

# **Paper no.32**

## **Critical Success Factors in Enterprise Resource Planning Implementation: A Case Study in Saudi Arabia Hospital**

### **Abstract**

*Despite that enterprise resource planning (ERP) systems have proved to provide organizations with the opportunity to integrate individual, functionally oriented information systems, organizations will not gain the benefit expected unless these systems are implemented successfully. This research evaluates the adoption of ERP in healthcare organisations in Saudi Arabia. A conceptual framework that determines critical factors which influence the ERP adoption will be developed. Both qualitative and quantitative methods will be used to obtain a general understanding of what the critical success factors (CSF) of implementing ERP. The proposed framework can be used as a decision-making tool to support management of the healthcare when taking decisions regarding the adoption of ERP. Additionally, it can be used by researchers to analyse and understand the adoption of ERP.*

**Keywords:** Enterprise resource planning (ERP), Critical success factors (CSF), Healthcare organisations.

### **1. Introduction**

Understanding the CSF in implementing ERP systems has been a challenging process for many organizations worldwide. An ERP system enables an organization to integrate all the primary business process in order to enhance efficiency and maintain a competitive position. However, without successful implementation of the system,

the projected benefits of improved productivity and competitive advantage would not be forthcoming.

In its basic definition, ERP is an enterprise-wide information system that integrates and controls all the business processes in the entire organization. According to Nah and Lau (2001) ERP is “a packaged business software system that enables a company to manage the efficient and effective use of resources (materials, human resources, finance, etc.) by providing a total, integrated solution for the organization’s information-processing needs”. This software facilitates, if well-implemented, the integration of all the functional information flows across the organization into a single package with a common database. Therefore, it allows easy and immediate access to information regarding inventory, product or customer data, and prior history information (Shehab *et al.*, 2004).

ERP initially covered all routine transactions within an organization only. However, it was later expanded to cover external customers and suppliers (Turban *et al.*, 2006). Nah and Lau (2001) stated that most ERP systems now have the functionality and the capability to facilitate the flow of information across all business processes internally and externally. Furthermore, ERP systems have the capability to “reach beyond their own corporate walls to better connect with suppliers, distributors and customers to engage in e-business”.

Today, many organizations worldwide are implementing ERP systems in place of the functional legacy systems that are not anymore well-compatible with modern business environment. However, according to Kroenke (2008), the process of moving from functional applications to an ERP system is difficult and challenging. Additionally,

the switch to ERP system is expensive and it requires development of new procedures, training and converting data (Zhang *et al.*, 2005).

## **2. ERP in the Healthcare**

Healthcare organizations are multi-functional, complex, information intensive organizations that require sophisticated integrated clinical and business management information systems. However, the emergence of the ERP software radically transformed the computing platform of most organizations, including hospitals (Klaus *et al.*, 2000).

The implementation integration has provided important benefits to healthcare organisations. However, there are still many problems relating to their adoption. The cost of the development of healthcare integration standards is high (Stefanou and Revanoglou, 2006). Moreover, the integration of ERP in healthcare is needed to support various issues such as:

- Clinical and administrative tasks,
- Better healthcare,
- Patients' data security,
- Interoperability,
- Healthcare process integration, and
- Utilisation of valuable legacy systems and new technologies.

ERP present an organization with operational and technical advantages, as well as a set of tangible and intangible financial benefits (Kenneth *et al.*, 2002). In addition, ERP can provide numbers benefits to health care organization. Human recourse can benefit from an ERP implementation due to centralized scheduling. In addition,

billing, laboratory, pharmacy and patient records can help in the anticipation of internal workflow (Jenkins and Christenson, 2001).

### **3. ERP Critical Success Factors**

The identification of CSF before the start of the project is rather critical for the successful implementation of ERP systems (Esteves et al. 2004). A number of empirical and non-empirical studies have addressed a variety of CSF for ERP implementation. The results of some major research on ERP implementation success factors have been described below.

Holland and Light (1999) presented a number of success factors in ERP implementation and suggested their division into strategic and tactical factors. The model was illustrated on a sample of two ERP implementation projects. Among 12 factors, the authors highlighted the critical impact of legacy systems upon the implementation process and the importance of selecting an appropriate ERP strategy.

Somers and Nelson (2001) described the importance of CSF across the stages of ERP implementations using the responses from 86 organisations implementing ERP. From their broad list of 22 CSF for ERP implementation, the most important are: top management support; project team competence; interdepartmental cooperation; clear goals and objectives; project management; and interdepartmental communication.

Al-Mashari et al. (2003) presented a taxonomy of ERP critical factors where 12 factors were divided into three dimensions related to the stages of ERP project, which are: setting-up, deployment and evaluation. The taxonomy presented emphasises that

a clear vision and business director is fundamental for the success of ERP system implementation.

Chen (2001) analysed several critical planning issues prior to the ERP adoption decision, including needs assessment and choosing a right ERP system, matching business process with ERP system, understanding the organizational requirements, and economic and strategic justification. He reported that competitive strategy, targeted market segments, customer requirements, manufacturing environment, characteristics of the manufacturing process, supply chain strategy and available resources all enter into the decision of ERP adoption.

#### **4. Research Problem**

The Saudi Arabian health sector faces many external and internal challenges which constrain its capability of adaptation to change, including its success in appropriate development and implementation of IS projects.

Clearly, ERP systems are huge and complex and warrant careful planning and execution for successful implementation (O'Leary 2000). Moreover, they are not purely software system, and neither is their implementation merely an IT project. An ERP system affect how a business conducts itself and affects an organisation's business processes, people's jobs, and information flows (Somer and Nelson 2001). Therefore, and due to the complex and integrated nature of ERP package, the large investments involved (time and money), and the relatively high implementation failure rates (Holland and Light 1999). It is imperative for organisation to study the experiences of others, and learn from their practices and success factors. In essence, organisations have to learn how to identify the critical issues of ERP implementation

to realise the promised benefits and to avoid implementation failure (Somers et al., 2000).

According to Jenkins and Christenson (2001) the growth of ERP systems has been implemented in the manufacturing sector, but large healthcare systems have begun to take an interest in these systems. Therefore, vendors are developing ERP application; that offer administrative and logistical solutions for large healthcare systems.

This research is to investigate the CSF of implementing ERP at King Abdulaziz University Hospital (KAUH).The critical objective of this research is to propose a framework for adoption ERP in healthcare.

## **5. Research Aim and Objectives**

ERP systems implementation is a socio-technical challenge which requires a fundamentally different outlook from previous of technologically-driven innovation and will certainly depend on a holistic perspective where the organisation as a total system is considered (Al-Mashari et al. 2003).

One of the strongest justifications for this study is the focal problem of improving healthcare services in Saudi Arabia's hospitals. The main aim of this study is to propose a model for effective implementation of ERP projects based on best practices perspective. This requires the identification and empirical assessment of CSF of ERP project implementation. The following are the main objective of the research study:

- To critically review the literature in the area of healthcare informatics with a particular focus to ERP adoption.

- To investigate and analyse the critical factors that play a major role in the success of ERP implementation in health care.
- To develop a framework for the evaluation of ERP success factors in healthcare organisations.

## **6. Research Methodology**

The most important stage for research is to think carefully about the selection of research methodology. The choice of method depends mainly on the nature of the research problem, the variable types, whether data are quantitative or qualitative, with dependent or independent variables, and the relation between them, as well the researcher's philosophical orientation.

The researcher chose the case study approach to investigate the subject of CSF of implementing ERP at King Abdulaziz University Hospital (KAUH). The objective of the case study is to study the processes as they occur in nature, so that phenomena continue to evolve normally, without any interference, only under observation.

Both qualitative and quantitative methods will be used, because of the importance of obtaining a general understanding of what the CSF of implementing ERP. So, there is a need to answer questions of what and how, using interviews. It is also important to understand factors that relate to ERP implementation, structure and performance and the best method to apply to achieve the objectives of the study is through the questionnaire technique. The main objective of the empirical part of this research is to investigate the use of methods to help in dealing with CSF of implementing ERP. Therefore, investigation is required, in as much depth as possible, as to the importance

of CSF of implementing ERP. This is accomplished by interviewing KAUH managers and the Information Technology Centre staff on the one hand, and by conducting a survey of the university hospital staff behaviour and attributes with the aid of questionnaires on the other hand.

## **7. Conclusion**

ERP systems have become vital strategic tools in today's competitive business environment. This research attempts to investigate the critical success factors in implementing ERP systems in healthcare organizations in the context of Saudi Arabia. A case study approach will be used to collect data at King Abdulaziz University Hospital. Several in-depth interviews with the hospital's managers and the Information Technology Centre staff will be conducted to get insight about their experience with ERP implementations. Subsequently, survey questionnaires of the university hospital staff behaviour and attributes will be carried out. The key findings of this study would be of value to the management of the healthcare organizations when taking decisions regarding the adoption of ERP. Moreover, it provides information systems researchers with better understanding about the adoption of ERP systems in the context of developing countries such Saudi Arabia.

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