



The effect of individual, network, and collaborative competencies on the supply chain management system

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ABSTRACT

The role of human capital as a source of competitive advantage has long been recognized; however, there has been little research into the competencies required in the supply chain management system. This paper strengthens the ties between supply chain and human resource management by examining the competencies inherent in successful supply chain management systems. Using structural equation modeling we assess the linkages between individual, network and inter-organizational competencies, investment in strategic partnership and firm performance. The findings reveal that both organizational awareness (competency at the individual level) and supply network competency (competency at the organizational level) have significant and positive effects on collaborative awareness. The importance of inter-organizational competencies is supported by the significant positive effect that collaborative awareness has on investment in strategic planning. Implications for human resource managers and supply chain managers are also provided.

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1. Introduction

It has become increasingly important to build organizational competencies that enable employees to combine and leverage their individual knowledge for greater organizational advantage (Athey and Orth, 1999). An area where these bundles of knowledge, skills and abilities that are key to developing and realizing organizational goals would appear to be particularly relevant is supply chain management which, when utilized effectively, can be used strategically to create added value to the firm (McCarter and Northcraft, 2007). To date, there has been little research into the competencies required of successful supply chain systems. This is probably due in no small part to the lack of literature linking the operations management and human resources (HR) fields (Ahmad and Schroeder, 2003; Koulikoff-Souvion and Harrison, 2007). As Scarbrough (2000) has pointed out, there have been few studies of the implications for organizational or employee practices of supply chain relationships, despite its growing importance. Although historically separate fields, supply chain management and human resource management are “intimately tied together” in practically all business environments (Boudreau et al., 2003, p. 179).

One of this paper’s contributions is to strengthen the ties between supply chain and HR management by examining the competencies inherent in successful supply chain management systems that would encourage investment in strategic partnership with suppliers. At the individual level, the importance of supply chain management professionals’ competency in effective supply chain management has been restricted to case studies. An empirical study designed to validate competency embedded in human resource would be valuable to provide a foundation for understanding this subject and provide implications to supply chain and human resource management practitioners. Supply chain managers must routinely share information, develop relationships, cooperate, and use collaborative skills with suppliers and internal and external customers. Internally, they must understand, collaborate and resolve differences with the various business functions within their own company. This study draws on knowledge management literature on competency to develop a definition of organizational awareness competency at the individual level within a firm.

Little empirical analyses have investigated competencies at different levels as an important strategic tool in supply chain management. We have identified three key areas where these competencies are necessary: at the individual supply chain manager level; within the supply network itself; and the collaboration requirements with suppliers. Although the latter component has been researched with some frequency, the competencies required of the supply chain manager and that of the network itself have yet to receive much attention (Gammelgaard and Larson, 2001). Thus,

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the second contribution of this paper is to investigate the competencies required at the “front end” of the supply chain management system.

Stank et al. (2001) suggest that both internal and external collaboration are necessary for successful supply chain performance. The combination of the organizational awareness on the part of the supply chain manager and the competency of the supply network should result in a trusting, long-term relationship with the supplier, a term we call collaborative awareness in this paper. Successful supply chain relationships should consist of partners that are willing to provide assistance to one another without exception; it is a relationship both parties are committed to and satisfied with. A relationship such as this, built on trust and commitment, should in turn result in an investment in strategic partnership, wherein suppliers are included in planning, problem solving, continuous improvement and product development processes. Development of a partnership with suppliers is widely recognized today as a potent tool for supply chain improvement. Until now, there has been little insight into how supply chain professional competencies are associated with partnership development. Successful supply chain managers collaborate often with other functions and engage in joint problem solving of operational issues and strategic issues, which facilitates inter-organizational partnership to take place and to be effective. This paper will make a third major contribution by examining the competencies required in successful strategic partnership development, and will extend the competency literature to include inter-organizational competencies.

2. Background and hypotheses

2.1. Competencies

The concept of competencies has expanded since their initial introduction by McClelland (1973) and Lawler (1994), moving from the field of human resource management to various business disciplines. Competencies have been studied extensively at the individual and team level, and more recently at the firm level, but rarely (if ever) at the inter-organizational level.

In the context of human resource management, competencies are considered to be composed of the knowledge, skills and abilities that are associated with high performance on the job at an individual level (Mirabile, 1997). At the team level, competency is influenced by individual competency and one's capacity to interact with other team members as well. Recent studies recognize team competencies consist of not only technical competency but also social competency, in particular teamwork and communication. Kauffeld (2006) studied four self-management team competences including knowledge, skills, ability to communicate and cooperate, and willingness to create collaborative learning environment. Through social interaction, behaviors, knowledge, skills and perceptions of individual team members are mutually influenced. Thus, social competency plays a critical role in whether technical competencies are put into practice effectively. From a strategic perspective, the idea has expanded to the firm level to include “core” competencies as the unique intellectual, process or product competencies that give a firm a competitive advantage (Prahalad and Hamel, 1990), and where the collective learning and performance capabilities of the organization contribute to firm success (Athey and Orth, 1999). Athey and Orth (1999) suggest that as technology and globalization have changed the ways business is conducted, competencies must include process capabilities that enhance organizational or business performance (p. 217).

In the field of supply chain management, the concept of competency has focused not as much on the individual as on the relationship between the parties in the supply chain (i.e., at a team level). In this context, competence is seen as an internal activity that an organization performs with proficiency, and many competencies (e.g., continuous product innovation) are seen as inherently multidisciplinary and cross functional (Koufteros et al., 2010).

The definition of what competencies are will continue to change as organizations strive to meet rapidly changing business needs (Athey and Orth, 1999). Miles and Snow (2007), in their article on the evolution of supply chain management, commented that “Many observers of today's global business arena agree that new business and organizational models are needed if firms and economies are to fully utilize their knowledge base to continually generate new products, services, and markets” (p. 461). Furthermore, Lavie (2006) proposed that organizational competitive advantage in a networked context requires consideration of the focal organization's own resources along with the partner resource endowments. Thus, as the success of the firm becomes more dependent on the relationships and networks it establishes outside the firm, the development of inter-organizational competencies seems inevitable.

The model for our study merges the fields of human resource management and supply chain management to capture individual, team, and interorganizational competencies between supply chain partners, and how these competencies lead to behavior that results in better performance of the firm (see Fig. 1). Our model is based on a model for HR practitioners (Parry, 1996), which has been adapted for the supply chain management context. In Parry's (1996) model, employees must have competencies (knowledge, skills, and abilities) that are applied in the form of behavior, which produces outputs that yield results; in other words:

Competencies → Behavior → Outputs → Results

In our model, the competencies are at the individual level in the form of organizational awareness; within the supply network itself (supply network competency) as measured by the network's operational, flexibility and spanning competencies; and inter-organizationally by the amount of collaborative awareness between the firms. Behavior is measured by the strategic investment that the focal firm makes with its suppliers (investment in strategic partnership). Since supply chain management is about coordinating the activities of all supply chain members in an effective and efficient way, it is essential to define metrics to measure the results of management efforts to supply chain members and customers as well. In typical supply chain management research, outputs and results are defined as performance (Chen and Paulraj, 2004; Closs and Mollenkopf, 2004). Therefore, in our model, cost, reliability and customer responsiveness are the determinants of the focal firm's overall performance.

2.1.1. Collaborative awareness(CA)

Each party in a supply chain has distinct competencies and behaviors that give each firm its unique competitive advantage. For a supply chain relationship to be successful, the parties must have an awareness of their shared goals and working processes, and must overcome difficulties caused by these differences in competencies in order to achieve common goals. In several different management information systems studies, the concept of “awareness of collaboration” has been explored as social interaction in group work (Schmidt, 2002); a system for simultaneous use of multiple users (Lauwers and Lantz, 1990); and as knowledge that is constructed technologically (Gutwin and Greenberg, 2004). In the supply chain context, collaboration requires management of information and operations across organizational boundaries and maintenance of the social relationship between the parties. In this study, collaborative awareness is defined at the organizational level as the

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