

Risk Management of ERP Projects in Manufacturing SMEs

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ABSTRACT

To deepen the knowledge on enterprise resource planning (ERP) implementation in small and medium size enterprises (SMEs), this study identifies and assesses the main risks in ERP projects through a case study of three manufacturing SMEs. Various tools, standardised methods and techniques have been developed to help enterprises better manage their ERP projects. In this paper, the author introduces two risk management methods targeted for SMEs in their ERP implementation projects. By using company-specific risk analysis method (RAM), the critical risks of the ERP projects have been identified and assessed. Then, by using characteristics analysis method (CAM), recommendations of how to divide the ERP projects into manageable sub projects are given.

Keywords: Characteristics Analysis Method, Enterprise Resource Planning (ERP), ERP Project, Risk Analysis Method, Risk Management, Small and Medium Size Enterprise (SME)

INTRODUCTION

One of the most important information technology (IT-) enabled business innovations during the past decade has been the emergence of enterprise resource planning (ERP) systems. An ERP system is a business software package that links all functions of an enterprise including order management, manufacturing, human resources, financial systems, and distribution with external suppliers and customers into a tightly integrated system with shared data and visibility (Chen, 2001). The effective implementation of an ERP system can bring about many benefits, beginning with the most general, such as cost reduction, productivity improvement, and quality improvement, but also customer

service improvement, better resource management, improved decision-making and planning, and organizational empowerment (Davenport, 1998). Consequently, improvement of economic indicators is achievable, which finally leads to an increase in enterprise profitability (Soja, 2006).

ERP systems have been initially directed for the use of large-scale enterprises, however, recent research has shown that also small and medium size enterprises (SMEs) have started adopting ERP systems in order to gain competitive advantage and improve their position in the market (Maguire et al., 2007). SMEs differ from larger enterprises in important ways affecting their information-seeking practices. These differences include lack of information systems management, concentration of information-gathering responsibilities to a small number of individuals, lower levels of

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resources available for information-gathering, and in the quantity and quality of available environmental information (Buonanno et al., 2005). Due to aforementioned characteristics, SMEs adopt ERP systems especially because of the benefits related to the product/market (improvement of product quality, improvement in product design), financial benefits (cash flow, availability of financing, government programs of financial assistance), managerial and organizational benefits (strategic orientation with regard to technology, exposure of management to technology, relations between management and employees, competence of employees, increase in productivity), and benefits related to the sector of activity (competitiveness in terms of cost, environmental requirements) (Ariss et al., 2000).

Despite the significant benefits of ERP systems, there are number of examples where organizations were not successful in reaping the potential benefits that motivated them to make large investments in ERP implementations (Davenport, 1998, 2000; Markus & Tanis, 2000). Many ERP implementations have been difficult, lengthy, and over budget, were terminated before completion, and failed to achieve their business objectives even a year after implementation (Somers & Nelson, 2004). To achieve the desired benefits, the ERP implementation project must be carefully managed (Bingi et al., 1999; Davenport, 2000; Motwani et al., 2002), and the risks involved the projects must be properly assessed (Mark et al., 1998; Wright & Wright, 2001). Management of an ERP project is a major and risky exercise for any size of enterprise, however, risks are higher for SMEs, as the cost overruns during implementation may put financial strain on a firm and thus substantially impact firm performance (Cereola, 2006). Even with significant investments in time and resources, there is no guarantee of a successful outcome (Mabert et al., 2003).

Various tools, standardised methods and techniques have been developed to help companies to better manage their IT projects, though

they are often too general for ERP application (Aloini, et al., 2007). Also, consulting, project management, change management and risk management methods are normally specified for large enterprises (Koh & Maguire, 2004). In order to support SMEs in their ERP project, targeted risk management processes are needed in this context.

The majority of past research on ERP systems has so far concentrated on the big business sector, and the findings cannot easily be extended to SMEs because of their particular characteristics (Blili & Raymond, 1993). Only few researches deal with the use of ERPs by SMEs (Everdingen, et al. 2000; Moon, 2007). In this study, the purpose is to identify and assess the main risks in the ERP projects through the case study of three manufacturing SMEs. The paper introduces two risk management methods targeted for SMEs in their ERP implementation projects. By using the company-specific risk analysis method (RAM), the critical risks of the ERP projects are identified and assessed. Then, by using the characteristics analysis method (CAM), the recommendations of how to divide the ERP projects into manageable sub projects are given.

RISKS IN ERP PROJECTS

An ERP project is not a simple software project (Aloini et al., 2007; Bingi et al., 1999; Davenport, 2000). Most software projects focus on developing a software system. But an ERP project consists of tightly linked interdependencies of software systems, business processes, and process reengineering (Wright & Wright, 2001). ERP project can also be viewed as an organizational change project, due to the large number of changes it brings to an organization (Bingi et al., 1999; Hammer & Stanton, 1999). Associated organizational and process reengineering in ERP projects, the enterprise-wide implications, high resource commitment, high potential business benefits and risks associated with ERP systems make their implementation a much more complex exercise in planning,

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