Causal relationship between supply chain dynamic capabilities, technology innovation, and operational performance

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Abstract

Purpose – The aim of this study is to empirically examine the impact of supply chain dynamic capabilities on operational performance, and the mediating effect of technology innovation between dynamic capabilities and operational performance.

Methodology/Approach – This study is based on empirical data collected from a survey of 206 small- and medium-size firms in Korea. Structural equation modeling is used to test the research questions.

Findings – The results show that supply chain dynamic capabilities positively influence technology innovation and operational performance of an enterprise. Additionally, structural equation analyses reveal that technology innovation plays a role as a partial mediator of the relationship between supply chain dynamic capabilities and operational performance.

Research Implications/Limitations – In a dynamic and ever-changing environment, the enforcement of dynamic capabilities in a sustainable supply chain is important for the innovation of technology and the improvement of operational performance. Further investigation is required to understand the differences by industries, characteristics of enterprises, and positions in a supply chain.

Keywords Dynamic capabilities, Supply chain management, Supply chain dynamic capabilities, Technology innovation, Operational performance, Small- and medium-size firms, Korea

Paper type Research Paper
Introduction

Due to the acceleration of global economy, the rapid progress of information technology, and the various expectations of customers, today’s business environment is rapidly changing and competitions among enterprises has intensified. In the past the technology transfer from one industry to another did not occur or was slow. Because of the rapid advancement of technology today, a technology developed from one industry is quickly transferred to another and creates a great ripple effect in the industry. The ever-changing business environment prevents enterprises from sustaining their competitive positions as well as from allowing time to diagnose changes in business environment, discover opportunities and risks, and to deal with them.

The dynamic capabilities theory has been introduced in business environments where dynamic capability is required in order for an organization to remain sustainable. Dynamic capability refers to the capability of an organization to integrate and reorganize its internal and external resources (Ambrosini and Bowman, 2009; Eisenhardt and Martin, 2000; Teece et al., 1997; Teece, 2007). An organization can have the opportunity to create enterprise values such as management innovation, sustainable competitive advantage, and operational performance through dynamic capability. The dynamic capabilities theory is based on the resource-based view (Barney, 1986, 1991) and the core competency theory (Coyne et al., 1997; Prahalad and Hamel, 1990). According to the resource-based view, organizational performance is created from capability and differences in resources an organization holds, which are valuable, rare, imperfectly imitable, and non-substitutable (Barney, 1991). The idea of core competency was introduced by Prahalad and Hamel (1990). They assert that core competencies differentiate organizations from rivals and are sources of competitive advantage and can be improved by learning and sharing. Conditions of core competencies specified by Prahalad and Hamel (1990) are: capability to create customer values, capability to differentiate organization from rivals, scalability to apply to other areas, and difficulty for competitors to imitate in a short period of time.

This study proposes supply chain dynamic capabilities as a required capability in order to gain a sustainable competitive position in a rapidly changing business environment. In the current competitive market, competition among organizations switches to competition among supply chains. Thus, the competitive position and operational performance of an organization depends on supply chain capability. Supply chain management is defined as the systemic, holistic coordination from producing products or delivering services to consuming them, for the purposes of creating excellent customer value and gaining competitive advantages (Mentzer et al., 2001). For successful supply chain management, an organization integrates various functional areas within the organization, then effectively links activities performed by suppliers, distributors, and customers outside the organization, promoting the improvement of operational performance and competitiveness. Supply chain management allows organizations to concentrate on core competency, affects future competitiveness, and changes competition between supply chains.