

E-business Value Creation from a Resource-Based Perspective: A Review of the Last Decade of Empirical Research

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Abstract

The value of e-business technologies, namely, the organizational performance impacts of implementing Internet-based information technology (IT) in the supply chain context, has been the theme of recent literature in both information systems and operations management disciplines. Yet the findings reported in this literature reflect a certain inconsistency that can be attributed to variability in the conceptualization of key constructs and relationships. The central goal of this review was to systematically analyze survey-based studies that have reported on the relationship between e-business technologies and organizational performance to detect possible sources for the similarities and differences in reported findings. We drew on the resource-based view of the firm to guide our analysis, relying on Melville et al.'s 2004 integrative model. We applied this model to consolidate the various strands of research, to synthesize the current knowledge about e-business value, and to guide future research by developing propositions and suggesting future research directions.

This review reveals that definitions and measurements of the key variables used to evaluate the main concepts of e-business value differ markedly across the relevant literature. However, despite these differences, the papers reviewed generally agree that e-business technologies are valuable, mostly through their facilitation of Internet-enabled supply chain integration capabilities. The nature and magnitude of value are dependent on internal and external factors. The conclusions drawn from the literature review provide a basis from which further research on the organizational performance impacts of e-business technologies can be developed, both to define its main concepts and to construct its theoretical basis.

Keywords: E-business; supply chain integrations; IT value; resource-based view; literature review.

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Introduction

Innovations driven by information technology (IT) are creating new ways for firms to manage supply chain relationships [Sambamurthy et al., 2003]. Recently, the use of Internet-based IT in the supply chain context has received significant attention [Sanders, 2007]. Supply chain management (SCM) has traditionally been defined as “the flows of material, information, and finance in a network consisting of customers, suppliers, manufacturers, and distributors” [Lee, 2000, p. 31]. The new SCM process capabilities enabled by Internet-based IT have stimulated a shift toward digitized integration across supply chain processes that is gradually replacing the conventional processes between supply chain entities [Dong et al., 2009]. Research of the last decade has viewed SCM as “a digitally enabled inter-firm process capability” [Rai et al., 2006, p. 226], emphasizing the exploitation of IT using the Internet platform to integrate inter-firm processes, from upstream (supplier) to downstream (customer) operations, thereby affecting the entire scope of the supply chain [Lee, 2000]. Often termed “e-business”, Internet-based supply chain integration [Zhu, 2004] enables the sharing of accurate and timely information and the coordination of activities between business entities. As such, it is expected to improve business

processes and enhance the competitive position of businesses that successfully incorporate it [Rai et al., 2006]. However, some firms have found that a substantial gap exists between their considerable investments in e-business technologies and the value created by adopting the e-business approach [Zhu and Kraemer, 2005].

The impact of IT on organizational performance has been widely discussed in the context of the “IT productivity paradox”, so termed because IT does not necessarily enhance business productivity and performance [Hitt and Brynjolfsson, 1996]. IT has also been viewed as a commodity that is easily replicated by competitors, and as such its adoption may even diminish a given firm’s prospects of developing a sustained competitive advantage [Carr, 2003]. In the context of SCM, a plethora of research in both the information systems (IS) and operations management (OM) disciplines has focused on the question of whether and how e-business technologies affect supply chain performance [Zhu and Kraemer, 2005]. This research, however, has generated inconsistent findings about the impact of e-business technologies [Devaraj et al., 2007]. While some studies have shown that a direct, positive relationship exists between e-business technologies and supply chain performance [Da Silveira and Cagliano, 2006], others have reached different conclusions that do not support such a relationship [Devaraj et al., 2007].

Indeed, other research has evoked claims that additional variables may be part of the value creation process. Studies showed that the impact of the Internet platform on performance is mediated by inter-firm process integration. For example, e-business technologies can facilitate more effective coordination with suppliers, resulting in a reduction of lead-time [e.g., Devaraj et al., 2007]. Still other works have suggested that the organizational ability derived from IT implementation to support supply chain integration practices is dependent on situational conditions [Iyer et al., 2009]. These studies examined the impact that situational conditions had on e-business value creation, in the process examining internal firm characteristics [e.g., Sanders, 2007] and the external conditions shaped by the different entities, such as suppliers, customers, and competitors [e.g., Wong et al., 2011]. The

findings, however, are again mixed. Obtained using different conceptual models, such mixed results constitute a barrier to the construction of a cumulative knowledge base about the relationship between e-business technologies and performance. In addition, earlier reviews [e.g., Fabbe-Costes and Jahre, 2008, Zhang et al., 2011] reported similar consistency issues because different measurements and constructs were used to capture the central variables in the relationship. The use among researchers of inconsistently defined variables, in turn, can cause the same concepts to be interpreted differently and the same meaning to be applied to different concepts [Fabbe-Costes and Jahre, 2008].

Given the critical role that e-business technologies play in managing supply chain activities and partnerships that generate performance gains for firms [Rai et al., 2006], a better understanding of the e-business concept and its related technologies and implications is both of academic importance and of managerial relevance. In addition, such an understanding will also contribute to theory building in business operations and SCM. We therefore decided to systematically review and analyze the research related to the relationship between e-business technologies and organizational performance, using a framework that would enable us to draw general conclusions and to identify the similarities and differences in prior research. The purpose of this review is to analyze and integrate various perspectives on the impact of e-business technologies on supply chain practices and performances. We relied on the resource-based view (RBV) of the firm and designed a comprehensive conceptual framework within which to examine the performance implications of e-business technologies. This framework, which is based on the general IT value framework by Melville et al. [2004], can be used to compare e-business technologies to other types of IT, and it can also function as a tool for further investigations into SCM relationships.

The review is structured as follows: Section 2, a review of the RBV, will formulate the main theoretical grounding for this study. In Section 3, we present an RBV-based integrative model of e-business value that provides a basis for structuring our review of accumulated knowledge, for identifying gaps in the knowledge, and for developing propositions to guide future research. In Section 4, we describe our

methodology, explaining how we selected the papers for the review. In Section 5, we present our results, including the analyses of the variables, the underlying theoretical perspectives, and the literature synthesis. We explore the different types of relationships found and then derive our propositions. In Section 6, we discuss and highlight the main theoretical issues related to the results. Finally, we conclude in Section 7, where we discuss the limitations of the research and suggest avenues for future research.

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