Research Note

Knowledge management and ERP: Complementary or contradictory?

M. Fatih Acar, Merve Tarim, Halil Zaim, Selim Zaim, Dursun Delen

A B S T R A C T

This research aims at deepening the understanding of the effects of information systems on supply chain operations, and to find the level and direction of the relationship between Enterprise Resource Planning (ERP) and Knowledge Management (KM) in the context of operational and financial performance. Essentially, this study emphasizes the explanation of the complementary relationship between ERP and KM. Therefore, the mediating effect of KM is also analyzed. Using a survey method, 163 responses are collected from Turkish manufacturing companies which operate in a variety of industries. A structural equation modelling (SEM) is used to test both the reliability and validity of measurement and the structural path model. The results show that ERP has no significantly positive effect on operational performance, but it is a precedent of KM. Moreover, results also show that KM affects operational performance positively and it has a mediating effect for the relationship between ERP and operational performance. Lastly, the path analysis shows that operational performance is positively associated with financial performance.

Keywords: Supply chain, Knowledge management, ERP, Operational performance, Financial performance, Structural equation modeling

1. Introduction

In this era of stiff global competition, knowledge/know-how is widely recognized as one of the core assets/enablers for any organization, service or manufacturing (Davenport and Prusak, 1998; Drucker, 1993). The ability of organizations to identify, codify and leverage/use of their knowledge sources have become a significant determinant of their competitive posture (Bhatt, 2001). Therefore, the field of knowledge management has emerged as a fruitful research area of interest to both academicians and practitioners (Wiig, 2000). There seems to be a consensus amongst the educational as well as practitioner community that effective implementation and proper management of knowledge management are essential to compete in the highly dynamic global business environment (Delen, Zaim, Kuzev, & Zaim, 2013; Hicks, Dattero, & Galup, 2007; Zaim, 2006).

Today’s organizations, often viewed as an extended enterprise that include suppliers and vendors (upstream) and customers and distributors (downstream), are usually arranged in processes that handle both goods/services and information that we nowadays collectively call as the supply chain. The management of such processes are called supply chain management, or SCM in short (Su & Yang, 2010). Supply chain has been one of the most popular investigative topics for both managers/practitioners and researcher/academicians in recent years, and many firms have gained competitive advantage by carefully researching and properly improving their supply chain capabilities. In the extant literature, supply chain management is covered rather wide and technically deep, including research that aimed at addressing issues like optimal selection of suppliers, improving collaboration among supply chain members, better management of warehouses, balancing risk and reward shared between buyers and sellers, handling logistics of hazardous material, improving vehicle routing, enabling green supply chain, to name just a few. What makes supply chain research challenging and potentially more impactful is to study it within the context of knowledge management.

Knowledge management (KM) is a relatively new concept for organizations, and it has been recognized as a mission-critical task, and hence, covered as a worthy research topic by both academics and practitioners (i.e., service/good providers and consultancy companies). Knowledge (especially tacit knowledge) can be viewed as a source of soft power that provides competitive advantage to organizations.

M. Fatih Acar, Merve Tarim, Halil Zaim, Selim Zaim, Dursun Delen

Independent Scholar, Logistics Management Expert, Menemen, Izmir, Turkey
Department of Management, Istanbul Commerce University, Istanbul, Turkey
Business Administration, American University of the Middle East, Kuwait
Department of Industrial Engineering, Istanbul Technical University, Istanbul, Turkey
Department of Management Science and Information Systems, Oklahoma State University, Stillwater, OK, USA

ARTICLE INFO

Corresponding author at: Regents Professor of Management Science and Information Systems, Spears and Patterson Endowed Chairs in Business Analytics, Director of Research—Center for Health Systems Innovation, Spears School of Business, Oklahoma State University, 700 N. Greenwood Ave., Tulsa, OK 74106, USA.
E-mail addresses: mfacar4@gmail.com (M.F. Acar), mtarim@ticaret.edu.tr (M. Tarim), halil.zaim@aum.edu.kw (H. Zaim), zaims@itu.edu.tr (S. Zaim), dursun.delen@okstate.edu (D. Delen).
Web: http://spears.okstate.edu/~delen.

http://dx.doi.org/10.1016/j.ijinfomgt.2017.05.007
Received 13 December 2016; Received in revised form 11 April 2017; Accepted 18 May 2017
0268-4012/ © 2017 Elsevier Ltd. All rights reserved.
Knowledge, a common manifestation of knowledge, plays an important role in obtaining and sustaining a competitive posture (Chatzoudes, Chatzoglou, & Vraimaki, 2015). KM is known to provide the means necessary to explicate, codify and maintain critical know-how in an organizational environment. Creation, codification and storage of knowledge can be perceived as separate, consecutive and mostly recursive sub-processes by which organizational knowledge can be managed (Geisler & Wickramasinghe, 2015). Although the value proposition of KM is obvious, many organizations struggle with defining, acquiring and managing knowledge that resides within them.

KM is a multidisciplinary concept that can be described and analyzed from different perspectives (Geisler, 2007). From the resource-based view, knowledge is regarded as a vital organizational resource, which is rare, valuable, and difficult to imitate (Greiner, Böhmann, & Krcmar, 2007). However, harnessing knowledge resources effectively and efficiently requires an integrated approach that combines KM with several other management tools and systems including SCM and enterprise resource planning (ERP) (Jasimuddin, 2008). It has been suggested that from a holistic perspective, ERP-enabled SCM can contribute to KM outcomes and KM can be considered as an antecedent to ERP success (Sedera, Gable, & Chan, 2003).

ERP is a crucial information system/technology tool for corporations to manage their supply chain processes by means of identifying, capturing, integrating and storing the flow of data/information created by means of executing their business transactions, with both entities inside and outside of the firm. Essentially, to achieve integration and coordination among departments within the firm as well as vendors and contractors outside the firm, ERP provides the capabilities to control and manage both material and information flows (Migdadi & Abu Zaid, 2016). ERP systems consist of several different modules including, supply chain, manufacturing, warehouse management, and quality. Despite its relatively high cost of acquisition and implementation, many organizations (small, medium, large in size) have implemented ERP solutions to better manage their processes. From the perspective of resource-based view (RBV), combining both tangible and intangible resource types expected to result in better outcomes than using a single resource type view. In their study, Hult, Ketchen, Adams, and Mena (2008) asserted that combining all aforementioned resources (SCM, KM, ERP) have a stronger effect on business performance than simply the direct effect of each resource individually.

In this study, two key resources are considered simultaneously and synergistically: software packages related to ERP systems and knowledge management practices. The opinion, where the question is whether there is a positive synergy between ERP and knowledge management, is discussed in this research paper, especially with regards to its implication on supply chain performance. This study fills an important gap in the literature by integrating the effects of knowledge management and ERP on business performance using an empirical research method.

2. Literature review and hypotheses development

This part of the manuscript is organized in four sub-sections; the first three (related to KM, ERP and RBV) provides the most relevant literature pertaining to the present study while the fourth sub-section provides the development of the hypotheses tested within the context of this study.

2.1. Knowledge management (KM)

Knowledge has been one of the most popular debate topics in business philosophy for a very long time (Alavi & Leidner, 2001). In the current face of global competition, manufacturing as well as service firms must improve their core competencies by constantly learning and adapting to rapidly changing business environment/condition. Knowledge management is often perceived and proposed as a key enabler for building such a competency (Wang, Klein, & Jiang, 2007). Generally speaking, knowledge can be defined as ‘information plus the causal links that help to make sense of this information’ and knowledge management can be defined as ‘a process that establishes and clearly articulates such links’ (McGinnis & Huang, 2007; Sarvary, 1999). Also Alavi and Leidner (2001) defined knowledge as “information possessed in the mind of individuals: it is personalized information (which may or may not be new, unique, useful or accurate) related to facts, procedures, concepts, interpretations, ideas, observations and judgments”. A knowledge-based perspective has been widely discussed in the strategic management literature. It refers to how services offered by tangible resources can transform to a function of the organization’s know-how (Alavi & Leidner, 2001; Hung, Tsai, Lee, & Chau, 2015).

The knowledge is usually buried within the organizational structure, and transferred through a combination of ways/assets such as organizational culture, policies and procedures, and mentorship of employees (Grant, 1996a, 1996b). The major competitive advantage for a firm lies within the organizational knowledge assets and therefore ‘knowledge management’ has become a highly critical issue. Knowledge management has now been largely established as a competitive strategy that can provide many advantages to a company. One of the advantages of KM in manufacturing or service organizations is employee training. Proper and timely training in both the short- and long-term can have positive effects on the performance of a company. Knowledge retained in a “server” allows access to critical information at all levels of an organization, and provides a vehicle for people to improve themselves in both formal and informal ways. It can potentially reduce the amount of structure required by eliminating excuses and depoliticize the organization, thereby empowering people to learn on their own time and pace (Gunasekaran & Ngai, 2007).

Knowledge-based resources, especially the one in tacit form, are difficult to copy and it can be different from organization to organization. Therefore, such a unique set of knowledge assets may provide competitive advantage in the long term. Information can be seen as processed data and in that case knowledge would be authenticated information. Text, graphics, words are different ways of knowledge representation, and these explicit representations can provide a common language and some understanding of actionable information (aggregated, conceptualized data) for all stakeholders (Alavi & Leidner, 2001; Zaim, 2005). Knowledge can be conceptualized and analyzed in different ways; a state of mind, an object, a process, a condition of having access to information, and acquisition of a capability.

There are two dichotomous versions of knowledge in literature: tacit and explicit. Tacit knowledge is embedded in action and experience. It covers cognitive and technical elements (Nonaka and Takeuchi, 1995). The cognitive one refers to a person’s mental models and includes beliefs and viewpoints; the technical one covers know-how, skills and ingenuity. Explicit knowledge refers to the codified and formed knowledge with symbolic or natural language. There are also other knowledge types in the literature: declarative (know-about), causal (know-why), conditional (know-when) and relational (know-with) (Alavi & Leidner, 2001; Norton, 1998; Zack, 1998).

Generally, KM said to have three main goals: (1) making knowledge clear and stating the importance of it in a firm, (2) establishing a knowledge-intensive culture with stimulating behaviors like knowledge sharing, (3) establishing a knowledge infrastructure, both of technical (e.g., e-mail system, servers etc.) and social (e.g., collaborating, meeting, exchanging) ones (Alavi and Leidner, 2001). In the KM related literature, researchers have identified three types of learning: individual, with communication, and utilizing a knowledge repository (Heijst, Spek, & Kruizinga, 1997; Liao, 2003). Accordingly, KM performance may be evaluated at three levels/stages: strategic level, functional/operational level and employee/performer level. The first level relates to the contribution of knowledge management activities to organizational performance. The functional/operational performance measures the effect of knowledge management processes on operations.
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات

ISI Articles
مرجع مقالات تخصصی ایران