

## Chapter 6

# Implementation of ERP Systems: A Seven Stage Adoption Model

**Manoj Jha**  
SAP Consultant, India

**Sanjay Kumar**  
MDI Gurgaon, India

### ABSTRACT:

*The model discusses the implementation of ERP systems. The article discusses the process based implementation approach and also the critical success factors approach for the implementation. A gap identified in literature is that critical success factors and ERP implementation has not been studied from the viewpoint of other stakeholders. This chapter tries to address this gap by proposing a seven stage model of ERP implementation and adoption from the viewpoint of the ERP implementation consultant. The model also addresses subsequent stages such a data exploitation stage where organizations learn to use data for decision making and process management. The model also addresses the subsequent stages of extension of ERP to partners like suppliers and dealers, and the innovation stage when the organizations starts to experiment with newer solutions based on ERP systems.*

### INTRODUCTION

Enterprise Resource Planning (ERP) systems are commercial software packages that enable the integration of transaction oriented data and business processes throughout an organization (Markus & Tanis, 2000). As more and more organizations around the world have chosen to build their IT infrastructure around this class of off-the-shelf applications, there has been a greater appreciation

for the challenges involved in implementing these complex technologies (Youngbeom et al., 2005). Although companies spend millions of dollars on both the package and the implementation process, the overall success rate is low. Business and popular press is full of horror stories describing major problems in ERP implementation projects and project failures, even leading to liquidation. More common place are the problems reported in academic press, such budget and time over runs, failure to realize full functionality, process mis-specification, organizational resistance or inertia, improper conversion

DOI: 10.4018/978-1-61520-625-4.ch006

and uploading of legacy data, problems related to training and use etc. (Stedman, 1999) In response there has been a developing body of academic literature which addresses the difficulties of ERP implementation by proposing critical success factors required for a successful ERP implementation (Frederic & O'Doherty, 2000; Sumner, 2000; Youngbeom et al., 2005; Huang & Palvia, 2001; Gargeya & Brady, 2005; Umble & Umble, 2002; Nah et al., 2001; Babu & Dalal, 2006; Yu, 2005; Grossman & Walsh, 2004; Yokovlev & Anderson, 2001; Prasad et al., 1999) and a parallel stream of literature which proposes process models of the implementation process (Wei et al., 2005; Markus et al., 2000; Kraemmerand et al., 2003; Markus & Tanis, 2000). The effort of both approaches is to better understand the implementation process and the factors which affect it, and hence to provide guidelines so that the ERP implementation process can be better managed.

### **What are ERP Systems**

ERP systems are transaction oriented software packages, at the heart of which lies a central database, that draws data from and feeds data into a series of applications supporting a wide range of company functions such as accounting, warehousing, human resource management, sales, distribution and production planning (Kraemmerand et al., 2003). They differ from other packages as they encapsulate a range of pre-configured standard processes based on industry best practices. Alternative process routes and supporting database transactions are engineered into the software package and can be accessed through various customizing screens (Kirchmer, 1999; Brehm, 2001). Once a 'process route' is chosen, the transactions and the supporting data flow as per the defined route. The software vendors also release 'business process reference models' which are basically maps of the standard processes built into the system, and which can be used as an aid to choosing the best-fit process. (Kirchmer, 1999)

Best fit here refers to the fit with the operational process followed by the organization. The job of implementing an ERP system thus involves mapping the as-is processes of an enterprise, deciding the selected processes to be used in the future and mapping these processes into the software, using the configuration screens available in the system. Certain processes which are desired by the organizations cannot be mapped into the ERP system, as a pre-configured path is not available in the product. These processes need customization of the software i.e. the program code to be modified for supporting the desired functionality (Markus & Tanis, 2000; Kirchmer, 1999; Brehm et al., 2001)

### **LITERATURE REVIEW**

ERP systems are integrated systems with mechanisms based on planning and forecasting, which support the management of the entire enterprise and integrate all of its activity. The effective implementation of such a system can bring about many benefits, such as enterprise management and information flow enhancement. Consequently, improvement of economic indicators is achievable, which finally leads to an increase in enterprise profitability.

However, the achievement of these above-mentioned benefits depends upon the effective implementation of the full functionality of the ERP system, which is quite difficult. There are a great many implementation projects that do not bring about the planned effects, or even end up in project abandonment. The duration and budget of the implementation projects significantly exceed initial estimates, and the planned scope of the implementation is limited (Parr & Shanks, 2000). Therefore, conducting research seems crucial in order to explore the conditions having an influence on the project outcome.

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