

Implementing Enterprise Resource Planning

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INTRODUCTION

Enterprise resource planning (ERP) has emerged as one of the major breakthrough information technologies (ITs) that can re-shape the manufacturing industry (Hwang & Min, 2013). ERP is the business application that weaves together all the data within an organization's business processes and associated functional areas (Candra, 2014). With the advent of globalization and the appearance of new forms of organization based on networks of closely cooperating firms, it seems clear that successfully implementing ERP systems will take on an increased significance for the survival, growth, and competitiveness of many small and medium-sized enterprises (SMEs) (Raymond & Uwizeyemungu, 2007). ERP systems are software packages that integrate a number of business processes, such as manufacturing, supply chain, sales, finance, human resources, budgeting and customer service activities (Amalnick, Ansarinejad, Nargesi, & Taheri, 2011) and they can integrate all the data and related processes of an organization into a unified information system (IS) (Garg & Garg, 2013). ERP systems are a set of standardized software and organization-wide database in which all business transactions are entered, recorded, processed, monitored, and reported (Zhang, Gao, & Ge, 2013). Activities involved in development and use of technologies and ERP systems are subject to social, cultural, organizational, technical, and other institutional aspects (Pishdad & Haider, 2013). The use of ERP systems is an efficient method for automating supply chain processes from the production of raw materials to establish relationships with the customers (Haug, Pedersen, & Arlbjörn, 2010). SMEs can create a competitive advantage by being more responsive to change through the use of ERP as a production planning and control tool (Koh & Simpson, 2005). SMEs consider supply chain management (SCM) as operational level task aiming toward short-term profit earnings (Thakkar,

Kanda, & Deshmukh, 2012). An extensive review of literature on supply chain issues in SMEs is studied by a number of researchers (Thakkar, Kanda, & Deshmukh, 2009; Singh, Garg, & Deshmukh, 2010). SCM is considered as one of the primary factors in determining the organizational competitiveness (Prajogo & Sohal, 2013) and it is progressively becoming important for SMEs to remain competitive in the supply chain of large enterprises (Thakkar et al., 2012). Developing effective relationships throughout the supply chain is crucial in enhancing a firm's brand equity (Kim & Cavusgil, 2009). ERP solutions are appropriate when a company is seeking the benefits of integration and best practices in the system, and looking for a full range of functionality across the organization (Momoh, Roy, & Shehab, 2010). The implementation of ERP systems in a variety of industrial and organizational contexts has received considerable attention from the academic community (Kaniadakis, 2012). ERP evaluation should extend beyond operational improvements to the more strategic impact of ERP looking at the intangible nature of costs and benefits in organizational, technological, and behavioral aspects (Stefanou, 2001). In addition, ERP implementation has linked to firm performance (Yang & Su, 2009).

Background ERP systems have their origin in the late 1970s and early 1980s when computers started being used to support production planning (Elbertsen, Benders, & Nijssen, 2006). The logistic control concept of material requirements planning (MRP) is to become the basis for what evolved into ERP systems (Elbertsen et al., 2006). Based on a production plan, MRP systems can calculate when and what quantities of components are needed to ensure efficient production control (Elbertsen et al., 2006). MRP is extended to include other functions such as capacity planning and master production scheduling (MPS) based on sales forecasting (Elbertsen et al., 2006). These points are known as manufacturing resource

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planning (MRP II) (Okrent & Vokurka, 2004). ERP software is the backbone of many big enterprises in the world today (Alshawi, Themistocleus, & Almadani, 2004). From a business standpoint, the benefits that a properly selected and implemented ERP system can offer an organization include time and cost reduction in business processes, faster transaction processing, improvement of operational performance, financial management and customer service, Web-based interfaces, and more effective communication (Kogetsidis, Kokkinaki, & Soteriou, 2008). A key factor for the successful implementation of ERP systems requires an organizational culture that emphasizes the value of sharing common goals over individual pursuits and the value of trust among the stakeholders such as process owners, managers, partners, employees, and corporations (Chockalingam & Ramayah, 2013). ERP system is a strategic tool for the integration of best business practices, organizational change management, and productivity improvement (Woo, 2007). In addition, ERP is a business management system made from a collection of applications integrating company functions such as marketing, finance, manufacturing, and logistics (Helo & Szekely, 2005). Al-Mudimigh, Zairi, and Al-Mashari (2001) defined ERP implementation as a socio-technical challenge in which organizational communication plays a central role in securing the essential processes for successful ERP implementation. ERP is an industry term for the broad set of activities supported by software that helps the manufacturer run the important parts of its business (Huang & Palvia, 2001). ERP system is an example of an organizational innovation (Rogers, 1995). Implementation of an innovation is described as the process of gaining targeted employees' appropriate and committed use of an innovation (Klein & Sorra, 1996) as a re-invention of the technology and simultaneous adaptation of the organization (Hong & Kim, 2002). When introducing an innovation such as an ERP system to an organization, the implementation process needs to be managed so that the expected benefits are achieved (Kemp & Low, 2008).

Implementation of ENTERPRISE RESOURCE PLANNING This section introduces the implementation of ERP includes: ERP implementation success; ERP implementation plan; information technology (IT); mobile devices; socio-technical system; organization; organizational communication; organizational trust; change management; brand equity; user involvement

and participation; information flow management; project management; project team competence; user training and education; top management support; and knowledge and skills.

ERP Implementation Success

Previous research focuses on critical success factors (CSFs) or what an organization must do to accomplish what it was designed to do (Elmezziane & Elmezziane, 2012). Budget size and cost are considered as the CSFs of ERP implementation success (Annamalai & Ramayah, 2012). An ERP implementation success can be measured in a broad sense from the perceived deviation from the projected objectives (Annamalai & Ramayah, 2012). An organization typically expects the system to address problems associated with business process integration and to enable the information flow across functional processes (Bharathi & Parikh, 2012).

ERP Implementation Plan

An ERP implementation plan includes the cost/benefits assessment, perceived financial cost, and perceived benefits of ERP (Annamalai & Ramayah, 2012). In addition, perceived financial costs and benefits are effective in evaluating the potential for both ERP success and IT implementation (Oliveira & Martins, 2011). The cross-functional coordination between activities in organizations has been shown to be important in ERP implementation plan (Gosain, Lee, & Kim, 2005).

Information Technology

IT competence is a key driver of users' satisfaction of an ERP system (Davis, Kettinger, & Kunev, 2009). Some IT capabilities associated with ERP implementation success include human capital, which is shown to be effective in IT adoption (Oliveira & Martins, 2011). In addition, IT infrastructure is considered as the CSF of the ERP implementation (Nour & Mouakket, 2011).

Mobile Devices

Mobile devices and applications have become the tools for logistics and transportation professionals looking to stay connected and manage their supply chains from anywhere (Partridge, 2011). A range of new supply

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