

The Influence of Strategic Supplier Partnership, Customer Relationship Management, and Information Sharing towards Supply Chain Innovation

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Abstract: The purpose of this study is to examine the level and relationship between supply chain management practices (SCMP), and supply chain innovation (SCI) among SMEs in Malaysia. Manufacturing supply chain needs to innovate constantly for maintaining their position in the marketplace and also to fight uncertainties. Hence firms are focusing on strategies for developing innovation within and across its manufacturing supply chain. In line with following objectives, this study employs a quantitative research approach which will utilize stratified sampling technique and self-administered questionnaire survey. The respondents for this survey will be the individuals in operations of SMEs business in Malaysia. Subsequently, the survey data will be utilized to test the research framework and hypotheses. The results of the study can be useful for supply chain practitioners and manufacturers in integrating the right SCMPs on improving SCI. Furthermore, industrial practitioners will also receive insight on how to take account of the effect of SCMPs in designing their supply chain innovation for better manufacturing performance. In fact, organizations are not certain of what to implement, due to a lack of understanding of what constitute a comprehensive set of SCMPs. Also, the result will suggest successful dimensions of SCMPs that is could be implemented in order to foster supply chain innovation in SMEs in Malaysia.

Keywords: Supply Chain Management Practices, Supply Chain Innovation.

1. Introduction

According to **Rasib, Sundram & Noranee (2021)**, the growing competition in the market place have urged firms to increase and improve their operational activities and processes. In addition, firms have felt the need to integrate their operations and dominant activities with those of their key suppliers and distributors within the supply chain. **Bode & Wagner (2015)** has identified that supply chain innovation become the new pre-requisite for the survival of firms in developing capabilities and strategies for sustaining their operations and performance in the market. The previous studies added that the inevitable role of IT (Information Technology) at companies has transformed both working conditions and efficiency, and its importance is unquestionable.

Lasi et al. (2014) investigated the development of the Internet and technology creates a continuous network of people, machines and companies, and through the continuous sharing of value-creating processes, it is now possible to produce a competitive, fully-customized product for the buyer. Thus, it is also could drive business achievement as it increases production, resulting in growing revenue and profit as well as higher product quality and performance through the introduction of new tools (**Popp, 2018**).

In the era of industrial digitalization, companies are increasingly investing in tools and solutions that allow their processes, machines, employees, and even the products themselves, to be integrated into a single integrated network for data collection, data analysis, the evaluation of company development, and performance improvement (Asnordin, Sundram and Noranee, 2021). **Azlina et al. (2020)** stated that sharing the information is the ability to handle the movement of information through the supply chain. Through links with other systems, manufacturing information can be passed around companies, customers and suppliers. In this way, suppliers can keep tabs on how their materials are being used in production processes while the customer is able to track the manufacturing operation of the goods they wish to purchase (**Sundram et al., 2020**).

Every business has been pushed to be innovative due to the competitive pressure and turbulent business environment (**Osterwalder & Pigneur, 2014**). Being innovative are really important nowadays as to show the different and specialty of produce business or services in order to attract more revenue (**Johnson, 2016**).

According to **Meyer & Willems (2017)**, supply chain represents a conscious effort by the firm to develop and run supply chains in the most effective and efficient way possible.

Due to **Selvaraju et al. (2018)**, a chain that begins with wheat growing on a farm and ends with a customer buying a loaf of bread in a supermarket. Note that the value of the product increases as it moves through the supply chain. As our society becomes more technologically oriented, we see increasing specialization. Specialized expert knowledge, instant communication, and cheaper transportation also foster specialization and worldwide supply chains (**Heizer et al., 2016**). It just does not pay for a firm to try to do everything itself. The expertise that comes with specialization exists up and down the supply chain, adding value at each step. When members of the supply chain collaborate to achieve high levels of customer satisfaction, we have a tremendous force for efficiency and competitive advantage (**Russell & Taylor, 2014**). Competition in the 21st century is not between companies, it is between supply chains.

1.1 Research Gap

Malaysia is moving forward to be an industrialized economy. The importance of the manufacturing sector to the country's economy is increasingly growing as it contributes a larger share of gross domestic product (GDP) and export earnings (**Ezell & Atkinson, 2011**). Unfortunately, the manufacturing firms in Malaysia is facing several challenging issues such as volatility in customer demand, uncertain demand for innovative products or services, supplier incapability and insufficient information sharing within companies in the manufacturing supply chain (**Sundram et al., 2017**). Furthermore, past research from **Aberdeen (2018)** found that there are four top challenges of manufacturing supply chain faced across the globe. The result from the study show that there are 61% of rising supply chain management cost, 60% of customer mandates for faster, more accurate, and more unique fulfilment, 59% increase of demand volatility, and 42% growing complexity of global operations. Thus, manufacturing firms are disruptions would lead to poor profitability of the company.

Therefore, to remain competitive in the market, manufacturers must quickly respond to customer demands. Narayanan and **Moritz (2015) & Rezaei et al. (2017)** have demonstrated how the growing complexity of the supply chain has resulted in higher expectation of service among customers. The company's supply chain must be innovative to meet the ever-changing customer needs (**Hong & Jeong, 2006; Sundram et al., 2019**). Manufacturers must analytically derive solutions that can simplify disruptions and limit the cost of the recovery process (**Schmidt et al., 2017; Zhen et al., 2016**). Manufacturers must recognize the stages of production that will allow individuals to make the right decision while incorporating innovative ideas and policies (**Croson et al., 2013; Clemons & Slotnick, 2016; Thaler, 2016**).

1.2 Supply Chain and its Management

In defining a supply chain, one common aspect that is important to all supply chains is the existence of the linkage (chain) between parties involved in fulfilling the customer's request. A supply chain is defined as a set of three or more entities, with systems that are directly or indirectly involved in fulfilling a customer's request (**Zolait, 2010**). The complexity of the chain increases as more participants and stakeholders are involved in fulfilling customer requests. This is imperative as one production unit may have several suppliers (who may have several suppliers of their own and several production units to supply) as well as customers (who also may have their own customers) (**Sundram et al., 2017**).

In observing the supply chain configuration and the definition of supply chain, it can be seen that an important aspect of integrating the business processes from the consumer (who has the demand and is the source of funding), through original supplier (where the process of satisfying the customer's request begins) is included. At this juncture one has to ascertain how to manage these integrated processes and the linkages in the supply chain. This is basically an initiative that focuses on managing the entire process of raw materials being transformed into finished goods (products or services) delivered to the customer (**Ibrahim et al., 2010**). Noteworthy, supply chain management is defined as the design and management of seamless, value added processes across organizational boundaries to meet the real needs of the end customer. In this definition three core elements are explicit i.e., value creation (value addition), the integration of key business processes (across organizational boundaries), and collaboration (seamless) (**Sundram et al., 2016**).

In defining supply chain and supply chain management, the terms can be used to describe a series of interconnected entities incorporating the satisfaction of customer demand and the management of the flow of materials, funds and information through these entities to and from the end customer respectively, not excluding after sales services and returns, or recycling. **Van et al., (2001) & Christopher (2015)**, claim that one of the lessons from business experience that has been communicated accurately by literature in the past decade is the fact that producers have to align with suppliers, supplier's suppliers, customers and customer's customers to streamline operations, thus, resulting into supply chains becoming the dominant vehicle for competition. The

mainobjective of every supply chain, as **Chopra &Meindl (2017)** state, is to maximize the overall value generated. They assert that, this value is strongly correlated to the supply chain profitability, which is the total profit to be shared across all supply chain stages. The only source of revenue for any supply chain is the customer(**Asnordin, Sundram&Noranee, 2020**). The flows that take place in the supply chain generate costs. It is important to manage these flows appropriately, as this is the key to supply chain success, which is measured, in terms of profitability. One such strategy (i.e. supply chain management) requires firms to align conjointly with their suppliers and customers to streamline operations as well as working together to achieve levels of agility beyond individual firms **Mkumbo et al. (2019)** resulting in supply chain relationships.

1.3 Supply Chain Management Practices

Supply chain management (SCM) has nowadays become a crucial strategy for firms to enhance their profitability and stay competitive (**Li et al., 2006**). Thus, SCM has been recognized as an important phenomenon that has generated extensive interest among managers and academic researchers. Thus, over the last decade, scholars have increased the degree of attention paid to SCM. Supply chain management (SCM) can be defined as the configuration, coordination and continuous improvement of an organized set of operations. Its goal is to provide maximum customer service at the lowest cost possible, where a customer is anyone who uses the output of a Process. Since the goal of a company is to maximize profits, it must weigh the benefits versus the costs of its decisions along the supply chain (**Chima & Hills, 2007**).

SCM includes a set of individual functional entities and practices for enhancing the long-term competitive performance of individual firms and their supply chain as a whole by integrating the internal functions within the firm and effectively linking them with the external operations of suppliers, manufacturers, distributors, customers and other channel members (**Kim et al., 2018**). SCM encompasses all activities, which are involved in planning and management, sourcing and procurement, conversion and all logistics management activities as well as coordination and collaboration with channel partners (**Soosay et al., 2015**). SCM practices are defined as a multi-dimensional concept, including both downstream and upstream sides of the supply chain, (**Pramatari&Papakiriakopoulos, 2018**). Supply chain management practices involve several dimensions that were developed, tested and validated in the literature by previous researchers and has been explored from many different perspective. These practices are considered crucial, andthey cover both upstream and downstream sides of the SC. By considering both sides of the SC, this study allows researchers to test the antecedents and consequences of SCM practices, and also in the context of a specific developing sector and country(**Rasib, Sundram&Noranee, 2021**).

1.4 Dimensions

Several aspects of the SCM practices all the way through the factor study are strategic supplier partnership, information sharing, customer of relationship management, internal lean practices, postponement, total quality management, integration, JIT capability, integration, strategic location, and any else. Many authors studied supply chain management practices and there are various elements and dimensions have measured or used to measure the supply chain practice, for more exploration in the following table some of them:

Table 1. Dimensions of SCMPs

No.	Author	Dimensions
1	Kumar (2018)	Supplier collaboration, flexibility with partners, usage of internet, lean production, internal integration, quality management, customer focus
2	Sukatiet al.(2012)	Strategic supplier partnership, customer relationship, information sharing
3	Sundram et al. (2011)	Supplier Strategic Partnership, customer relationship, information sharing, information quality, postponement, agreed vision and goals, risk and reward sharing
4	Li &Lin (2006)	Strategic supplier partnerships, relationships with consumers, level of information sharing, information quality, postponement
5	Chen &Paulraj (2004)	Using supplier base reduction, long-term relationship, communication, cross-functional teams and supplier involvement to measure buyer supplier relationships
6	Van et al. (2001)	Six elements of supply chain practice (using factor analysis) supply chain integration, information sharing supply chain characteristics customer service management, geographical proximity and JIT capability

Interpretation of table-1.

The literature portrays SCM practices from a variety of different perspectives with a common goal of ultimately improving organizational performance. The SCM practices that will be used in this study are similar to research study conducted by (Sukati et al., 2012). Meanwhile, all the authors of the three-studies support the notion that knowledge sharing can increase innovation and collaboration in the value chain, which eventually could minimize disruption in the supply chain.

The nature of SCMPs will be able to explain the dual purpose of SCM as it improves the performance of an individual firm as well as the performance of the whole supply chain. This could be achieved through the effective adoption and construction of the best SCM practices (Kim et al., 2018). However, some of the organization may face problems when their employees did not follow the trend which they did not implement the ERP system effectively in their job role (Roseamirah et al., 2020).

1.4.1 Strategic Supplier Partnership

Strategic Supplier Partnership (SSP) is defined by Li & Lin (2006) as “the long-term relationship between the organization and its suppliers”. It focuses on direct, long-term association and it is interested in mutual planning and problem-solving efforts (Agus& Hassan, 2008). Therefore, it is designed to enhance the operational and strategic efforts and capabilities of individual participating firms to achieve their goals (Li & Lin, 2006). An effective supplier partnership is a critical component of leading-edge supply chains (Agus& Hassan, 2008). A strategic partnership allows a company to work more effectively with suppliers willing to share responsibility to ensure success of the product. The partnership begins with the company and the supplier working together to make product design decisions that involve, for example, choosing the best components and technologies and the most effective design, and concludes with an assessment of the product design (Lasi et al., 2018).

1.4.2 Customer Relationship Management

According to Lee et al. (2015), CRM is “concerned with planning, implementing, and evaluating successful relationships between providers and recipients either upstream or downstream of supplychain”. CRM mainly refers to activities such as sharing product information with customers, interacting with them to manage demand and satisfy their wants and needs, accept customer orders, having an order placing system, sharing order status with customers during order scheduling, and the product delivery phase (Lee et al., 2015). CRM has been widely studied in the academic literature as it is considered a core and key element of successful SCM (Lee et al., 2015; Li & Lin, 2006).

1.4.3 Level of Information Sharing

LIS is defined by Li & Lin, (2006) as “the extent to which critical and proprietary information is communicated to one’s supply chain partner”. Shared information can vary from strategic to tactical in nature and from information about logistics to customer and general market information (Min & Mentzer, 2015). Increasing attention on information integration prompts the increase of the establishment of strategic SC partners (Zhou & Benton, 2007). This construct has been previously tested and validated by various authors such as (Li & Lin, 2006; Wong & Ngai, 2019). Knowledge management (KM) practices can support learning and growth of a manufacturing firm and its linkage to its supply chain. KM practices are based on information sharing of the supply chain tiers’ shared experience and practices, and learning with respect to their mutual matters existed throughout their SC network.

1.4.4 Supply Chain Innovation

A supply chain represents a network of companies that interact to turn raw materials into finished goods and services and to deliver them to end customers (Johnson, 2016). Literally it must be managed in the most streamlined and cost-effective way possible. Competitive pressures and turbulent business environments push companies toward innovation. Innovation is necessary for firms to respond to rapid changes in products and services as well as customer’s demand and problems (Kim et al., 2018). Likewise, innovation is improvements in the way that products andA supply chain represents a network of companies that interact to turn raw materials into finished goods and services and to deliver them to end customers (Johnson, 2016). Literally it must be managed in the most streamlined and cost-effective way possible. Competitive pressures and turbulent business

environments push companies toward innovation. Innovation is necessary for firms to respond to rapid changes in products and services as well as customer's demand and problems (Kim et al., 2018). Likewise, innovation is improvements in the way that products and services, information and relationships flow within the network that should be done by companies for they to survive (Osterwalder & Pigneur, 2014). Generally, innovation occurs within processes, technologies, services, strategies and organizational structures (Rogers, 2019).

Dubey et al. (2012) found that innovation in supply chain processes (e.g., sales management and the number of orders) had a significant effect on the SC performance. Thus, Suppliers and manufacturers required to transform their business through innovation in SC to gain success among competitive industries (Wong & Ngai, 2019). According to Wang & Kafouros (2006), modelling technologies allow managers to manage data more effectively in their companies, thus creating rationality in a supply chain network.

The supply chains are responsible for including any fast transfer and distribution of technological innovations (Sabri et al., 2018). Huang et al. (2006), found that SC-affiliated companies, which produce innovative products for the general market, might utilize a supply chain model to meet their daily innovative needs in the supply chain. Arlbjorn et al. (2014) considered SCL as a gradual or a fundamental change in the supply chain network, technology or business processes in the SC framework in their systematic review. Today, the difference in economic and landscape has forced for organizations to change their way of processing their company to minimize the cost while increasing their quality improvement by implement some strategies towards an organization (Selvaraju et al., 2018).

1.5 Relationship between Supply Chain Management Practices and Supply Chain Innovation

Considered as a way to obtain the benefits of vertical integration without falling afoul of the formal costs of property (Arend & Wisner, 2005). SCM creates value for SMEs and permits the development of important competitive advantages by means of the relationships between suppliers and clients (Juste & Fierro, 2009). Among the benefits of SCM practices for SMEs are the positive impact on their operational and general performance. Bayraktar et al. (2009) & Bhutta et al. (2007) providing competitive advantages through the relationship with clients and suppliers Juste and Fierro (2009) and support to innovative processes (Zheng et al., 2010; Doloreux, 2004; Kaminski et al 2008; Oliveira et al 2015; Wang & Kafouros, 2006).

The design of the supply chain innovation involves the evaluation of the competitive environment, identification of the weak links in the chain, development of the competitive supply chain, and the integration (Lambert et al., 1998). Evaluating the competitive environment becomes the first step in understanding the discriminators needed for success in the market (Asnordin, Sundram & Noranee, 2021). The evaluation may point to alternative solutions needed to address the customer needs better than the competition. The customer needs, ranked in order of importance to the customer, will provide the basis for designing the supply chain (Graham & Smart, 2010).

Therefore, supply chain management practices really give positive impact on SMEs in order to implement supply chain innovation (Osterwalder & Pigneur, 2014). By actively apply the practices of supply chain management as a virtual corporation, manufacturers and their suppliers can source, produce, and deliver products with minimal lead time and expense

2. Significance Of The Study

In essence, findings provide authentic support for the proposition that supply chain management practices will have a more effectual influence on supply chain innovation. Additionally, the study made an effort to adopt the theory of relational view which has relevance in supply chain research. Drawing from the results, it can therefore be put forward that the theory of relational view remains insufficient to ground alone some research within the supply chain literature. This study will clarify the applicability of the resource-based-view theory (RBV). The result of this study might be helpful to better understand which dimensions of supply chain management practices can be recognized to be translated into supply chain innovation. The result of this study may trigger and allow others to conduct research on other dimensions, factors, or perhaps variables that would strengthen the relationship between supply chain management practices, competitive advantage, and supply chain innovation.

This research will likely aid practitioners and stakeholders of the industry by fostering a better understanding of the impact of supply chain management practices toward its supply chain innovation. First, it will reveal empirical evidence that the right supply chain management practices will lead to better competitive advantage and subsequently enhance supply chain innovation. Secondly, manufacturers and supply chain practitioners may be able to use the contributing factors of the innovation of supply chain management to identify the industrial critical success factors. As such, these critical success factors will be identified as the key result area (KRA) to

formulate key performance indicator (KPI) to measure the effectiveness and efficiency of the organizational resources and supply chain in total (Rasib, Sundram&Noranee,2020).

3.Review Of Related Studies

The purpose of the study is to identify whether supply chain innovation can be affected by supply chain management practices.This study will be carried out using the survey method in which each respondent will be given a set of questionnaires and the respondent has to answer the questions within a specific time.

4.Objectives Of The Study

- To determine the effect of supply chain management practices towards supply chain innovation
- To find out which supply chain management practices has a high impact on supply chain innovation
- To examine the level of supply chain management practices and supply chain innovation among manufacturing industry employees.

5.Hypotheses Of The Study

Hypothesis 1: Supply chain management practices has a positive effect on supply chain innovation

1(a) Strategic supplier partnership has a positive effect on supply chain innovation

1(b) Customer relationship has a positive effect on supply chain innovation

1(c) Information sharing has a positive effect on supply chain innovation

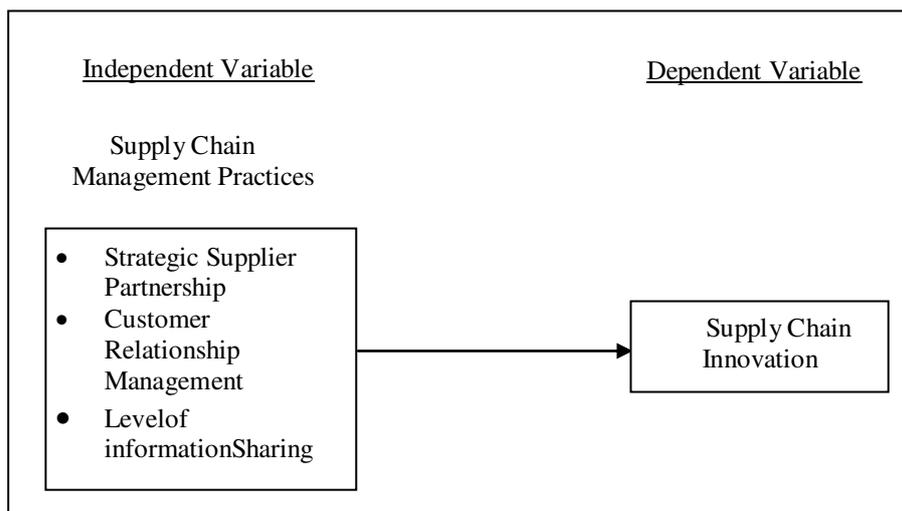
6.Population And Sample

The target population for this study were an assorted set of Malaysian manufacturing companies in Malaysia. According to the Statistical Department of Malaysia, there are 49,101 manufacturing companies in Malaysia whereas as the target respondent's area have 27,495 companies and categorized into 24 parts sub-sector of manufacturing industry. For this study, it is estimated that the population of respondents from manufacturing companies to answer the questionnaire are 379 respondents.Target respondents for the survey were the senior managers, middle managers, or support staff with direct responsibility for supply chain management or logistics function in the organization, as these individuals were knowledgeable enough to effectively respond to all of the scale items.

7.Framework

The framework proposes that SCM practices will have an impact on supply chain innovation directly.

Figure.1 Conceptual Framework



Interpretation of Figure 1.

SCM practice is conceptualized as a four-dimensional construct. The four dimensions are strategic supplier partnership, customer relationship, level of information sharing, and quality of information sharing.

8. Recommendations

- Future research may explore the model proposed in this study with other independent variables within the scope of supply chain and operation management.
- Future research can also consider using the qualitative method to obtain the response from the respondents.
- Future study could consider conducting the research in another sector such as agriculture or aviation industry to gauge their perception on supply chain especially when it comes to innovation
- Future research should consider different sectors that examine the role of supply chain management practices on supply chain innovation such as agriculture, aviation, or tourism industry.

9. Conclusion

In conclusion, this study is one of the first to identify and discuss conceptually the relationship between supply chain management practices and supply chain innovation. Nevertheless, there could be limitations that exist while conducting research based on this conceptual approach. The limitations can be addressed in future research work that may focus on studying the relationships among variables used for this paper, as well as in related areas of current and past researchers.

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