

Chapter 6

How Does IT Capability Impact Organizational Agility in the Supply Chain Context?

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ABSTRACT

Organizational agility is regarded as a strategic capability, helping firms to compete, survive, and succeed in fast changing environments. Companies with greater IT investments are expected to be more agile. However, the issue of whether IT is an enabler or impedes agility still remains unresolved. Drawing upon resource-based view theory, the authors test a theoretical model that integrates IT capability, supply chain capability and organizational agility. The authors propose that IT capability enables the development of a higher level of supply chain capability which is embedded within inter-firm processes and in turn enhances agility. Structural equation modeling is employed to test their theoretical conceptualization of 310 Australian fast-growth small-to-medium enterprises across different industrial sectors. The results show that IT capability does contribute to firm agility through enhancing inter-firm supply chain processes. This research highlights the role of IT-enabled intermediated processes and the ways in which IT is used by firms to enhance core business processes.

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INTRODUCTION

In the current context of intensive competition, globalization and time-to-market pressure, firms are making significant investments in information technology (IT) to develop agility and pursue fast and innovative initiatives so as to respond to environmental challenges. Agile firms are able to deal with rapidly evolving situations, survive unexpected threats and thrive in competitive environments through capitalizing on emerging business opportunities (Teece, Peteraf, & Leih, 2016). Therefore, agility is regarded as an imperative for business success, helping firms to achieve competitive performance in dynamic business environments (Chakravarty, Grewal, & Sambamurthy, 2013; Fink & Neumann, 2007; Nazir & Pinsonneault, 2012; Sambamurthy, Bharadwaj, & Grover, 2003).

Research that investigates the relationship between IT and organizational agility is increasingly encountered in the information systems (IS) field. Some researchers (e.g., Chakravarty et al., 2013; Lee et al., 2015; Nazir & Pinsonneault, 2012) assert that IT can enhance organizational agility by building digital options, helping firms to speed up decision making, facilitate communication, and respond quickly to changing conditions. Others (e.g., Van Oosterhout, Waarts, & Van Hillegersberg, 2006; Weill, Subramani, & Broadbent, 2002) argue that IT may hinder and even impede organizational agility because of inflexible legacy IT systems and rigid IT architectures. Ironically, a high level of IT investment may result in unintended “technology traps” over time (Grover & Malhotra, 1999, p. 907). In the digital business environment, although the increasing use of IT creates strong electronic linkages in supply chains, it may also have unintended adverse effects on supply chain flexibility and so may severely constrain supply chain performance (Gosain, Malhotra, & El Sawy, 2004). For example, studies show that the integrated enterprise systems used to automate and support business processes have positive impacts on both business agility (Goodhue et al., 2009) and rigidity (Rettig, 2007). These mixed observations indicate that IT can be either an enabler or an impedor of organizational agility.

The use of IT in the supply chain context has also gained intensive attention in the IS area. While supply chains involve “the flows of material, information and finance among customers, suppliers, manufactures, and distributors” (Lee, 2000, p. 31), supply chain management is regarded as a digitally enabled inter-firm process capability (Rai, Patnayakuni, & Seth, 2006). As IT provides new opportunities for firms to manage supply chain relationships, understanding how IT resources and capabilities relate to inter-firm business processes becomes imperative (Bi, Davison, & Smyrnios, 2015; Dong, Xu, & Zhu, 2009). Although research has examined the performance benefits of IT resources/capability (Bhatt et al., 2010; Wu, Straub, & Liang, 2015; Wang et al., 2014), there is still limited understanding of the links between IT capability and agility in the supply chain context (Bharadwaj et al., 2013; Kohli & Grover, 2008). Moreover, current literature on IT business value has largely overlooked agility as a potential outcome, instead focusing on standard firm performance metrics (Nazir & Pinsonneault, 2012). Thus, further rigorous empirical examination is needed to understand how and why IT capability shapes firm agility through intermediate processes.

The present research attempts to address the above gaps in the literature. Drawing upon the resource-based view of the firm (RBV) theory and the IS and supply chain literature, the authors synthesize and theorize the commonly observed but understudied contradiction that relates to IT’s potential both to enable and to impede organizational agility. Recent IS research (Mao, Liu, & Zhang, 2014; Zhang, Donk, & Vaart, 2016) suggests that the relationship between IT and firm agility depends on the extent of inter-firm processes. IT can increase firm agility through close integration and collaboration with supply chain partners, enabling organizations to sense and respond to market changes in an effective and

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