

CHAPTER 7:

7.0 CONCLUSION AND RECOMMENDATION

7.1 Introduction

The previous chapter discussed the findings of the study, and gives a picture of whether this study supported previous studies or otherwise. Also, the previous chapter has summarized the main points of the results and has shown how they address the research questions. Finally, this chapter presents several important policy and practical implications and recommendations, which are made based on the research findings. This chapter also discusses the limitations in doing this research and has suggested the some possible ingredients for future research.

This research explored the relationship between supply chain management practices, supply chain integration and supply chain performance in electronics industry in Malaysia. What constitutes effective and significant supply chain management practices in the context of electronic industry in Malaysia and the existence of the opportunity for firms to improve their supply chain performances have been highlighted. This chapter concludes the entire research as it summarizes the research process that encompasses the electronic manufacturing firms of Malaysia, hopefully representing the developing economies.

7.2 Practical and Policy Implications and Recommendations

Through the understanding of these relationships, it provides important insights to the supply chain managers, logistics managers and operations managers in terms of identifying strategies that would enhance the utilization of supply chain management practices within

and across their organizations. For organisations that are currently implementing such initiatives, such as INTEL and PANASONIC, this study sheds some light on the necessary measures to be undertaken to ensure successful supply chain management implementation. Such proactive actions are deemed important as they help to recuperate the electronic manufacturing firms' performance as well as the total supply chain performance concerned.

This section puts forward suggestions on issues related to the promotion and development of the supply chain management practices. These suggestions need to be scrutinized by various stakeholders in the manufacturing sector of Malaysia including the central government [through the Ministry of International Trade and Industry (MITI); Ministry of Finance (MOF)], Industrial promotion bodies [through the Malaysia Investment Development Authority (MIDA)], international bodies [through United Nation Bodies (UNIDO)], and the Malaysian industrialists.

There are few practical and policy implications that may help decision makers in achieving the above efforts, such as (1) embracing the awareness of supply chain management practices, (2) promoting infrastructure development, (3) promoting information, communication and technology, (4) incentives to promote supply chain activities, (5) establishment of non-governmental organisation in the field of supply chain, (6) supply chain practitioners creative initiatives, (7) support and commitment from top level, and (8) provide training on supply chain managerial skills. Some of these actions have already been suggested and employed by Malaysian Association of Productivity in order to improve the productivity of manufacturing firm mainly the Small and Medium Industries [SMI] in Malaysia.

7.2.1 Embracing the awareness of supply chain management practices

Malaysia is moving from an agro-economy to industrialized economy in order to achieve the status of developed nation and new industrialized economies [NIE]. Therefore, this could be regarded as a very significant change that is taking place so fast in an economy that is small like Malaysia's (Rasiah, 2006). As these changes are necessary, the government, through various players, should introduce deliberate moves to promote supply chain management practices in the industrial sector. The moves should not only start at the industry level, but should also start from the roots by introducing subjects related to supply chain management concepts and practices in schools, colleges, and universities that train the workforce that subsequently absorbed into the industrial sector. This exercise cannot be avoided, as every part of the globe is trying to embrace supply chain management.

7.2.2 Promoting infrastructure development

In the developing economies, likewise Malaysia, the effort of promoting infrastructure development is the joint responsibility of the government and the private sector. The issue of developing infrastructure extends to physical structures, such as roads and telecommunication facilities. This infrastructure development is highly necessary to allow for manufacturing industries to compete fairly.

7.2.3 Promoting Information, Communication and Technology (ICT)

Sharing of information among business partners is vital for in order to operate an excellent supply chain. This information sharing capability is enhanced by technology system (Chandra & Kumar, 2000). Besides increasing efforts in the development of the ICT infrastructure, the government needs to give special priority to the development of the

information highway that may boost the application of IT in the country. The research has shown the importance of information sharing in the enhancement of supply chain integration and performance. Therefore, by developing the IT infrastructure, there will be an increase in the possibility of firms embracing supply chain management practices and its supply chain performance measures. Specifically, in the manufacturing industry the information technology system could facilitate the integration between manufacturers and other supply chain members. This system also integrates the traditional isolated system (Product Data Management, Bill of Material, Master Production Planning) (Andersen, Fagerhaug, Randmål, Schuldmaier, & Prenninger, 1999). In this kind of supply chains implementation of powerful information systems linked across supply chain partners and efforts to reduce supply chain costs usually lead to smaller inventories and in general to leaner supply chains (Hadaya & Pellerin, 2010; Kleindorfer & Van Wassenhove, 2004). Hence, this system enables effective and efficient information exchange and communication among different members of supply chain in the manufacturing industry.

7.2.4 Incentives to promote supply chain activities

The previously stated recommendations take a long time in their implementation. For short term steps, the government can introduce policy incentives that may attract industrialists to promote supply chain management practices and performance measurement practices in the electronics manufacturing sector of Malaysia. One example of such incentive can be tax waivers on expenditure for training in the areas of supply chain management and performance measurement. Also, as an example, firms that promote supply chain management practices in the industrial sector of Malaysia can be given tax waivers for costs incurred in the process of promoting local suppliers. This has to be implemented similarly

with Early Supplier Involvement (ESI) and Supplier Development Program (SDP) which has been practised by the Malaysian automobile industry.

7.2.5 Establishment of NGO in the field of Supply Chain

Many of the respondents suggest the introduction of an NGO or non-profit organization as a central body to oversee the promotion of supply chain management. This body can be similar to supply chain management organisations found in the developed economies, such as Chartered Institute of Logistics & Transport and Chartered Institute of Purchasing and Supply. These organisations are run by industries that help in the development of supply chain management. The Malaysian industrial sector is still growing and need more support. The government can take the initiative to start a supply chain management organisation in the country and fund its operations in the early years of its inception. As time progresses, the significance of this organisation will surface and eventually it will allow for such a transfer to industrial development organisation involving financial assistance.

7.2.6 Supply Chain Practitioners Creative Initiatives

Finally, it should be noted that the concepts of supply chain management practices are strategic in nature, and thus, the scales in this study are not intended to provide a detailed activity list for implementing supply chain management practices or a day-to-day operation at operational level. This implies that, it will be more beneficial if the managers take the initiative by being creative and come up with specific, everyday activities that fit in the strategic level implementation of supply chain management practices in the manufacturing industry.

7.2.7 Support and Commitment from Top Level

As far as supply chain management implementation is concerned, there is nothing more important than top management leadership and commitment towards such an initiative. An undivided acceptance of this new supply chain strategy can be attributed to the cultural factor of an organization. Therefore, top management plays an important role in shaping the organisational culture as well as promoting change in the organisation. Leaders have to be sensitive of the benefits of introducing supply chain management practices for the sake of achieving organisational goals. At the same time, they have to establish common agreed vision and goals of the total supply chain concern. Top management could initiate the supply chain initiatives in an organisation through a rationale consideration by communicating the importance of this supply chain practices to all middle and lower level managers in order to gain their trust and understanding.

Another way of communicating the significance of such a system is through embedding the supply chain practices and performance in the organisational vision and mission statements. When middle and lower level managers see the commitment from the top management, they will be convinced in the supply chain initiatives. Besides highlighting the importance of such systems to the organisation, leaders must also encourage middle managers to implement supply chain management projects such as supplier selection and evaluation programme, lean supply chain programme and supply chain information system. Further, top management support for infusion of supply chain technology can be operationalised by incorporating technology into organisational processes such as Radio Frequency and Identification system (RFID) inventory management system in order to share the inventory

information among the supply chain partners along the supply chain (Hou & Huang, 2006; Lin & Ho, 2009; Sabbaghi & Vaidyanathan, 2008).

7.2.8 Provide Training on Supply Chain Skills

In this situation specialized training is not even conducted in training institutions, as these institutions are still not sufficiently developed. Therefore, deliberate efforts need to be put in place to rescue the industrial sector in the mentioned practices. By promoting education in these aspects, it will guarantee the availability of expertise and therefore promote the practices in the industrial sector of the country. Thus, providing training has been linked to the issue of adopting innovative supply chain technologies such as Enterprise Resources Planning (like SAP system, Oracle system, and People Soft system), Inventory Management System (IMS) and RFID system. Furthermore, the pre-study from this research found that some of the stake holders of supply chain in the manufacturing industry which includes MIDA, MITI and Royal Customs and Excise Department do not attend any supply chain training.

7.2.9 Developing Organization Cooperation with Trust

The overall findings of this study strongly substantiate the vital role of supply chain management practices and integration for manufacturing organizations in today's challenging competitive business environment. Henceforth, the implementation of organization cooperation will be the next best solution to improve the organization and supply chain performance. This organization cooperation could be embraced by building trust among supply chain partners, which eventually will influence the strategic supplier partnering, information sharing and customer relation. Furthermore the trust commitment

form all members of manufacturing supply chain will be able to influence the overall supply chain management effort.

7.2.10 One-Stop Centre for Promoting Supply Chain Innovation

Many of the respondents suggested the introduction of a One-Stop centre or a central body to oversee the promotion of supply chain management. This body can be similar to supply chain management organizations found in the developed economies, whereby these organizations are run by industries and they help in the promotion of supply chain management. In Malaysia the industrial sector is in dire need for supply chain effort and innovation. The government can take the initiative to start a supply chain management organization in the country and fund its operations in the early years of its inception. As time progresses, firms will see the importance of this organization and eventually it will be transferred to industrial promotion organizations for financing.

7.3 Limitations of Current Study

The nature of the study clearly underscores its limitations. The firms in the electronic manufacturing industry were the units of analysis. Therefore, the results of the study are relevant to categories of firms in the respective electronics industry. As a result, the findings may not be entirely applicable to other sectors of manufacturing in other industries. Moreover, the valid data collected for the research was 113, which indicates the Exploratory Factor Analysis (EFA) conducted based on this sample size would draw variances in the study. Thus, this study whether generalisable or not, is based on this data collected. Other limitations of the study are as follows.

7.3.1 Survey

Survey limitation exists with an instrument, regardless of its origin. There are several risks associated with this instrument, as it applies to this research. The first of these issues surrounds the age of the instrument. The questions were pertinent at the time the instrument was first-tested. Also, since the instrument used was a questionnaire, it was assumed that respondents were honest in answering the questionnaire but this may not always be true.

7.3.2 Distance of the Respondents

The study concentrates on all electronics manufacturing firms in Malaysia. This includes the northern region (Kedah, Penang, Perak), the central region (Kuala Lumpur, Selangor, Negeri Sembilan), the southern region (Malacca, Johore) and last the east coast (Kuantan, Kelantan and Terengganu) in Peninsula Malaysia. Since the location of the firms are scattered all over Malaysia, the process of data gathering was possible by mailing questionnaires.

7.3.3 Time

Systematically, conducting research takes time (Zikmund, 1994). Thus, it is impossible for the researcher to include all major players in the electronics industry. As a result, the study concentrated on manufacturing firms in the industry, which is a sector of the non-resource manufacturing industry, primarily the electronics manufacturing industry.

7.3.4 Confidentiality of Information

Confidentiality of information is another limitation of the study that is, the name of companies, employees, sales and share of ownership. Most of organisations, especially SME's, were not keen to disclose much information especially on how the supplier partnering processes, lean practices and postponement operations. Some MNCs in the electronics manufacturing did not allow the researcher to conduct a research on the organisation because they believed that the agency is not ready to transmit any information to the public. If data cannot be made available, research cannot be conducted (Zikmund, 1994).

In order to reduce the risk of this problem, the researcher took an initiative by getting a recommendation from the major decision makers, such as the Ministry of International Trade and Industry (MITI) and Malaysia Logistics and Supply Chain Association (MALSCA). Due to all these constraints, the researcher is aware that the validity of conclusions and generalizations of this research finding might be affected.

7.4 Recommendations for Future Research

This study has advanced knowledge with the development of a contingency-comprehensive model to investigate the impact of supply chain management practices towards supply chain performance through a mediating factor of supply chain integration in electronics manufacturing industry in Malaysia. It is hoped that the recommendations given in this study can help the Malaysia's electronics manufacturing industry to improve their supply chain performance through supply chain management practices implementation efforts.

Besides, it is also hoped that the findings would serve as a guide to other industries on the pre-requisites needed to implement a supply chain management.

Many business organisations are viewing supply chain management as mandatory practices mainly common in electronics and electrical industry. Indeed, a proper supply chain management practices will create collaborative synergy among business partners along the supply chain. This would eventually lead to operational flexibility, effective resources utilization and output performance. Eventually, the organisational performance is improved. This would allow the firms in the electronics sector and eventually the nation to gain competitive advantage. Together, this study managed to underline some constructive recommendation for future research with the intention to spur more synergic effect by improvising the current scope, methodology and analysis type. They are as such:

7.4.1 Include other manufacturing industries

The model used in the study might apply to other similar manufacturing industry such as electrical. However, it might not be applicable to firms in other manufacturing sector such as metal, wood, pharmaceutical and etc due to other forces such as nature of firm, industry, and work design inherent in the organisation that might come into play. Therefore, it is recommended that the future research studies should also include firm sample from other industries and indirectly this will improve the generalisability of the research study which is the hallmark of a scientific research (Veera & Chandran, 2010).

7.4.2 Include other dimensions of supply chain management practices

It is recommended for future studies to investigate two other important supply chain management practices dimensions (attention to supply chain leadership and supply chain orientation) and link it to supply chain integration and supply chain performance in electronics manufacturing industry in Malaysia. It is also possible for additional studies to examine the contingency-comprehensive dimensions of supply chain management practices model on other dimensions of supply chain management practices such as supply chain leadership, process integration and long-term relationship.

7.4.3 Study design to consider the causality effect

The present study does not allow consideration for causality, making it impossible to determine whether the dimensions of supply chain management practices (i.e. strategic supplier partnering, customer relationship management, information sharing, information quality, internal lean practices, postponement, agreed vision and goals and risk and reward sharing) causes supply chain integration and supply chain performance. Correlation studies do not provide irrefutable evidence of causation. A longitudinal studies and experimental studies are needed to firmly establish causal direction. In fact, this study tends to presume that the dimensions of supply chain management practices are the predictor of supply chain integration and supply chain performance. Therefore, further research is needed to investigate these relationships and to address the causality.

7.5 Summary

This research takes a step forward to better understand the relationship between supply chain management practices, supply chain integration and supply chain performance by incorporating these variables into the industrial landscape of electronics manufacturing in Malaysia. By specifically using a combination model of a unified framework combining eight constructs constitute a combination of comprehensive model (Li et al. 2006b; Li et al. 2005) and system approach model (Min & Mentzer 2004). As such, the analysis in this study contributes to the empirical literature on supply chain management, policy progress as well as managerial implications. The outcome of this study also signifies the contribution it has given towards a new shift in upgrading the manufacturing best practices in developing countries through effective supply chain management practices and supply chain integration.

Specifically, this study has addressed the research questions set forth in this study. To some extent, the findings represent a universal phenomenon as suggested by prior literature. Through the understanding of these relationships, it provides important insights to the supply chain managers and logistics managers, not only in the electronics manufacturing industry, but also other industries in terms of identifying strategies that would enhance the utilization of supply chain management practices within their organisations and across the supply chain. For organisations that are currently implementing such initiatives, this study sheds some light on the necessary measures to be undertaken to ensure successful supply chain management practices implementation. Such corrective actions are deemed important as they help to recuperate the supply chain and logistics managers' performance as well as the overall company's return of investment.

As a whole, a significant contribution is needed if one undertakes a study especially when it involves intense and complex research work. Apart from contributing in forming a new conceptual framework using existing theoretical arguments, in this study, contribution for policy implications and recommendations for future studies has also been made.