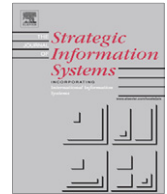




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Knowledge management in supply chain: An empirical study from France

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ABSTRACT

Supply chain management has assumed a leading operations strategy position in both manufacturing and service industries, and over the past 10 years companies have seriously implemented supply chain management strategies in their organizations. Knowledge management (KM) is a major enabler of supply chain management, and is a critical element in information intensive and multi-cultured enterprise environments. Realizing the importance of knowledge management in supply chain (SC), an attempt has been made in this paper to propose a conceptual framework for KM in SC and to validate the framework with help of an empirical study conducted with French companies. Finally, a summary of findings and conclusions is presented for KM in SC.

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1. Introduction

Supply chain management (SCM) has become increasingly significant with the globalization of industry, and competition between supply chains is likely to remain an important element in worldwide competitive rivalries (Ketchen Jr. and Guinipero, 2004). The current economic crisis combined with a hyper-competitive environment has developed a real need for optimization practices within supply chains. When profits fall and costs increase, new trade-offs have to be explored and new organizational models need to be developed to enhance decision-making and to maintain a competitive edge. For the past few years, companies have implemented SCM in order to make high level strategic decisions that are relevant to whole organizations including product development, customer relations, manufacturing, vendors and logistics. Supply chains are configurations of firms working together in a network that continuously need to upgrade their operations and capabilities, both upstream and downstream, from raw material to end-use consumption (Mentzer et al., 2001). Such network configurations are made up of heterogeneous groups sharing common topics of interest, but sometimes with autonomic relationships. The advantages of supply chain management derive from a firm's ability to quickly utilize the entire network of suppliers, vendors, buyers and customers. The flows of information lying at the core of the coordination and collaboration among network members are not only disparate information sources, they also provide an opportunity to build knowledge-based tools that are an important part of the extended firm's capabilities (Davis and Spekman, 2004).

Resource Based View (RBV) theory assumes that resources are the source of a firm's capabilities, and that its capabilities are the foundation of its competitive advantage (Barney, 1991; Hamel and Prahalad, 1989; Wernerfelt, 1984). According to Grant (1991), a firm's resources are represented by capital equipment, patents, individuals' skills, brands and reputation, financial resources, physical resources, technological resources, or organizational resources. As an outgrowth of this stream of research, the Knowledge Based View (KBV) regards knowledge as the key resource, which emphasizes the role of organizational capabilities to create a sustainable competitive advantage (Conner and Prahalad, 1996; Kogut and Zander, 1992;

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Nonaka, 1994; Spender and Grant, 1996). Goh (2006) assumes that knowledge adds value to an organization through its contribution to products, processes and people, while knowledge management (KM) transforms information, data and intellectual assets into enduring value by identifying useful knowledge for management actions. KM tools support the organization in exploring, innovating, disseminating and automating corporate knowledge. An integrated KM approach embraces cultural, organizational, procedural, and methodical integration. Grant (1996) argues that firms exist so that individuals, seen as knowledge resources, can integrate their knowledge through the organization's routines, in the form of capabilities. While other theories emphasize the structure and process of organizational activities, KBV emphasizes the content of those activities by exploring the concept of "capabilities", seen as an important explanatory variable of performance.

Research on organizational learning and knowledge management focuses on a fundamental set of questions. How do organizations *create* knowledge? How do organizations *retain* the knowledge they create? How can an organization *improve* without first learning something new? How is knowledge *transferred* within and between organizations and what factors facilitate its transfer? More recently, questions about how to transfer knowledge across organizational boundaries appear in the literature (Wadhwa and Saxena, 2005), bringing a novel perspective to the analysis and understanding of inter-firm collaboration (Grant and Baden-Fuller, 1995). The knowledge-based approach offers new insight into the mechanism for upgrading and transferring practices within supply chains and increasing numbers of researchers are exploring inter-organizational sharing between different actors for improving supply chain performance (Dyer and Nobeoka, 2000; Wagner and Buko, 2005).

Current SCM literature is highly focused on structural issues (governance structures, structures of supply chain processes, networks, etc.) and has huge difficulties comprehending people issues, even if it is now well-established that companies exist due to individuals' motivation and preference for the shared identities they supply (Kogut and Zander, 1996). Learning and KM can be considered as drivers for supply chain development, and may be seen as processes likely to introduce innovation in supply chains (Gammelgard, 2007). In complex supply chains, members' combined information and experience may be the most significant source of value creation. New developments in computing and information technology now enable the retention and transfer of information at a supply chain scale that was not the possible when previous major contributions on KM and organizational learning were proposed by researchers. According to Garvin's (1993) definition, a learning organization is "skilled at creating, acquiring and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights". This definition can be easily transposed to SCM considering that supply chains *are* learning organizations where knowledge can be viewed as a quasi-public good to be shared across the member firms. As companies engage in longer term partnering relationships built around mutual goals and accompanied by a rich and deep exchange of information, inter-organizational learning is a process that unfolds over time and links with knowledge acquisition and transfer, innovation and improved performance.

To date, most studies on knowledge management have maintained an intra-organizational perspective. With this study, we make an attempt fill a gap in both supply chain management literature and knowledge management literature by providing empirical support for understanding each stage of the knowledge creation process applied in an inter-organizational context. Our research question analyzes how the knowledge creation process can be adapted to supply chains and studies the factors enabling that process. Because this study is concerned with exchanges among members in a supply chain, we initially proposed a research framework that was then used to design a questionnaire covering all dimensions of the knowledge creation process according to the SECI model proposed by Nonaka and Takeuchi (1995). A particular emphasis is placed upon relationship context, an element demonstrated as being decisive in the knowledge creation process; in particular it defines the motivation of the supply chain partners to share knowledge over the system.

To investigate our research question, a survey of French manufacturing firms likely to be concerned with knowledge creation within their supply chain was conducted. The next section will provide an overview of previous research for the research model presented in Section 3. Section 4 presents the research methodology including the data collection process that was set up to tackle the knowledge creation process within the specific context of supply chains. Finally, Section 5 lays out the empirical analysis by presenting the results of this data collection and a discussion of research perspectives for knowledge management in a supply chain.

2. Background for the research

Knowledge is an essential theoretical construct for understanding organizations, and the relationship between a firm's knowledge capital and its capabilities is now widely accepted (Eisenhardt and Martin, 2000; Grandori and Kogut, 2002; Winter, 1987). In a turbulent business environment, the concept of a knowledge network has great resonance and helps explain why some business units are able to benefit from knowledge residing in other parts of the company (Hansen, 2002), or across the whole network (Dyer and Hatch, 2006; Dyer and Nobeoka, 2000; Wagner and Buko, 2005). According to KBV theory, firms must extract maximum value from the knowledge they possess, acquire or create in order to compete and survive (Choi and Lee, 1997; Grant, 1996; Kogut and Zander, 1992). Unfortunately, knowledge transfer and knowledge sharing between groups with dissimilar purposes and dissimilar practices is difficult to achieve either within a company (between different business units) or between trading partners belonging to the same supply chain. In a globalization context, knowledge transparency brings new objectives of providing more detailed product information to the consumer and gathering more detailed knowledge about the individual consumer (Leidner, 2010). These new challenges underscore that

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