



Cooperative strategy in supply chain networks

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ABSTRACT

Firms require strategic action to successfully respond to competition within their supply chain networks. The supply chain network is a complicated network model, and its specific context depends on the relationships among the network members. Developing a strategy under these circumstances is not straightforward and must proceed through a series of systematic analyses. The purpose of this paper is to provide strategy development for a firm within a supply chain network. To develop these strategies, this study first classifies supply chain networks as being one of four types, defined by the role of the focal firm relative to its suppliers and buyers: (1) upstream network dominance, (2) focal firm dominance, (3) focal firm obedience, and (4) downstream network dominance. Once the types are defined, the context of each type is further analyzed at the upstream level, the focal firm level, the downstream level, and the network level. These context analyses offer a more detailed understanding of each network's environment. But two questions remain to be answered: what are the sources of advantage in a network environment? And how does one develop a strategy in these complex network environments? The relational view (Dyer & Singh, 1998) provides strong theoretical support for these two questions. Utilizing the relational view and the context analyses, our study develops a focal firm strategy for both upstream and downstream in a supply chain network in the following areas: relation-specific assets, knowledge-sharing routines, complementary resources and capabilities, and network position.

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1. Introduction

Over the past few decades, supply chain networks have inspired a number of interesting from scholarly studies and practical implications (Stadler, 2005). In academia, researchers have taken multiple perspectives and have developed many theories to understand the activities involved in inter-organizational collaboration. Since the emergence of international cooperation and the development of vertical disintegration, managers have paid more attention to inter-firm spanning activities than to the optimization of interior processes (Buhman, Kekre, & Singhal, 2005; Chen & Paulraj, 2004). The common objective of academics and practitioners is to determine how a firm can achieve a sustainable competitive advantage. In marketing, related studies have focused on buyer and supplier relationship management. In operational management, the focus is on optimal manufacturing strategies to improve time, delivery, cost, quality, and design (Halley & Beaulieu, 2009); in addition, the strategic management field highlights the links between an organization and its performance. It is essential for a firm to use strategic to achieve a competitive advantage. Few studies, however, have proposed strategies for a

given firm within a supply chain network. Because the supply chain network environment is intricate, it is difficult to directly construct strategic actions to achieve competitive advantage unless we examine the environment's essential characteristics. Several essential characteristics of the supply chain network environment have been investigated:

The nature of supply chain networks is that they are a complicated network structure, and each specific relationship within this structure has a unique context. A firm within a business environment is not only a linear sequence supply chain but also a network structure (Kothandaraman & Wilson, 2001; Lamming, Johnsen, Zheng, & Harland, 2000). This network structure covers both the dyadic level (e.g., a single supplier and buyer relationship) and the network level (e.g., the net, the upstream, or the downstream level) (Ritter & Gemünden, 2003). Many firms are tied to each other, forming a specific type of supply chain network. These firms exhibit mutual relationships include: relative power (Cox, 2001; Cox, 2004; Cox, Ireland, Lonsdale, Sanderson, & Watson, 2002; Ritter, Wilkinson, & Johnston, 2004), transactional behavior, specific investment (Bensaou, 1999), and resources (Pfeffer & Salancik, 1978). The relationships between network levels are interrelated (Ritter et al., 2004). Each particular type of relationship in a supply chain network has a specific context and specific characteristics.

Strategy, structure, and environment are closely linked (Hall & Saias, 1980). A firm's strategy depends on its external network environment and structure. Therefore, we consider the focal firm to be the center (hub), and the focal firm maintains different relationships

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with its upstream supply chain (suppliers) and its downstream supply chain (buyers). This analytic architecture, the focal firm to the upstream and the focal firm to the downstream, is usually adopted in the field of supply chain management (Croom, Romano, & Giannakis, 2000; Harland, 1996; Lambert, Cooper, & Pagh, 1998; Lambert & Cooper, 2000). These particular relationships also form the distinctive relationship type and structure of the suppliers-buyers network. According to the relative strength of power between the focal firm and its upstream and downstream, we classify the relationship into one of four possible types: (1) focal firm dominance, (2) upstream network dominance, (3) focal firm obedience, and (4) downstream network dominance. Each context is then examined at the upstream level, the focal firm level, the downstream level, and the network level. The network level is the aggregate of the upstream, focal, and downstream levels and includes the relationships of all network members relative to the focal firm.

A strategy is established based on these specific relationship types and their different contexts within the supply chain network. However, we seek to identify a theory for supporting and developing inter-organizational strategies that will capitalize on the benefits of the supply chain network and its unique properties to offer a sustained competitive advantage. It is important to note that strategy and management differ between a single firm and a network environment, particularly when we consider the multiple relationships and activities spanning across firms. What are the sources of advantage in the network environment, and how can one develop strategies or provide guidelines in such an environment? It is necessary to have a framework to develop strategies underpinned by these network environments. Dyer and Singh (1998) propose the relational view, which focuses on the network as an important unit of analysis for analyzing a firm's competitive advantage. The competitive advantage and resources result from an inter-organizational network. After exploring the nature of supply chain networks and the theoretical support for them, the route to achieving a cooperative strategy becomes clearer. In this study, we define the *cooperative strategy of a supply chain network* as a means to enable a given firm to attain competitive advantage with its partnering firms (i.e., upstream suppliers and downstream buyers) within a specific type of supply chain network. The competitive advantage is a supernormal profit jointly generated in cooperative partners and exchange relationships of supply chain networks. Finally, we develop a strategy for a given firm toward its partners under a particular supply chain network with the four following determinants: (1) relation-specific assets; (2) knowledge-sharing routines; (3) complementary resources and capabilities; and (4) network position.

The rest of the article is structured as follows: in Section 2, we introduce a literature review of network organization theory and network management and strategy to establish the foundations of supply chain networks. Next, in Sections 3 and 4, we further identify and analyze supply chain network types and contexts. A supply chain network strategy is developed in Section 5, based on the contexts and the relational view. The final section provides conclusions for future research.

2. Theory and background

Over the past few decades, a considerable number of studies on supply chain networks have been performed. These studies span multiple disciplines such as organizational theory, supply chain management, logistics, marketing, economics, and strategic management. The paradigm of supply chain network research, therefore, needs to be developed through multiple methodologies. Depending on the network characteristics, the management and strategy of a network must address the following questions: how to manage or cope with the supply chain network under specific circumstances (i.e., under asymmetric power conditions)? And, what sources of advantage can be derived from a network? Therefore, the exploration of network organization

theory (i.e., network perspective, social network, or resource dependence theory) and network management and strategy (i.e., the relational view) can help us to understand supply chain networks.

2.1. Network organization theory

2.1.1. Network perspective

Håkansson and Snehota (1989) argue that “no business is an island,” pointing out the importance of relationships and interactions between firms. The network perspective focuses, therefore, on interactions among firms, requiring firms to adopt different strategies in different relationships (Johanson & Mattsson, 1987). The network perspective has been developed mainly by the Industrial Marketing and Purchasing (IMP) group (Håkansson & Ford, 2002; Håkansson & Snehota, 1989; Ritter & Gemünden, 2003). Such a network environment contains three main elements: actors, resources, and activities (A–R–A model). The focal firm (actor) maintains different relationships through specific activities (e.g., relation-specific assets investment, knowledge-sharing routines, and complementary resources and capabilities) with upstream and downstream partners that form their own network environment and generates the network resources. Gadde, Huemer, and Hakansson (2003, p. 360) view network relationships as resources, stating that “Resources always have ‘hidden’ and unexploited dimensions that can be explored and developed in interaction with business partners. ... This means that a business relationship is not only an important resource in itself. It can also be utilized to change the use—and thereby the value—other resources.” This viewpoint helps us to develop cooperative strategies by considering valuable and limited trading partners (i.e., existing upstream and downstream relationships and types of relationships for the focal firm). The network perspective also allows us to view the network as a whole (Wilkinson & Young, 2002). Consequently, the network perspective extends our focus from the single firm to the network while also focusing on the relationships and the interactions within the network. A firm's competitive advantage comes from its relationship with its own supply chain network.

2.1.2. Social network

Social network analysis concerns social relationships among a set of actors and their relationships within a network (Burt, 1992; Lin, Cook, & Burt, 2001; Tichy, Tushman, & Fombrun, 1979). Wasserman and Faust (1995, p. 4) defined the concept as follows: actors and their actions are viewed as interdependent; relational ties between actors are channels for the transfer or flow of resources; the network structure is viewed as an opportunity or a constraint; and network models conceptualize the structure as a lasting pattern of relationships among actors. A social network can be defined and analyzed based on structural characteristics such as size, density (connectedness), centrality (e.g., closeness or peripheral), clustering (or clique), and the nature of its ties (e.g., the intensity of strength or weakness, reciprocity) (Tichy et al., 1979). For example, strong or weak ties between network members influence the degree of information asymmetry between the actors and result in constraints or opportunities for information access (Todeva, 2006). In addition, each social network can be viewed as a map of all of the relevant ties, with each tie having its own specific form or pattern. Network perspectives build on the general belief that economic actions are influenced by the social context in which they are embedded and that actions can be influenced by the positions of actors within the social network (Gulati, 1998). In short, the social network framework provides a good approach for examining the network structure and patterns.

2.1.3. Resource dependency theory

Firms often exploit their power or resources to influence other network members; in fact, this can help increase performance and can even result in a competitive advantage. If one firm is relatively

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