

Towards an Empirical-Relational Model of Supply Chain Flexibility

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ABSTRACT

Supply chains are prone to disruptions and associated risks. To develop capabilities for risk mitigation, supply chains need to be flexible. A flexible supply chain can respond better to environmental contingencies. Based on the theoretical tenets of resource-based view, relational view and dynamic capabilities theory, the current study develops a relational model of supply chain flexibility comprising trust, commitment, communication, co-operation, adaptation and interdependence. Subsequently the model is empirically validated based on a web based survey of 132 supply chain professionals in the Indian context.

Keywords: Commitment, Communication, Relational Attributes, Supply Chain Flexibility, Trust

1. INTRODUCTION

Increasing uncertainties and complex operations have been characterizing supply chains recently. Globalization of various processes like manufacturing, sourcing and distribution is happening at a rapid pace. This coupled with increasing customer expectations from firms for better customized products and service have urged companies to opt for reduced product life cycles, enhanced product variety and better adaptation to emerging technologies (Balakrishnan, Bowne, and Eckstein, 2008; Merschmann & Thonemann, 2011). Market place competition has radically shifted from firms to supply chains (Christopher & Towill, 2001). Consequently, supply chains have become more dynamic and complex. Increased global market place volatility with increase in product variety has jointly contributed to the increasing uncertainty of the

recent business environment (Vanany, Zailani & Pujawan, 2009). As Candace, Ngai & Moon (2011) pointed: "...in the fast or high fashion industry, product ranges and styles are being constantly renewed; while in the basic apparel industry, long production and distribution times continue to be found.

Hence firms are concentrating their efforts for required restructuring of relevant operations and processes so as to better adapt to increasing environmental uncertainties and dynamism (Borgman & Rachan, 2009). For adapting to environmental changes, companies have increased their supply chain flexibility (Swafford, Ghosh & Murthy, 2006). Flexibility represents a firm's capability to respond to sudden and unexpected environmental changes in its production process and in the market place (Candace et al., 2011). Flexibility has often been viewed as a reaction to environmental uncertainty. Research has suggested a typical

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way to respond to environmental uncertainty is to build flexibility into supply chain (Wadhwa & Rao, 2004). However previous studies have focused well on manufacturing flexibility (Lummus, Vovurka & Duclos, 2005) but with time, firms realized that their supply chain performance is contingent upon the flexibility of the entire supply chain and is not limited to the firm (Vickery, Calanton & Droge, 1999). Understanding supply chain flexibility is required for several reasons. Firstly, firms need to provide their customers with customized products and services. This calls for mass production efficiencies for quantities of one. Secondly, certain high tech industries require upside and downside flexibility (i.e. the ability to rapidly increase or decrease production say by 20% or more to a new unplanned level and sustain there) (Lummus et al, 2005). Third, innovative product categories like fashion apparel and electronic devices often faces demand uncertainty and requires the creation of a responsive supply chain to avoid it. Finally, the ever-changing environment in which companies find themselves requires rapid new product introduction, swift response to customer requirements in all parts of the world and fast turn-around on customer orders (Chuu, 2011). Earlier studies has addressed the relationships between flexibility, uncertainty and performance mainly using the manufacturing systems as the context (Vovurka & O'Leary-Kelly, 2000; Pagell & Krause, 2004) along with a substantial no of studies formulating frameworks for supply chain flexibility. Yet research on supply chain flexibility is still sparse (Sanchez & Perez, 2005) and existing research have not addressed the role of relational components in developing supply chain flexibility. Since supply chains are network of firms engaged in exchange relationships and aimed to coordinate and optimize the supply demand relationship by efficiently managing the flow of materials/products/services/information (Jain, Nagar & Srivastava, 2006); hence the importance of relational attributes like trust, commitment, communication etc. cannot be undermined for developing supply chain flexibility. The current study attempts to

fulfill this gap and tries to investigate the following questions:

1. What are the antecedents of supply chain flexibility from a relational perspective?
2. What are the significant relational attributes in terms of developing supply chain flexibility?

The paper has been organized as follows. The next section draws on the theoretical tenets of resource base view (RBV), dynamic capability theory and relational view of firm and formulates the research model. The corresponding section discusses relevant literature on supply chain flexibility, the relational attributes and hypotheses development. The next section proceeds with data collection and empirical testing of the proposed model. Finally the article concludes with a discussion of managerial implications, limitations of the framework and scope for future research.

2. THEORETICAL BACKGROUND

2.1. Supply Chain Flexibility: A Relational Model

The popularity of the resource based view (RBV) has been widely acknowledged in production and supply chain management (Hollos, Blome & Foerstl, 2012; Reuter, Foerstl, Hartmann, & Blome, 2010; Allred, Fawcett, Wallin, & Magnan, 2011). The RBV argues that a firm can attain sustained competitive advantage through suitably deploying its resources and capabilities that are often rare, valuable, not substitutable, and difficult to imitate (Barney, 1991). Further these resources and capabilities are viewed as bundles of tangible and intangible assets that comprises for e.g. a firm's management skills, its organizational processes and routines, and the information and knowledge it controls (Barney, 2001). Firms have differential performance due to firm resource heterogeneity (Wernerfelt, 1984). While resources are

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