitiveness Index 2019/2020 and 41st in the Logistics Performance Index 2018, however neighbouring countries rank higher than Malaysia. This suggests that there are not enough effective methods to increase competitiveness. Hence, the Twelfth Malaysia Plan aims to strengthen transportation and logistics services and promotes industrial competitiveness. Transportation and logistics efficiency may be improved to aid long-term economic growth and the well-being of the population (Economic Planning Unit, 2021).

In order to achieve competitiveness of the industry, it is important to have the latest information. However, the Malaysia logistic facing challenges that the information of the logistics industry isn't updated. According to Challenges Faced by Logistics and Supply Chains in Malaysia - RETI – Ranaco Education & Training Institute, (2022), "Managers of logistics and supply chain networks across Malaysia are often less knowledgeable about logistics and supply chain strategies than are their counterparts abroad. This poses a challenge because their relative lack of knowledge often harms the potential of firms' market expansion." In another word, the information sharing in Malaysia is not efficient enough for the managerial level to get latest strategy planning in the industry. Furthermore, "Malaysia economic condition has historically been relatively unstable. As a result, most of the country's consumers tend to exhibit inconsistent purchasing patterns" (Challenges Faced by Logistics and Supply Chains in Malaysia - RETI – Ranaco Education & Training Institute", 2022). Thus, it will indirectly lead to poor customer service as they didn't keep much stock in the inventory and the firm performance would be drop because didn't maximize the inventory level.

This study is to examine the impact of supply chain management and the firm performance of the organization in the logistic companies in Malaysia. In today's world, the idea of a company's

performance has emerged as an important one in the field of study on strategic management, and it is widely employed as a dependent variable. Developing countries rely heavily on the success of private sector enterprises. In shaping a nation's economic, social, and political growth, many economists view them as functioning similarly to an engine. In order to compete in today's economic climate, every company must function in an environment of performance (Taouab & Issor, 2019).

In this challenging and competitive market, the service and information will affect the competitiveness of business in logistics industry. In fact, the logistics had been prominent and acknowledged as a critical factor of competitive advantage to the customer or manufacture. Logistics is about information exchange and customer satisfaction. If the logistics having a poor supply chain management, logistics department will have mismanaged and it will costly, wasting resource and time for logistics, as we know logistics is about time and accuracy (Ali, Jaafar & Mohamad, 2008). The cargo/item have to be delivered in accuracy without incur any additional cost. For supply chain management, logistics has the primary goal of increasing total value per delivery, as measured by customer satisfaction. In order to maintain a given degree of customer service, it is necessary to reduce and optimise human resources (Green, Whitten & Inman 2008). Thus, it is important to address the issue of firm performance in the logistics industry especially in the competitive environment as the company performance will lead to the revenue and the reputation of the organization.

Furthermore, inefficient supply chain management results in surplus inventory at different points throughout the supply chain and shortages at other points. Logistics' inventory is a large component of its operating assets, and bad inventory management can result in large waste (Lu & Swaminathan, 2015). The bullwhip effect is also caused by a lack of supply chain visibility of demand and supply information. This effect outlines how a little blip in consumer demand can be magnified along the supply chain when diverse businesses do not communicate and exchange information.

Nowadays customer prefer to use only one logistics provider instead of multiple to complete their delivery regardless of sea, land or air. Thus, supply chain management play important role to coordinate the process for logistics for example the customer wants to ship over the cargo from Malaysia to Singapore, supply chain management have to get the information of what type of cargo want to deliver, weight, dimension then only can plan type of truck. Once truck confirm then is to confirm the date of collection with customer, prepare documentation for export cargo, unloading place whether truck can enter the area or have to do transfer at the others country. So, the supply chain management handle from collecting, sorting, documentation, intermediaries, distribute and last is customer (Adzija & Kukhta, 2022).

Many studies have been carried out in other countries and in Malaysia to determine the relationship between supply chain management and firm performance, such as internal integration, information sharing, and customer relationships, but there is insufficient research carried out in the logistics companies in Johor Bahru.

Therefore, the purpose of this study is to determine whether or not there is a relationship between supply chain management and firm performance in the logistics companies in Johor Bahru. It is hoped that the findings of this study will be able to contribute to the expansion and development of the logistics industry in Malaysia, which will, in turn, have a positive impact on the economy of the nation.

Literature Review

Supply chain management (SCM) is a key company performance component. Supply chain management (SCM) has previously been proven to be significantly dependent on the level of collaboration between supply chain parties. Key to business success is the capacity of the company's management to integrate the aims of its supply chain partners by building strong business relationships (Muhamed et al., 2020).

Supply chains comprise all stakeholders engaged in meeting client demand. The supply chain also includes distributors, wholesalers, retailers, and the end customers. Receiving and fulfilling client

orders is a supply chain function inside a corporation. These include operations, product development, marketing, financing, distribution, and customer support (Hendijani & Saeidi, 2020).

Multi-dimensional SCM practises include integration between firms and suppliers, or upstream, integration between companies and consumers, or downstream SC, and integration inside the company itself, such as integration between divisions within the organisation, all of which are referred to as SCM. According to Sukati et al. (2020), outsourcing, company-supplier relationships and exchanging information in the SC as well as cycle times and concretion are all part of SCM practises, which include SCM activities. Awaain (2020) noted that SCM practises also included ensuring the quality of products and services, as well as acquiring and cultivating connections with clients. Sukati et al. (2020) agreed. SCM practises such as supply chain integration, inner and outward integration, information exchange inside the SC, and customer service management were all cited by Sukati et al. (2020). A company's level of supply chain integration refers to the extent to which it collaborates with channel partners on internal and external activities.

Supply chain integration (SCI) helps companies enhance their partner-related processes and routines through global and real-time collaboration, and eventually adapt to technology and market changes. A growing number of supply chain management academics and practitioners see SCI as a game-changing breakthrough with enormous potential to improve business performance (Liu et al., 2013).

Supply chain integration (SCI) is crucial for long-term business success. Firms need to collaborate extensively with their suppliers and customers in order to thrive in today's competitive business environment. SCI refers to the strategic collaboration of manufacturers and their supply chain partners in order to use internal and external resources and competencies across the supply chain. Customers' needs are met more efficiently and profitably when the supply chain's members work together and collaborate. Firms' competitive advantage has been widely recognised as a beneficial effect of SCI. It has been shown to have a major influence on a company's operational and financial results (Hendijani & Saeidi, 2020).

SCM has two key goals according to Sukati et al. (2020), which is to increase efficiency and reduce costs throughout the supply chain. First, increase organisation and SC performance. Additionally, SCM practises are aimed at reducing a company's overall cost of operation, which improves its efficiency.

The three dimensions of supply chain is internal integration, information sharing and customer relationship.

Internal Integration

Internal integration improves procedures and prevents non-value-added and redundant tasks. Because of this, it is possible to produce better-quality goods at a lower price (Hendijani & Saeidi, 2020).

Internal integration integrates the many business operations, such as production, procurement, and materials management. Specifically, internal integration aims to enhance the performance of the cross-functional operations that comprise the order-to-cash process. Examples of IT designed to facilitate high levels of internal integration include ERP systems. A company's production capacity can be improved by using these information systems to create information and allow information exchange inside the company (Ramjanm & Nagendra, 2011).

One of the challenges encountered by businesses is the requirement to integrate functions inside the organisation (Sukati, Hamid & Baharun, 2012). An internal firm connection, according to Sukati, Hamid and Baharun (2012), contains fully integrated planning and control systems that manage the flow of products and services from suppliers of raw materials into the company for processing into

finished items and out of the organisation to consumers. According to Sukati, Hamid, and Baharun (2012), the internal relationship is an important phase that needs to be finished before the firm can build a connection with an external company. Business performance begins with internal firm relationships, according to anecdotal evidence (Sukati, Hamid & Baharun, 2012).

Database connection with the production unit, logistics and product distribution and information provider, simple access to essential operational data, an information system that is highly integrated with various internal departments inside the organisation, inventory assessment, getting the status of inventories at the appropriate moment, utilising the planning system for both computer-based marketing and production are all important (Ramjanm & Nagendra, 2011).

Information Sharing

Information sharing is defined as the information is shared between local firm and supply chain member. According to Ibrahim, Zolait & Pandiyan Sundram (2010), it is important to conduct three primary links: internal linkage, customer linkage, and supplier linkage. Information sharing between business units, across supply chain partners like suppliers, and other strategic partnerships is needed to execute these linkages. As a result of this integration, it will be beneficial to the company and the entire supply chain performance.

Nowadays, online information's open, real-time, and rich content make information sharing more relevant than ever. Real-time and rich content information allows organization to quickly perceive and react promptly and comprehensively in response to market uncertainty (Liu et al., 2013). For example, when a client requests a certain requirement, the business may immediately discover the demand of consumer due to the sharing information. In order to meet rapid shifts in client demand, which are closely linked to the firm's success, information can be shared to assist the company. According to Liu et al. (2013), "bullwhip effect" theory states that sharing knowledge throughout a supply chain reduces demand uncertainty while simultaneously increases demand variability.

To improve organization performance, Liu et al. (2013) argue that all supply chain participants must be able to access shared information on a timely basis. As a result, effective information sharing and information operation is essential. To be more specific, the sharing of information makes it easier to provide goods and services and discover new markets and promote new products and services (Liu et al., 2013).

According to Sukati et al. (2020), the useful sharing of useful information between supply chain could lead to reduced inventory and production cost. Liu et al. (2013) also stated that by decreasing inventory costs and boosting capital and cash flow usage, information sharing aids businesses in increasing profitability. Supply chain costs may be reduced via more effective information sharing, which avoids misunderstanding and mistakes, thereby increasing mutual understanding. This lets companies to cut their production and delivery costs by sourcing products and services from lower-priced vendors. Eventually, this will return with good impact on a company's performance and financial results.

Customer Relationship

Customer relationship management (CRM) in supply chain management is concerned not only with internal customer relationships but also with relationships with external customers. If the company can communicate effectively with its target consumers, it can build strong customer relationships. Working closely with customers to meet their needs and expectations is a crucial part of every company's customer service strategy. This includes monitoring and measuring customer satisfaction, learning about their needs and providing support. Particularly when it comes to exchanging product information with important clients, accepting orders from clients, integrating with key clients to generate demand, placing system orders, and informing important clients of the orders' progress throughout the scheduling and delivery phases (Sukati, Hamid & Baharun, 2012).

Supply chain management prioritises customer loyalty and satisfaction. Good customer relations allow firms to be more responsive to client demands, which develop consumer loyalty, repeat purchases, and willing to spend premium rates for high-quality items. In order for the company's supply chain management to succeed or fail, each business partner's information must be accurate and timely. In other words, it is possible that good relationships with customers have a favourable impact on how well a firm performs (Sukati et al., 2020).

Firm Performance

Firm performance is a result of an organizational goals achieved through the effectiveness of comprehensive strategies or the right technique. Financial and non-financial performance related to certain aspects of strategy and operations in SCM are two important indicators in measuring company performance. Performance measurements show how well a company meets its goals, mission, and values (Gandhi, Shaikh & Sheorey, 2017).

So many tasks that used to be carried out exclusively within a company are now undertaken at the supply chain level, including raw material sourcing, inventory control and transportation. Companies have come to terms with the fact that they can't do everything on their own but to rely on others in their supply chain, such as suppliers and customers. In fact, supply chain integration has been named as one of the most important things that affect how well a business does (Hendijani & Saeidi, 2020).

Integration of the supply chain may have an effect on the performance of a company in both direct and indirect ways. The direct way is supply chain collaboration improves firm's performance. The indirect way is that supply chain may assist companies discover and remove operations that do not provide value to the firm. This has the potential to improve product quality while simultaneously lowering production costs, which will ultimately lead to improved value generation and increased customer satisfaction (Hendijani & Saeidi, 2020).

Previous studies on the relationship between supply chain management and firm performance

Gandhi, Shaikh and Sheorey (2017), investigated that the relationship between supply chain management and firm performance. The respondents of this study consisted of 125 supply chain and operation practitioners working with organized retail stores in India. The questionnaire of supply chain was used to investigate the 4 dimensions of supply chain management and the firm performance questionnaire were used to evaluate firm performance. The regression analysis showed that there is all (Goal congruence, customer relationship management, supplier relationship management, information sharing) positive significant relationship between firm performance.

Liu, et al. (2013), investigated the relationship between supply chain integration and the firm performance. The data were collected from a survey administered to 246 of local firms in the manufacturing and services industry in China. Data from this study were collected from all the managers level position which included CEO, supply chain manager, purchasing/logistics manager, general manager, production manager and others manager. The data collection method used is a cross-sectional research. The subjective perception of the key respondents' measurement was used. The questionnaires was used to investigate the two dimensions of supply chain integration (information sharing and operational coordination). The data was analysed by using hierarchical regression analysis to analyse the relationship between supply chain integration and firm performance. Furthermore, the measurement were used convergent validity and discriminant validity. The result of study shows that, there is positive relationship between the independent variable and dependent variable, with the information sharing and operational coordination.

Muhamed et al. (2020) investigated the relationship between supply chain orientation and firm performance in the context of halal-certified small and medium-sized enterprises (SMEs) in Malaysia.

Data from this study were collected from 284 respondent out of 512 halal-certified SMEs. The survey method was used by 'Google Form' and the link was emailed to the managers and executives' level of the selected 512 business firm. The survey questionnaire consisted of five sections: a) demographic information of the respondents; b) top management support (TMS); c) communication (COMM); d) credibility (CRED); and e) firm performance (FP) (the dependent variable). The sliding five-point Likert scales of measurement were used. The data was analysed by using structural equation modelling with partial least squares (SEM-PLS), KMO test and Bartlett's test. The result of study shows that there is positive relationship between the supply chain orientation and firm performance.

Hendijani and Saeidi (2020) examined the relationship between supply chain integration and firm performance in automotive parts and steel industries in Iran. Data were collected using survey method from 84 firm in Iran which have 25.0% participation rate in steel industry and 28.4% participation rate in auto part. The questionnaire was measured question with a 7-point Likert scale to measure the question. There were 3 dimensions of independent variable (internal integration, process integration and product integration) of 18 question related to supply chain integration dimension and dependent variable consist of two dimension which include operational performance and financial performance and total 16 questions related to firm performance. The data was analysed by hierarchical regression and it found that the supply chain integration was positive effects on firm performance.

Sukati, Hamid and Baharun (2012) evaluated the relationship between business performance and supply chain management in Malaysia manufacturing industry. Data from this study were collected from selected 50 companies out of 179 of the managerial level and business practitioners in Malaysia manufacturing industry. Data collection method used is a purposive sampling. The sliding five-point Likert scale of measurement were used. Several quantitative statistical technique methods were used in this study. The instrument used for the study is questionnaires survey. The questionnaires used for independent variables contained 3 dimensions: Internal-firm relationship, firm-supplier relationship and firm-customer relationship. The dependent variable of firm performance contained 2 variables which is strategic performance and operational performance. The data was analysed by the multiple linear regression analysis to analyse the two measure of independent variable and dependent variables. The result of the study shows that positive relationship between firm-customer relationship and internal-firm relationship but the firm-supplier relationship does not relate to the firm performance

Sukati et al. (2020) evaluated the relationship between supply chain and organizational performance in the tourism service industry of Salalah, Oman. Over 85 hotel industry managers were asked to complete a questionnaire as part of this research. The questionnaire involved 10 hotels, 20 apartments, 50 restaurant and 11 transportation companies. Five dimensions for the independent variables is strategic supply chain partner, customer relationship, information sharing, information technology and internal operation. The study evaluated all the five dimension has direct positive with the organizational performance. The study showed that the customer relationship has a strong linkage with the organizational performance. Furthermore, the researcher also mention that the information sharing has crucial importance in organizational performance.

Wijayadne et al. (2021) studied 30 respondents from non-driver staff in PT. Putra Tunggal Perkasa in East Java. The researcher used quantitative research method to collect the data, the data collection through the observation (purposive random sampling method) and E-questionnaires and using descriptive analysis and multiple regression analysis to analyse data. The measurement of the question researcher used five-Likert scale. The three-dimension measured are customer relationship, information quality and information technology. The study showed that all three dimensions has affect on the business performance, in another words it has direct relationship between the three independent variable and dependent variable. Research shows that a company's emphasis on customer relationship may help PT Putra Tunggal Perkasa's business success in a long-term way.

Ibrahim, Zolait & Pandiyan Sundram (2010) identified the relationship between supply chain process integration and firm performance on manufacturing industry in Malaysia. The researcher used

quantitative approach to examine the Supply Chain Integration between the firm performance. Data from this study were collected from 98 conference participants in Malaysia. The data collection method used self-administered survey questionnaires. The survey was meant for senior or middle managers who were directly in charge of SCM or logistics functions in the organisation. These people knew enough about all of the scale items. 48 surveys were invalid owing to repeated replies from certain businesses, non-manufacturing respondents, and incomplete questionnaires. Total valid and useable surveys came from 50 manufacturing enterprises. The measurement of author used in this study is seven-item Likert-type scale. The analysis method were used in the study is multiple regression analysis to analyse the relationship between single dependent variable and several independent variables. The study showed that three dimension of SCI, namely, financial flow, physical flow and information flow, which are positively with firm performance.

Research Methodology

To examine the relationship between internal integration, information sharing, customer relationship and firm performance, the quantitative approach is used. According to Williams (2011), the quantitative research technique is organised research and contains data that can be generalised to the population that was examined.

The study uses a survey method to collect the data. In this study, a questionnaire is used as the instrument to collect the data on the effect of supply chain management and firm performance in the logistics industry in Johor Bahru. The questionnaire is designed in a structured, simple manner to ease and help the respondents to understand the questions. The survey method used is E-questionnaires in the form of a google form as it is a convenient tool to collect data from the employees of the selected company. Therefore, the study uses a quantitative approach through the survey method to collect the data on the impact of supply chain management on firm performance in the logistic companies in Johor Bahru, Malaysia.

The research conducted based on the perspective of office staff and managerial level in the selected logistics company in Johor Bahru. The sampling will be use purposive sampling which mean that the selected sample has meet the certain criteria. Purposive sampling is used as this is because it's the most suitable method for this study. The name of the selected company will not be disclosed for confidentiality purposes, however, all the office staff and managerial level of employees of the selected company will be the population of this study.

Sample size should be at least 10 times more than the number of model variables pointing at a dependent variable, according to Hair, Ringle, and Sarstedt (2011) and Kock, Hadaya (2016). The minimal sample size for this study is 30 because there are three arrows pointing to the dependent variable. The minimal sample size for this survey is 30, however the projected number of respondents is 50, which is greater than that.

The research instruments for this study are adapted from the questionnaires used in the previous study. The questions included in the surveys have been formatted in an appropriate manner so as to make data collecting and analysis easier. It will be prepare in google form and distributed to the selected company.

There are a total of 3 sections, which are sections A,B and C with a total of 21 questions. Section A is about the detail of respondents (5 question), section B is the question of independent variable of supply chain management which is internal integration, information sharing and customer relationship which have 4 question for every each of the independent variable. While section c is about the firm performance questionnaires to measure the firm performance of the respondent which also have 4 questions. Supply chain management measured by questionnaires adapted from Sundaram and

Pandiyan (2012) and the firm performance survey are adapted from Gandhi, Shaikh and Sheorey (2017).

The layout of the questionnaire and classification of the research questions will be shown in Table 1.1 and Table 1.2 respectively.

Table 1.1: Layout of the questionnaire

Section	Title of section	Number of questions
A	Personal Details	5
	Internal Integration	4
B	Information Sharing	4
	Customer Relationship	4
C	Firm Performance	4

Table 1.2: Classifications of the research questions

Questions	Variables	Adapted from
Q6-Q9	Internal Integration	Sundaram and Pandiyan (2012)
Q10-Q13	Information Sharing	Sundaram and Pandiyan (2012)
Q14-Q17	Customer Relationship	Sundaram and Pandiyan (2012)
Q18-Q21	Firm Performance	Gandhi, et al. (2017)

The Likert scale of 5 points will be used to measure each topic in this questionnaire. Respondents will rate their level of agreement or disagreement with the survey's questions on a scale of 1 to 5, with (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree and (5) Strongly Agree.

The purpose of this study is to examine the relationship between that internal integration, the information sharing, and customer relationships on firm performance of Johor Bahru-based logistics companies. Smart PLS and the Statistical Package for the Social Sciences (SPSS) software are recommended for data analysis. After gathering the data, descriptive statistics and path coefficient analysis will be used to examine the data.

Descriptive statistics are figures that summarise data in order to describe the results of a particular sample. A sample's characteristics can be analysed to see if they have impacted the result. Analysis of demographics will be done using frequency distribution, which is the most frequent type of descriptive stats (Thompson, 2009). Gender, age group, educational attainment, number of years of work experience and position are the most important pieces of personal information being gathered for this investigation, and the frequency distribution will be used to examine them.

In order to establish the strength of the relationships between supply chain management practises and company performance in Johor Bahru logistics firms, the collected data will be subjected to a path coefficient analysis. With the path coefficient analysis, researchers may examine the relationship between independent and dependent variables and determine how much influence each of the several independent factors has on the dependent one (Sarstedt & Mooi, 2019). The Standardized Coefficients Beta is used in this study to determine which of the three independent variables internal integration, information sharing and customer relationship has the greatest impact on firm performance.

The higher the value of Standardized Coefficient Beta, the stronger the impact on firm performance. An additional result of regression analysis is R square, which represents how well a model explains variance in the dependent variable when compared to the mean (Sarstedt & Mooi, 2019). The value of R² lies between 0 to 1 and the higher the R², the better the dependent variable can be explained by the independent variables.

In quantitative research, validity is defined as the degree to which a theory is correctly tested, while reliability refers to the study's instrument's accuracy. A researcher's ability to consistently get the same results when using the same study equipment in the same situation over and over again (Heale & Twycross, 2015). Using Smart PLS software to evaluate for the validity and reliability of the study's results to ensure that they are accurate. SmartPLS is a standalone programme that focuses on PLS path models (Monecke & Leisch, 2012) and it is a Structural Equation Model (SEM) tool. The model may explain causal mechanisms, empirically confirm theoretical ideas, and apply prediction measures. In addition, SmartPLS includes a route model for linking variables and indicators. These are essential in presenting a clear picture of the results and giving evidence to back up those pictures (Sander & Lee, 2014).

Reliability is a measure of the instrument's accuracy and consistency, as previously stated. Instrumental internal consistency is examined using Cronbach's and Composite Reliability in this study. A Cronbach's α score of 0.7 or above is considered acceptable and the closer the Cronbach's α to 1, the higher the internal consistency (Heale, Twycross, 2015). Generally, when Cronbach's $\alpha > 0.9$, it is excellent, $\alpha > 0.8$ is good, $\alpha > 0.7$ is acceptable, $\alpha > 0.6$ is questionable, $\alpha > 0.5$ is poor and $\alpha < 0.5$ is unacceptable (George and Mallery, 2003). Next, the Composite reliability will be taken into consideration and the acceptable value for composite reliability is at least 0.7 and above (Hair et al., 2010).

The term "construct validity" refers to the extent to which the questionnaires utilised in the research actually test the theory that is being measured. Construct validity should indicate that the results of a given test anticipate the theoretical characteristic that it promises to predict (Ginty, 2013). Construct validity comprises of convergent and discriminant validity. Excellent construct validity necessitates a strong correlation with convergent construct validity and zero correlation with discriminant construct validity (Ginty, 2013).

A convergent validity checks how effectively the instrument assesses the constructs or variables of the study (Heale & Twycross, 2015). Convergent construct validity investigates the relationship between the concept and a comparable measure; this reveals that constructs that are intended to be connected are related (Ginty, 2013). Under convergent validity, average variance extracted (AVE) and factor loading are employed in this investigation. Hulland (1999) states that loading factors must be at least 0.4. Besides, an AVE value of greater than 0.5 is necessary to verify the construct (Hair, Ringle & Sarstedt, 2011).

To determine a construct's discriminant validity, researchers look at how different it is from the others construct (Ginty, 2013). It is a tool for determining the degree to which the independent variables influence one another. Based on the Fornell–Larcker criteria, each latent construct's AVE should be greater than its greatest squared correlation with any other latent construct (Hair, Ringle & Sarstedt, 2011).

Results of the study

Data Collection Procedure and Response Rate

A total of 70 questionnaires were distributed to the 26 of managerial levels of employees and 44 of non-managerial employees at the selected logistics company in Johor Bahru. The questionnaires were prepared in google form and distributed via email, social media and communication apps. The questionnaires included a brief introduction to the research so that respondents understood the purpose of the questionnaires. Among the 70 questionnaires distributed, a total of 59 questionnaire were collected back with a total response rate of 84.3%. In order to do additional analysis, we imported the raw data into SPSS 26.0 (Statistical Package for the Social Sciences). Among the 59 responses, there were 9 incomplete questionnaires and hence the 9 responses were eliminated. Hence, the final data available for analysis came from 50 questionnaires, with a total valid response rate of 84.7%.

The final sample size for this study is 50.

Demographic Profile of Respondents

Information on respondents' demographic characteristics, such as gender, age range, greatest degree of education, and length of service to the present employer, has been gathered from the questionnaires. After entering the data into SPSS, a descriptive analysis was performed. Table 1.3 summarizes the demographic profile of the respondents.

Table 1.3 Demographic Profile of Respondents (n=50)

Background	Categories	Frequency	Percentage (%)
Gender	Male	23	46
	Female	27	54
Age Group	20-30	7	14
	31-40	20	40
	41-50	16	32
	51 and above	7	14
Highest Level education	SPM and below	10	20
	Below Diploma	24	48
	Equivalent Degree	Bachelor's 16	32
Years of Working with company	<1 year	6	12
	1-3 years	12	24
	3-5 years	16	32
	5-9 years	8	16
	Above 9 years	8	16

Reliability Test

The Cronbach's α for internal integration, information sharing, customer relationship and firm performance are 0.732, 0.799, 0.707 and 0.782 respectively. The composite value for internal integration is 0.812, information sharing is 0.846, customer relationship is 0.816 and firm performance is 0.862. The result indicated that all variables are reliable and can be accepted in this study for further analysis.

Table 1.4 Reliability Test - Cronbach's α and Composite Reliability (CR)

Variables	No. of Items	Cronbach's Alpha	Composite Reliability (CR)
Internal Integration	4	0.732	0.812
Information Sharing	4	0.799	0.846
Customer Relationship	4	0.707	0.816
Firm Performance	4	0.782	0.862

Construct Validity

Convergent and discriminant validity are the two components of construct validity. By comparing the instrument's results to those of other studies using a convergent validity test, researchers may see how accurately the instrument is measuring the constructs or variables of interest (Heale, Twycross, 2015). Discriminant validity looks at how different one construct is from the rest (Ginty, 2013).

Convergent Validity

Convergent validity is tested using average variance extracted (AVE) and factor loadings in this investigation. The loading factors, as stated by Hulland (1999), must be bigger than 0.4 or equal. Additionally, the construction must have an AVE value greater than 0.5 in order to be justified (Hair, Ringle & Sarstedt, 2011).

Based on table 1.5, the AVE for internal integration is 0.525, information sharing is 0.587, customer relationship is 0.532 and firm performance is 0.614. All the AVEs of the variables are acceptable and is higher than 0.5. Furthermore, the factor loading for the internal integration ranges between 0.636 to 0.911, information sharing ranges between 0.606 to 0.907, customer relationship ranges between 0.550 to 0.867 and firm performance ranges between 0.596 to 0.865. All the loading figure are acceptable and more than 0.4. In another word, the model has passed the convergent validity.

Table 1.5: Result of Measurement for Convergent Validity

<u>Variables</u>	<u>Indicators</u>	<u>Loadings</u>	<u>AVE</u>
Internal Integration	II1	0.636	0.525
	II2	0.673	
	II3	0.911	
	II4	0.642	
Information Sharing	IS1	0.615	0.587
	IS2	0.907	
	IS3	0.606	
	IS4	0.882	
Customer Relationship	CR1	0.550	0.532
	CR2	0.867	
	CR3	0.759	
	CR4	0.706	
Firm Performance	FP1	0.865	0.614
	FP2	0.596	
	FP3	0.799	
	FP4	0.845	

Discriminant Validity

Table 1.5 illustrated the discriminant validity based on Fornell-Larcker Criterion. The discriminant validity is accepted and has been established in this study.

Table 1.6: Fornell-Larcker Criterion – Discriminant Validity

Variables	Customer Relationship	Firm Performance	Information Sharing	Internal Integration
Customer Relationship	0.729			
Firm Performance	0.656	0.784		
Information Sharing	0.511	0.513	0.766	
Internal Integration	0.509	0.505	0.457	0.724

Path Coefficient and Hypotheses Testing

Path analysis is used on the acquired data to test the 4 research hypotheses. Based on figure 1.1, the R-squared value is 0.495, which means the 3 independent variables of the study explained 49.5% of firm performance. The Beta value of internal integration is 0.179, information sharing is 0.193 and customer relationship is 0.466. Since none of the beta-values are lower than 0.1, we may conclude that they are all significant (Hair, Ringle & Sarstedt, 2011). From table 1.7, information sharing and customer relationship ($P < 0.05$, $T > 1.645$) have a positive impact on firm performance as a p-value of < 0.05 shows that there is a positive relationship between the independent and depended variable. On

the other hand, internal integration ($T < 1.645$, $P > 0.05$) shows no significant relationship on the firm performance. Thus, H2 and H3 is supported and H1 are not supported in this study.

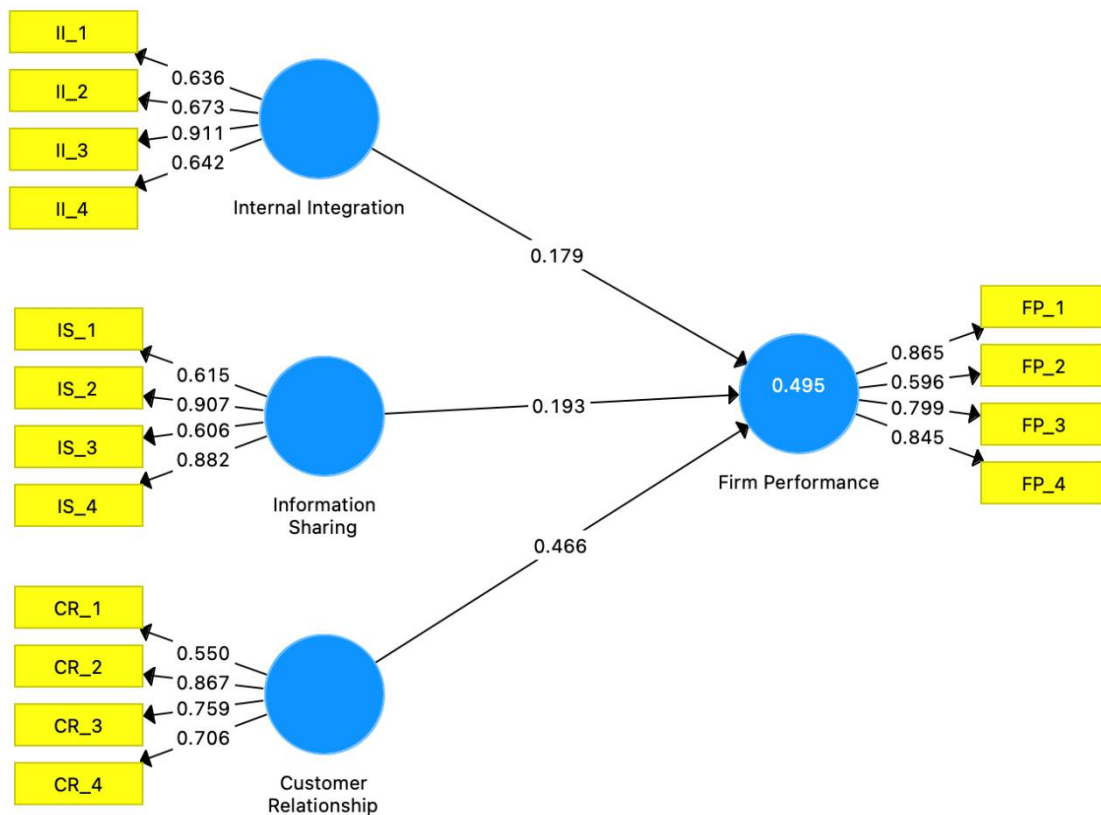


Figure 1.1 Structural Framework

Table 1.7: Path Coefficient and Hypotheses Testing

Hypothesis	Relationship	Std. Beta	T-value	P-value	Decision	R ²
H1	Internal Integration → Firm Performance	0.179	1.329	0.092	Not Supported	0.495
H2	Information Sharing → Firm Performance	0.193	1.716	0.043	Supported	
H3	Customer Relationship → Firm Performance	0.466	3.595	0.000	Supported	

Conclusion & Recommendations

In conclusion, this study examines the relationship between supply chain management practice and firm performance in logistics companies in Johor Bahru and identify which of the constructs of supply chain management practice has the most influence on the firm performance. Based on the findings, customer relationship has the most significant impact on the firm performance in the logistics companies followed by information sharing, whereas internal integration does not have a significant relationship on firm performance. Therefore, it is necessary upon the management and leader of the industry to guarantee that both of the mentioned concepts are consistently implemented. of the supply

chain management practice to improve the firm performance so that the company can stay competitive and sustainable.

As the study is only done in Johor Bahru state of Malaysia, it's recommended that the future research can involve the whole Malaysia and Singapore to better understand the effect of supply chain management practice on firm performance. Future study can also further increase the sample size to better represent the targeted population as the current study only consists of 50 samples. Besides, the demographics of the study should be examined to determine whether the demographic profiles of the respondents have an effect on the conceptual model of the supply chain management practice to firm performance. Lastly, researchers can also study the relationship between supply chain management practice with others variable such as Information Technology, supplier relationship and information quality.

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