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Supply chain organizational infrastructure for promoting entrepreneurial emphasis and innovativeness: The role of trust and learning



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ABSTRACT

Research has argued that inter-organizational trust and learning are critical factors associated with successful supply chain innovation and long-term competitiveness. In this paper, we develop and test a proposed model of supply chain organizational design using survey data collected from 128 decision-makers across diverse sample of supply chain decision-makers across many industries. Our analysis provides evidence that both trust and supply chain learning play important, but distinctive roles in developing an entrepreneurial and innovative supply chains. Moreover, our research findings add critical insight into existing resource-based perspectives of supply chain innovation by illuminating the roles and progression of the different resource elements – trust, supply chain learning, entrepreneurial emphasis, innovativeness – in developing and building a competitive supply chain infrastructure.

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1. Introduction

The strategic infrastructure required for developing supply chain innovation has become a focus area of practitioner interest and supply chain scholarship. Recently, the Council of Supply Chain Management Professionals (CSCMP) surveyed past *CSCMP Supply Chain Innovation Award* winners to get a better understanding of the factors that contribute to successful supply chain innovations (DeTienne et al., 2015). It was noted that highly-innovative supply chains “consider what they do not know, and they seek out internal and external partners who can be trusted to provide needed resources and expertise” (p. 13). Moreover, supply chain innovation was found to be a cross-organizational, cultural, and relational phenomenon, and that ultimately success evolved in a “fairly continuous stream of innovations over time” (p. 14). Whether or not they involve changes to products, services, networks, technologies, or processes, most innovative supply chains seemed to emphasize collaboration and learning to identify opportunities for resource growth and capability development over an extended period (DeTienne et al., 2015). As trust is an important precondition for collaboration (Arend and Wisner, 2005),

both trust and supply chain learning appear to be critical resources for promoting and supporting successful and enduring supply chain innovation.

Our research examines the broad question: how supply chain organizational infrastructures might be developed to enhance supply chain innovation competitiveness? Our purpose is to develop and test a broadly applicable supply chain infrastructure design model for promoting innovativeness by using survey data collected from a sample of supply chain organization decision-makers across a wide-range of industries. In particular, our research model focuses on perceptions of how trust and inter-organizational learning are associated with entrepreneurially-oriented and innovative supply chain organizational systems.

From the resource-based view (RBV), Hult et al. (2004) and colleagues consider supply chain innovation competitiveness, characterized by entrepreneurial emphasis and innovativeness, as the centerpiece of strategic supply chain organizations. Strategic supply chains are those chains whose members are “strategically, operationally, and technologically integrated” (p. 241), strengthened by inter-organizational stability as well as flexibility. Strategic supply chain partners work together to build inimitable resource capabilities with their internal and external supply chain partners, and these shared resources bind supply chain members together as a *single organizational system* in areas such as infrastructure, structure, and strategy (Hult et al., 2007). Competitive supply

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chain organizations are characterized by a “pattern of shared values and beliefs” and generally focus on developing entrepreneurship, innovativeness, and learning (Hult et al., 2007, p. 1038) as shared strategic resources. Once these resources are developed across the supply chain, it would be unlikely that they could be easily imitated by competing supply chains, leading to ongoing competitive advantages (Barney, 1991; Harrison et al., 2010).

Supply chain infrastructures have embedded routines the regular pattern of interaction among supply chain partners which help facilitate the transfer of information and ideas (Becker, 2004). While vast majority of research has focused on intra-organizational infrastructure development, such as just-in-time management systems and developing technological innovation (Boyer et al., 1997; Sakakibara et al., 1997; Sugimori et al., 1977), there has been a dearth of research exploring infrastructural routines and innovativeness in extended supply chain organizations (Dyer and Nobeoka, 2000). This research gap is an even more pressing issue as supply chain learning infrastructures have been known to affect competitiveness through the transfer of hard to copy “know-how” among supply chain partners (Podolny and Page, 1998; Dyer and Nobeoka, 2000).

Inter-organizational learning routines are also considered increasingly important for innovativeness in increasingly complex organizational systems (e.g., Li et al., 2013; Xu and Quaddus, 2012; Huang et al., 2011; Irani et al., 2009; Hult et al., 2004). Research has long shown that focus on learning helps firms to anticipate and seek-out creative problem-solving (e.g., discovering synergies in operations), or to develop effective new processes (Yu et al., 2013; Irani et al., 2009; Škerlavaj et al., 2007; Hult et al., 2004; Kale, 1986). Firms such as Singapore Airlines, Whirlpool, ABB, General Electric, and Honda are examples of firms known to have invested large amounts of effort and capital into becoming learning-oriented organizations (Marquardt and Reynolds, 1994). These companies have developed routines and business relationships that generate and disseminate useful information to support the core mission and value propositions of the firm (Yu et al., 2013; Irani et al., 2009; Škerlavaj et al., 2007), and they are effective at using both internal and external market information to gain long-term competitive advantages (Hauser et al., 1996).

As extended organizational systems focused on learning, competitive supply chains must first have trusting internal and external relationships in place among geographically-dispersed supply chain partners in order to achieve high levels of innovation performance. Establishing trust helps supply chain members collaborate, which reduces transaction costs and increases their effectiveness (Kwon and Suh, 2004). A major source of supply chain inefficiencies is the collective failure of members to adequately commit to ongoing collaboration. Resource shortages and the fear of opportunism are probably the main causes of firms' low level of commitment and high dysfunction in this regard (Arend and Wisner, 2005). Consequently, sustained collaborative efforts to reduce supply chain uncertainty may only be possible in the presence of trust (Smeltzer and Siferd, 1998).

Despite prior research noting the important role extended supply chain organizations play in achieving sustained firm competitiveness (e.g., McKone-Sweet et al., 2005; Cecere et al., 2004; Hendricks and Singhal, 2003; D'Avanzo et al., 2003; Ha et al., 2003; Morash et al., 1996), understanding what constitutes an effective supply chain infrastructure for promoting innovativeness is a largely unexplored area. Even though the operations, marketing, and international business literature has advocated the importance of supply chain organizational learning (e.g., Yu et al., 2013; Li et al., 2013; Gavronski et al., 2012; Irani et al., 2009; Škerlavaj et al., 2007; Hult, 1998; Jaworski and Kohli, 1993), the link between supply chain-level trust and the development of

learning and entrepreneurial resources in a supply chain infrastructure is not as well understood.

There are three key objectives of this research. First, we develop a supply chain design model showing the associations between key supply chain infrastructure elements – trust, supply chain learning, entrepreneurial emphasis and innovativeness. Second, we explore the role of trust in influencing supply chain learning, entrepreneurial emphasis and innovativeness in supply chain organizations. The third and final objective is to provide evidence that supply chain innovation competitiveness factors in our model – entrepreneurial emphasis and innovativeness – can be enhanced by targeting specific measurable dimensions of supply chain learning.

In the sections that follow, we first provide the review of literature relating to the infrastructures needed for supply chain learning. Next, we develop our research model which is grounded in RBV-based supply chain literature examining the role of trust, supply chain learning, entrepreneurship, and innovativeness as shared strategic resources. We then discuss the empirical methods used to test our proposed model and report the findings. Finally, we discuss practical extensions of our findings, and explore some further research areas for the study of supply chain design infrastructures and supply chain innovation competitiveness.

2. Theory and model development

Organizational routines are established through developing effective organizational infrastructures (Becker, 2004). For example, Peng et al. (2008) detail how the organizational infrastructure of quality leadership manifests itself in routines like management accepting responsibility for quality, providing personal leadership for quality, providing a vision for quality improvement efforts, and getting personally involved in quality improvement projects. Organizational routines are dependent upon, specific to, and embedded in the context where they are used (Becker, 2004). Moreover, organizational routines are path dependent, and economize on the use of cognitive resources as they facilitate semi-conscious processing of repetitive events requiring fewer cognitive resources (Becker, 2004). Organizational routines through their established processing requirements not only reduce uncertainty, but also develop employee perception of work environment stability. Finally, organizational routines serve as vessels of ‘organizational memory’ (Nelson and Winter, 1982), as they represent successful solutions to past problems (Dosi et al., 1992) tacit knowledge (Winter, 1994; Teece and Pisano, 1994; Teece et al., 1997).

2.1. Network form of organizations and supply chain learning – the role of infrastructural routines

Podolny and Page (1998) provide insights into the process of learning routines in network form of organizations. They define network form of organizations as comprised of more than two entities that enter into repeated and enduring exchange relationship with each other without any entity having clear and legitimate authority to resolve disputes. These relationships are based on trust and reciprocity (Powell, 1990; Granovetter, 1995). Moreover, network forms of organizations are comprised of nodes and ties. The nodes represent the firms participating in the network and the ties represent the relationship between these participating firms. Learning occurs in the network form of organizations in two ways. The first is through the rapid transfer of information with network ties acting as conduits. The second is through the transfer of know-how using intense interaction between network participants. While information is explicit and is easy to copy the know-how is tacit in nature and difficult to copy and provides an enduring competitive advantage.

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