



ERP systems as an enabler of sustained business process innovation: A knowledge-based view

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Abstract

This research examines the relationship between ERP systems and innovation from a knowledge-based perspective. Building upon the multi-dimensional conceptualization of absorptive capacity by Zahra and George [Zahra, S.A., George, G., 2002. Absorptive capacity: a review, reconceptualization, and extension. *Academy of Management Journal* 27 (2), 185–203], a theoretical framework is developed to specify the relationships between ERP-related knowledge impacts and potential/realized absorptive capacity for business process innovation. The implication of the knowledge-based analysis in this paper is that ERP systems present dialectical contradictions, both enabling and constraining business process innovation. The model highlights areas where active management has potential to enhance the capabilities of a firm for sustained innovation of its business processes. Future research directions are also outlined.

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1. Introduction

The research in this paper challenges conventional beliefs about the relationship between enterprise resource planning (ERP) systems and business process innovation. While common views of ERP systems as constraining and inflexible (“like cement, the critics say – highly flexible in the beginning, but rigid later” (Davenport, 2000, p. 16) seem incommensurate with the notion of innovation, the analysis presented in this paper reveals a different picture. Rather than focusing exclusively on the structural constraints that these systems impose, we direct attention to the impacts of an ERP system on the knowledge capabilities of the organization. In contrast to prevailing views, a knowledge-based perspective reveals that ERP systems have the potential to significantly enhance the capabilities of a firm for sustained innovation of its business processes. The implication of our analysis is that ERP systems present dialectical contradictions, both enabling and constraining business process innovation. The theoretical model presented in this paper makes several important contributions. First, the model provides a foundation for understanding the dialectical and often complex relationship between ERP systems and innovation. Moreover, the model highlights the ways that organizations can cultivate and leverage the enabling elements to create enhanced business process innovation capabilities. Finally, the model provides a foundation for future empirical investigations to further explore these relationships.

For many firms, an ERP system is critical to ongoing operations of the company and also represents their largest IT investment. For these same organizations, knowledge capabilities (generation, combination-recombination and exploitation of knowledge) can provide a source of competitive advantage (Conner and Prahalad, 1996; Grant, 1996; Kogut and Zander, 1996). The objective of the research in this paper, then, is to carefully examine the relationship between the technological and operational capabilities provided by an ERP system and the knowledge capabilities of the firm for sustained business process innovation. Broadly defined, the process of innovation is the development and implementation of new ideas in an organization, including inventions, imitations and adaptations (Van de Ven, 1986; Webster, 2004). The premise of the research presented in this paper is that an ERP system provides the *potential* for enhanced knowledge capabilities for business process innovation. The *realization* of these capabilities, however, is dependent on the development of associated social integration mechanisms for knowledge sharing, integration and creation, and routines for innovation, learning and renewal. The research presented here develops a theoretical framework to explore these ideas and to provide a foundation for future research to better understand organizational strategies to: (1) reduce the gap between the potential and realized knowledge capabilities enabled by ERP systems, and (2) develop routines to utilize these capabilities for sustained business process innovation. To this end, we build upon and extend the model of absorptive capacity by Zahra and George (2002) to introduce a new theoretical framework – ERP Systems and Business Process Absorptive Capacity. In alignment with the original framework, business process absorptive capacity is viewed as a dynamic capability influencing the firm’s ability to create and deploy knowledge to build its business processes. The framework also incorporates insights from prior research on ERP systems from a knowledge perspective and studies on boundary spanning/knowledge brokering and information systems (Levina and Vaast, 2005; Pawlowski and Robey, 2004; Volkoff et al., 2004). The resulting

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