

## Chapter 63

# Assessing the Impact of Supply Chain Integration on Firm Competitive Capability

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### ABSTRACT

*Firms undertake efforts to compete along multiple fronts. First, they integrate internally in order to prepare a cohesive organizational response and to ready the ground for external integration. They then seek to integrate with both customers and suppliers which can increase the breadth and depth of resource endowments. Internal and external integration are posited to improve manufacturing related competitive capability. This study examines whether internal integration and external integration impact manufacturing related competitive capability. The findings indicate significant positive effects of internal integration on both supplier and customer integration. Each supply chain integration dimension has a significant direct effect on competitive capability. Testing for mediation effects indicates that customer integration and supplier integration partially mediate the effects of internal integration on competitive capability.*

### INTRODUCTION

With rapid changes in technology and globalization of markets, it is not enough simply to optimize internal structures and infrastructures based upon business strategy. Today, most manufacturers have linked their internal processes to external suppliers and customers. The three forms of integration, i.e., internal, supplier, and customer integration have emerged as important elements of the supply chain. *Internal integration* is defined as a process of inter-functional interaction, collaboration, coordination, communication and cooperation that bring functional areas together into a cohesive organization (Flynn et al., 2010; Zhao et al., 2011; Narasimhan & Kim, 2002). *Supplier integration* refers to the process of interaction and collaboration between an organization and its suppliers to ensure an effective flow of supplies (Flynn, et al., 2010; Zhao et al., 2011; Narasimhan & Kim, 2002; Frolich & Westbrook, 2001; Vickery et al., 2003). *Customer integration* is to the process of interaction and collaboration between an

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organization and its customers to ensure an effective flow of products and/or services to customers (Flynn et al., 2010; Zhao et al., 2011; Zhao et al., 2008; Narasimhan & Kim, 2002; Frolick & Westbrook, 2001).

In addition to internal integration a recent stream of academic work attests to the importance of customer and supplier integration. For example, Rosenzweig et al. (2003) report on the positive effects of external integration on operational performance and manufacturing competitive capability. Similarly, Swink et al. (2007) and Vickery et al. (2003) find that external integration has a positive effect on customer service and customer satisfaction. In the domain of product development, Petersen et al. (2003), Petersen et al. (2005), Koufteros et al. (2005), and Koufteros et al. (2007) find that external and internal integration affect product innovation and other related capability.

However, research on supply chain integration (SCI) is relatively scarce (Zhao et al., 2011) and is characterized by evolving conceptualizations, dimensions, and definitions (Chen & Paulraj, 2004; Van der Vaart & van Donk, 2008; Flynn et al., 2010). While some examine SCI as a single construct (Armistead & Mapes, 1993; Rosenzweig et al., 2003; Vickery et al., 2003; Marquez et al., 2004), others focus on the individual dimensions of SCI (Ragatz et al., 2002; Homburg & Stock, 2004; Cousins & Menguc, 2006; Koufteros et al., 2005, and Koufteros et al., 2007; Koufteros et al., 2010). Some researchers use all three integration variables as exogenous variables (i.e., internal, customer and supplier integration) in assessing the effect of SCI on performance (e.g., Swink et al., 2007) while others use internal integration as antecedent of both supplier and customer integration (e.g., Koufteros et al., 2005; Koufteros et al., 2010; Flynn et al., 2010). These different and evolving conceptualizations have led to inconsistent findings about the relationship between SCI and performance (e.g. Stank et al., 2001a; Germain & Iyer, 2006; Das et al., 2006; Devaraj et al., 2007; Zhao et al., 2011). Consequently, there have been calls for further empirical research that investigates the link between SCI and performance (Stank et al., 2001b; Wisner, 2003; Rodrigues et al., 2004), as well as the link between internal and external integration (Robinson & Malhotra, 2005; Kim, 2006). In response, a study by Flynn et al. (2010) used a sample of Chinese firms to extend the developing body of literature on SCI and assessed the impact of three dimensions of SCI (supplier integration, customer integration, and internal integration) on operational and business performance. In their preliminary analyses, using hierarchical regression model, they found a significant direct relationship between internal integration and operational performance. Adding customer and supplier integration to the model, only the coefficient of customer integration was statistically significant, indicating that customer integration was directly related to operational performance, given the relationship between internal integration and operational performance, while supplier integration was not. Using the same sample of Chinese firms, Zhao et al. (2011) focused specifically on the relationships between internal integration, supplier integration, and customer integration. Their findings reveal a rather robust impact of internal integration on both customer and supplier integration.

In order to add to the understanding of the effect of SCI on firm performance, there is a need to further examine the relationships among dimensions of SCI and their effects on manufacturing related competitive capability (Flynn et al., 2010). Contrary to Flynn et al. (2010) and Zhao et al. (2011), the current study uses responses from 568 executives from the United States to explore the links between internal integration, external integration (supplier integration and customer integration), and competitive capability. The findings rest on a sizable number of firms and unlike the overwhelming majority of empirical research in supply chain management, it includes responses from two individuals from each firm.<sup>1</sup>

The study also examines whether customer integration and supplier integration mediate the effects of internal integration on manufacturing related competitive capability. A better understanding of the forms of integration and their impact on competitive capability are of managerial relevance as well as

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