Supply Chain Management in Telecommunication Industry: The Mediating Role of Logistics Integration

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Abstract. Increase in the competitive environment in Telecommunication industry, customer demand for more cheap product with better quality service. Hence, Telecommunication companies need to operate efficiency for their supply chain management in order to perform the best performance. The supply chain management practice has mostly been analyzed as a strategy that to gain competitive advantage in business performance. Therefore, the purpose of this paper is to propose the structural relationship between the supply chain management practice and supply chain performance and whether this relationship is mediated by the logistics integration in the Telecommunication industry. The proposed framework expects to be tested using Statistical Package for Social Sciences (SPSS) 21th version for testing the measurement model and the data will be collected from companies in the Telco industry. The research is limited literature review and end with suggested future research.

Keywords: supply chain management practice, supply chain performance, logistics integration, Telecommunication industry

1. Introduction

Department of Statistics Malaysia reported that the percentage share of economic activities main sector are service sector(54.6%), followed by manufacturing (24.9%), mining and quarrying (8.4%), agriculture (7.3%) and construction (3.5%) (Department of Statistics Malaysia, 2012). Telecommunication industry is under service sector. Thus it showed that the Telecommunication industry contribute a lot in the Malaysia economic activity. Besides that, Industry Performance Report by Malaysia Communication and Multimedia Commission (MCMC) highlighted that communication industry in a steady growth 7.2% and this growth rate is in line with government nation status 2020(Report, 2012).

This study focuses on Telecommunication companies in Malaysia since Telecommunication industry contributes a high percentage of shares of economic activities. Therefore, in order to maintain the companies remain competitive, supply chain needs to manage accordingly.

The Telecommunication industry consists of the few businesses along with the supply chain. Figure 1 showed the high level supply chain structure in the Telecommunication industry.

![High level supply chain structure in Telecommunication industry](Image)
1.1 Objective

The purpose of this paper is to propose the structural relationship between the supply chain management practice and supply chain performance and whether this relationship is mediated by the logistics integration in the Telecommunication industry. This paper will discuss the literature review, the proposed research framework, methodology, contribution, conclusion and suggestion for future research.

2. Literature Review

Supply chain management practice define as a set of activities undertaken by organization to promote effective management of its supply chain (Li, Ragu-Nathan, Ragu-Nathan, & Subba Rao, 2006). From past literature, there are a lot of the supply chain management practice dimension discuss by the researcher. Table 1 summarizes the theoretical studies of dimension of supply chain management practice from the past research. In this study, four dimensional of supply chain management practice which are a strategic supplier partnership, customer relationship and information sharing will be used as an independent variable. Logistics integration will be used as a mediating variable and supply chain performance as a dependent variable.

<table>
<thead>
<tr>
<th>Source</th>
<th>Supply Chain Management Practice Dimension</th>
<th>Mediator/Moderator</th>
<th>Industry/Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Li et al., 2006)</td>
<td>Strategic supplier partnership, Customer relationship, Information sharing, Information quality, Internal lean practice, Postponement</td>
<td>None</td>
<td>Different industries</td>
</tr>
<tr>
<td>(Koh, Demirbag, Bayraktar, Tatoglu, &amp; Zaim, 2007)</td>
<td>Strategic collaboration and lean practice, Outsourcing and multi supplier</td>
<td>None</td>
<td>SME companies from Turkey</td>
</tr>
<tr>
<td>(Chow et al., 2008)</td>
<td>Customer and supplier management Supply chain features, Communication and speed, Information sharing, Customer relationship</td>
<td>None</td>
<td>US and Taiwan manufacturing comparison</td>
</tr>
<tr>
<td>(Omain, Bakar, Hamid, Rahman, &amp; Rahim, 2010)</td>
<td>Customer relationship, Close supplier relationship, Information sharing, Supply chain integration, Logistics, Strategic location</td>
<td>None</td>
<td>Agriculture in Malaysia</td>
</tr>
<tr>
<td>(Cook, Heiser, &amp; Sengupta, 2011)</td>
<td>Information sharing, Long term relationship, Advance planning system, Leveraging the internet, Distribution Network Structure</td>
<td>Supply chain roles as a moderator</td>
<td>Nonacademic North America membership of the Institute of Supply Chain</td>
</tr>
<tr>
<td>(Sundram, Ibrahim, &amp; Govindaraju, 2011)</td>
<td>Supplier strategic partnership, Customer relationship, Information Sharing, Information quality, Postponement, Agreed vision &amp; goal, Risk and reward sharing</td>
<td>None</td>
<td>Electronics Industry in Malaysia</td>
</tr>
<tr>
<td>(Tan, 2012)</td>
<td>Information and technology management, Demand management, Customer relationship management, Supplier relationship management, Capacity and resource management</td>
<td>Alliance integrated network as mediator</td>
<td>Public healthcare in Malaysia</td>
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<tr>
<td>(Asmida, Sah, Habidin, Latip, &amp; Salleh, 2014)</td>
<td>Leadership, Supplier relationship, Customer Quality information and analysis, Internal lean practice</td>
<td>None</td>
<td>Automotive Industry in Malaysia</td>
</tr>
</tbody>
</table>

2.1 Strategic supplier partnership

Li et al described strategic supplier partnership as a long term relationship to influence the both parties between supplier and company to achieve significant benefit between them (Li et al., 2006). Long term relationship refer to the deal is not temporary (Chen & Paulraj, 2004). Indra et al has investigated that strategic supplier partnership has significant relationship with competitive advantage of the firm in term of quality, price, delivery, time to market and product (Sukati, Abu, Abdul, Prof, & Baharun, n.d.). The supply chain performance affected by the competitive advantage (Datt, 2009). Hence, the strategic supplier partnership is crucial to enhance the supply chain performance.

2.2 Customer relationship

Customer relationship is how to manage the customer complaints, enhanced customer satisfaction and create long term relationship with customer (Sundram et al., 2011). Chow et al in their research found that supply chain management practice made up of customer relationship has direct impact on organizational performance in Taiwan but indirect impact on organizational in US (Chow et al., 2008). Hence, customer relationship will be able to enhance supply chain to better performance.

2.3 Information sharing

Information sharing refer to how the critical information is being shared among the supply chain member regarding to customer information, product and market (Sundram et al., 2011). Information sharing is an essential dimension in supply chain management practice. Sezen in his study on manufacturing firms in Turkey found that information sharing are correlated with supply chain performance but with lower relative effect size (Sezen, 2008). Thus it is essential to include in information sharing in this study.

2.4 Logistics integration

In 2013, Moskdanian and Molahosseini reported that logistic integration is one of important variable in measuring the performance (Moshkdanian & Author, 2013). Stock described logistics integration as a logistics practices and operational activities that coordinate the flow of material from supplier to customer throughout the value stream (Gregory, 1998). Bannet and Klug in their studies concluded that logistics integration is a new form of criteria for companies to evaluate the performance between the company and supplier (Bennett, 2012). Moskdanian and Molahosseini in their research demonstrated that there is positive and strong relationship between logistics integration and performance in Bahaman Group which is a manufacturing company (Moshkdanian & Author, 2013). Projogo also believed that improvement in logistics integration contribute to the increasing of operational benefit (Prajogo, 2012). But the research is limited in manufacturing industry and organizational performance, due to the research gap, this paper interested to study the logistics integration mediating effect on structural relationship between the supply chain management practice and supply chain performance in Telco industry.
2.5 Supply chain performance

Supply chain performance can be measured using efficiency and effectiveness (Hsu, 2005). There are two indicators for supply chain performance, first, cost containment indicator such as warehousing cost, cost inbound and outbound activities and increasing asset turnover. Second, reliability indicator which include inventory turns, safety stocks and order fulfilment (Lee, Kwon, & Severance, 2007). Veerat et al argues that supply chain performance measure long term goal which increase market share and short term goal which include reduce cost (Sundaram et al., 2011). Supply chain performance is important for company to compete in global market. Previous literature shows that supply chain performance has a positive relationship with supply chain management practice in different industry, country and context.

3 Proposed Research Framework

Based on the discussion on the literature review, there a lots of study were explored regarding on supply chain management practices and supply chain performance but limited study on mediating and moderating effect (Danese, 2013). Thus, Figure 2 proposed the research framework of this study.

![Figure 2: Research Framework](image)

4 Methodology

This research is an empirical study which will employ the research by using the quantitative method. The method of data collection is by distributing the questionnaire to the managerial and executive level of worker from Telco companies. The proposed framework expects to be tested using Statistical Package for Social Sciences (SPSS) 21th version for testing the measurement model.
5 Contribution

This study will investigate empirically on the mediating effect of logistics integration on the relationship of supply chain management practice and supply chain performance in the Telecommunication industry. Academically, the past literature review has been studied on different country and different industry of supply chain management practice (Hong & Zailani, 2011; Koh et al., 2007; Omain et al., 2010; Sundram et al., 2011) but did not cover the mediating effect that will affect the relationship (Sundram et al., 2011). Thus, an alternative framework sufficient to be added to measure the mediating effect in the supply chain management practice.

6 Conclusion and suggestion for future research

Supply chain management practice and supply chain performance are becoming a crucial factor for the companies to establish in the global market. The fierce competition among companies in Telecommunication industry has driven supply chain management practice to the fore of key values drivers for companies to gain supply chain performance. The paper proposed the conceptual framework that there is the mediating effect of logistics integration on the relationship of supply chain management practice and supply chain performance in the Telecommunication industry. Future research may improve by extending the analysis to include others dimensional of supply chain management practice such as leadership, postponement, just in time and also extending on the mediating effect such as supply chain integration and information integration.

7 References


