Supply chain integration: an empirical study on manufacturing industry in Malaysia

Ali Hussein Zolait and Abdul Razak Ibrahim
University Malaya, Kuala Lumpur, Malaysia
V.G.R. Chandran
Universiti Technologi Mara, Selangor, Malaysia, and
Veera Pandiyan Kaliani Sundram
University Malaya, Kuala Lumpur, Malaysia

Abstract

Purpose – The purpose of this paper is to attempt to identify the relationship between supply chain process integration and firm performance.

Design/methodology/approach – The dimension classification and measurement instrument of the framework adapted from the previous research focus on firm performance impacts of digitally enabled supply chain integration (SCI) capabilities. The study employed the quantitative method where convenience sampling and self-administered survey questionnaires were sent to 98 conference participants in Malaysia. The research framework was pre-tested using multivariate analysis.

Findings – The findings reveal that all three dimensions of supply chain process integration were statistically significant to firm performance. Furthermore, information flow integration shows a greater influence than physical and financial flow integration.

Research limitations/implications – This study focused on the manufacturing sector with respondents who were participants of a conference.

Practical implications – The results offer insights to supply chain management practitioners and policy makers on the importance of SCI and information technology (IT) infrastructure to improve the competitiveness of manufacturing industry in terms of operational excellence, revenue growth and customer relationship.

Originality/value – This study adds to the body of knowledge by providing new data and empirical insight on the relationship between SCI and firm performance specifically for the manufacturing industry in Malaysia. In addition, the findings may invite opportunities for comparative studies mainly with other industries as well as other developing and developed economies.

Keywords Supply chain management, Manufacturing industries, Technology led strategy, Malaysia

Paper type Research paper

1. Introduction

Supply chain management (SCM) has captured the interest of many practitioners and scholars in recent years (Bechtel and Jayaram, 1997; Burgess *et al.*, 2006). This popularity has been due to the fact that SCM is a vital element for operational success (Croom *et al.*, 2000). SCM is an integration of various business processes such as demand planning and forecasting, procurement, manufacturing and assembly, distribution, management of resources and customer-focused process management (Lummus and Vokurka, 1999; Mentzer *et al.*, 2001; New, 1997). However, in spite of the key role of supply chain integration (SCI) in the SCM phenomenon, limited scholarly investigation has been undertaken to present a theoretical viewpoint, supported by empirical evidence (Sahin and Powell, 2002) on how to enable SCI capability to yield performance gains for firms.

Journal of Systems and Information Technology
Vol. 12 No. 3, 2010
pp. 210-221

1328-7265
DOI 10.1108/13287261011070830

2. Purpose of study

Although there is a wide range of literature on SCI, the area needs further research due to the lack of empirical evidence on the linkages between supply chain process integration and firm performance. To address the research gap we investigate "how information flow, financial flow and physical flow affects the capabilities of manufacturing firms in a developing country such as Malaysia." This study attempts to empirically examine the link. Additionally, this empirical exercise also is intended to contribute to deepening the understanding of the conceptual framework established in previous studies (Rai *et al.*, 2006; Appendix). This study has suggested the direct positive link between supply chain process integration and firm performance. In addition, this current study highlights that supply chain process integration is the restructuring activities that target the realigning of resources within and across firms, with the resource-based view (RBV) (Barney, 1991) as an underpinning theory.

3. Literature review

The literature defines SCI as the degree of integration of core processes across organizational boundaries through improved communication, partnerships, alliances and cooperation (Power, 2005). It also includes the application of new technologies to improve information flows (Donk *et al.*, 2008; Kim and Narasimhan, 2002), financial flow (Mabert and Venkataramanan, 1998) and coordinate the flow of physical goods (Childhouse and Towill, 2003; Donk *et al.*, 2008) between supply chain partners. The concept of SCI has propelled continuous development in manufacturing (Cousins and Menguc, 2006; Donk *et al.*, 2008). Firms are venturing on to integration activities, linking of suppliers, manufacturers and customers in order to obtain significant improvements in terms of cost efficiency and lead time (Exon-Taylor, 1996; Power, 2005).

In relation to the types of performance measures, some authors measure performance of the entire supply chain (Lee *et al.*, 2007; Li *et al.*, 2009) or only deal with measuring the individual firm's performance (Rai *et al.*, 2006; Tracey and Tan, 2001). Some authors prefer using a mix of logistics or supply chain operational criteria as measurement indicators (Frohlich and Westbrook, 2001; Kim, 2006) and others are more inclined towards utilizing pure financial criteria as measurement indicators (Narasimhan and Kim, 2002; Rosenzweig *et al.*, 2003; Vickery *et al.*, 2003). As a consequence, there is no consensus regarding how performance is to be measured (Fabbe-Costes and Jahre, 2007). Further, to date, there have been few research studies on performance of others in the supply chain in addition to the focal firm.

Performance studies in relation to SCI can be classified into three groups (Gimenez and Ventura, 2005). These are the relation between internal SCI and performance, between external SCI and performance or both types of SCI with regards to performance. Many research articles have clearly argued and have provided evidence concerning the positive impact of SCI on performance either through explicit (Frohlich and Westbrook, 2001; Rosenzweig *et al.*, 2003) or implicit (Kim, 2006; Narasimhan and Kim, 2002) consideration. The next section describes how different types of SCI namely information, physical and financial flow relate to performance.

4. Research framework and hypotheses

Attempts to frame the analytical investigation require a strong theoretical consideration and supportive review of literature to support the relationship between the variables under consideration. The research framework of this study is extensively based on previous research (Rai *et al.*, 2006), primarily on the dimension classification