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Journal of Engineering and Technology Management

journal homepage: www.elsevier.com/locate/jengtecman



Mediating effect of IT-enabled capabilities on competitive performance outcomes: An empirical investigation of ERP implementation



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ARTICLE INFO

JEL classification:

M15(IT Management)

Keywords:

ERP implementation
IT-enabled combinative capabilities
Manufacturing firms
Competitive advantage
Empirical investigation

ABSTRACT

This paper presents an integrated research model related to ERP system implementation and empirically investigates its impact of this implementation on performance outcomes. We argue that effective ERP implementation requires better front-end planning to enable timely coordination (i.e., configurable), continuous interactions (i.e., adaptable), and organization-wide application (i.e., integrative). The hypothesized relationships are tested with data collected from 205 Korean manufacturing firms. Our empirical findings indicate that an ERP implementation strategy alone has no direct effect on performance but does have an indirect effect on performance through IT-enabled combinative capabilities, suggesting that IT-enabled combinative capabilities mediate performance outcomes.

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Introduction

In today's highly competitive global business environment, firms use information systems to improve customer service, shorten cycle times, and reduce cost (Hong and Kim, 2002; Jacobs and Weston, 2007; Soja, 2006). Enterprise Resource Planning (ERP) systems are considered to be strategic

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tools in achieving competitive capabilities (Wier et al., 2007; Xue et al., 2005; You et al., 2012). ERP systems synchronize procedures, applications, and metrics that span intra- and inter-firm boundaries; provide accurate, timely, and integrated information; and improve organizational decision making (Su and Yang, 2010; Trott and Hoecht, 2004). ERP systems are associated with improving firm performance in the form of redesigned business processes, integrated managerial functions, accelerated reporting cycles, and expanded information capabilities (Mabert et al., 2003).

In spite of the potential benefits of ERP systems, the research findings are often conflicting. Hayes et al. (2001) point out the significantly higher stock returns that occur upon announcing the implementation of an ERP system. Likewise, Hunton et al. (2003) call attention to the greater long-term return on assets for ERP adopters relative to non-adopters. In addition, Wier et al. (2007) report a positive relationship between ERP adoption and non-financial performance – a relationship that further impacts current and long-term return on assets. In this respect, IT investments might be directly related to performance measures such as cost, quality, time to market, and product variety (Krause et al., 2007; Nahm et al., 2003). On the other hand, Poston and Grabski (2001) suggest that ERP systems do not necessarily improve business profitability. Hitt et al. (2002) likewise suggest that although there is an improved financial performance during the implementation stage, there is no sustainable long-term impact. In addition, Mabert et al. (2003) suggest that there is a lack of evidence showing a clear link between ERP systems and direct operational costs reduction.

In light of these mixed results, further research is needed to reconcile the conflicting research related to ERP implementation and its firm-level performance outcomes (Bendoly et al., 2009; Lee and Myers, 2004; You et al., 2012). In terms of identifying a direct relationship between ERP implementation and performance outcomes, careful examination of ERP system implementation requires developing empirically validated constructs (You et al., 2012). In view of such research needs, this paper aims to examine the relationship between ERP implementation strategy and competitive performance outcomes by investigating the mediating effect of IT-enabled combinative capabilities. Based on an extensive literature review, we present an integrated research model that defines important relationships related to ERP implementation. We used a carefully developed survey instrument to measure the dynamics of the relationships among ERP implementation strategy, IT-enabled combinative capabilities, and competitive performance outcomes. The contributions of this research are threefold: (1) identifying and developing the theoretically rooted ERP implementation strategy construct in a way that considers dynamically changing business environments, (2) empirically validating the ways in which firms positively influence performance outcomes through IT-enabled combinative capabilities, and (3) examining how dynamics within ERP implementation and its impact on a firm's performance differ in diverse circumstances (e.g., small firms vs. large firms, process integration, and product complexity). The remaining section of this paper is organized as follows: Conceptual development section provides the theoretical base for this research argument and presents an overview of the relevant literature that defines the variables within the research model. Hypothesis development section develops hypothesized relationships among these variables. Research method section details the research methodology and describes the data collection procedures, and Research results section reports the research results. The final section, presents theoretical and managerial implications along with concluding remarks.

Conceptual development

In studying the role of ERP, researchers may take a variety of theoretical perspectives: (1) the *dynamic capability perspective* emphasizes organizational capabilities under changing environments (Sinkovics and Roath, 2004; Teece et al., 1997); (2) the *resource-based view* examines the enhancement provided by technological and human resources (Lengnick-Hall et al., 2004; Wernerfelt, 1984; Barney, 1991); and (3) the *technology implementation view* focuses on implementing a specific set of technology infrastructures and people processes (Bradley, 2008; Hong and Kim, 2002). Fig. 1 illustrates a research model that presents the ERP implementation strategy, IT-enabled combinative capabilities, and competitive performance outcomes. The subsequent section is devoted to explaining each variable. Table 1 summarizes the definitions of the variables in this research model.

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