
ABSTRACT

E-supply chains (e-SCs), which are Internet-enabled supply chains, are progressively being implemented by companies to improve their operational and financial performance. Several studies exist where the association between the development of an e-supply chain and the performance of a firm have been investigated. However, there is a paucity of literature that describes how information technology (IT) resources interact with other complementary resources to e-supply chains that positively impact a firm’s performance. This paper seeks to adopt a resource-based view of the firm (RBVF) and empirically tests a framework that identifies and validates the relationships among IT resources, complementary resources to e-supply chains, and performance of a firm. This study utilizes secondary data from two sources – data collected by the South Korean Ministry of Commerce, Industry and Energy (MOCIE) and financial data from the Korea Exchange. The data from a total of 170 firms representing 10 industries in South Korea was analyzed using a partial least-squares technique (PLS). The results of the analysis confirm that IT resources do not directly influence supply chain performance. However, when associated with a complementary resource, IT resources positively affect both supply chain operations and a firm’s financial performance. The findings of this research support the current existing literature on the RBVF approach with regard to the domain of supply chain management, and can provide additional insights to industry practitioners on how to effectively utilize complementary resources in developing e-SCs to deliver improved performance.

Keywords: E-Supply Chains (e-SCs), Partial Least Squares, Performance Measurement, Resource-Based View (RBV), Secondary Data, Supply Chain Management

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INTRODUCTION

With escalated expectations of a firm’s performance and the emergence of globally dispersed supply chain networks, companies are presented with increased levels of complexity in the management of their supply chains. Both academics and practitioners have increasingly considered information technology (IT), and in particular, Internet, as one of the strategic resources that enables firms to reconfigure their supply chain capabilities to better manage the rising complexity of meeting consumer demand (e.g., Cagliano, Caniato, & Spina, 2003). As a result, firms have progressively developed e-supply chains with the assistance of Internet-based applications, expecting an immediate improvement in both operational and financial performance. Numerous studies report potential performance improvement with e-supply chains (e-SCs) that are directly observed such as cost reductions, increased responsiveness, and better financial performance (e.g., Croom, 2000; Frohlich & Westbrook, 2002; Dehning, Richardson, & Zmud, 2007).

Nevertheless, not all firms appear to have leveraged the IT resources to the same extent in managing their supply chains. For example, Emiliani and Stec (2002) reported that 40% of the firms in the logistics service industry that implemented Internet-based applications for their supply chain activities considered their operations to be either “very ineffective” or “somewhat ineffective.” In their study of developing supply chain strategy taxonomy, McKone-Sweet and Lee (2008) reported a high level of Internet-based application use in managing supply chain does not explain the performance variances among firms.

The inconsistent conclusions drawn from these reports raise a general but important question: Why is it that only some companies have better operational and financial outcomes with e-supply chains? The resource-based view of the firm (RBVF) provides a framework for augmenting our understanding of these inconsistent results. In describing the inconsistent results, many RBVF scholars emphasize the role of complementary resources (CRs) in explaining the relationship between the implementation of IT and the performance improvement of a firm (Barney, 1991; Clemons & Row, 1991; Powell & Dent-Micallef, 1997).

According to the RBVF, CRs enhance the value of another resource (or both) through the interaction although the causality may be ambiguous (Barney, 1991). For example, JIT (Just-in-time) system may enable a firm to enhance its operations performance, but it requires CRs, such as a trust-based supplier relationship, a high level of production quality, and a balanced out (or forced to be balanced out) production. Complementary interaction among resources also increases the complexity of the advantage-producing resource bundle, making it difficult for competitors to imitate.

While the prior research has focused mostly on identifying a variety of alternative complementary resource typologies (e.g., Keen, 1993; Powell & Dent-Micallef, 1997), this paper seeks to adopt the RBVF to explore how CRs are associated with IT resources in e-SCs to produce better performance. More specifically, this study investigates the direct and indirect effects of CRs in shaping the relationship between IT resources and supply chain performance in e-SCs.

LITERATURE REVIEW

Resource-Based View of the Firm (RBVF)

The focus on what causes firms to succeed has shifted from the subject, who establishes and executes the strategies, to the environmental factors surrounding a firm, and to the internal resources (Cho & Lee, 1998). A third perspective, known as the resource-based view of the firm (RBVF), has been considered extensively in additional research that explores the cause of a firm’s success. According to RBVF, the competitive advantage of a firm stems from its resources and its ability to bundle them in a unique way rather than from exogenous factors.

The literature on RBVF illustrates that firms hold heterogeneous resource-portfolios
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