Chapter XX

Adoption of Enterprise Resource Planning Software by Organizations in India: A Managerial Framework

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ABSTRACT

Enterprise Resource Planning (ERP) systems are designed to integrate various functions and processes, and are used by organizations as the first-level transaction processing systems in their information architecture. Although many studies have been conducted and reported on ERP implementation cases in the developed countries, there is not much literature on the experiences of companies in Asia and other parts of the developing world. These organizations confront issues that are significantly different from those faced by companies in the developed world, because of differences in the sophistication of IT use, and cultural and social contexts. This chapter describes a three-stage model for analyzing the deployment of ERP in developing countries, based on an empirical study of ERP implementation exercises in Indian organizations. Each stage describes a specific aspect of the implementation process. The specific characteristics of each stage and their implications for managers have also been discussed.

INTRODUCTION

Enterprise Resource Planning systems are designed to integrate various functions and processes in organizations. ERP software is developed in the form of different modules, each of which helps to perform distinct functions within the company. The various modules are integrated such that they interface with the same organization database and workflows can be designed across different modules. The software helps ensure availability of information and standardize business processes. ERP software evolved from earlier Manufacturing Resource Planning (MRP) systems, which included inventory management, procurement and production planning functions (Sandoe et al., 2001). The implementation of ERP software started in the early 1990's and during the late 1990's, the growth rate of the ERP market was between 30 and 40 percent. As of 2001, 30,000 companies worldwide had implemented ERP and the total value of the ERP market was at $25 bn. Although many studies have been conducted and reported on ERP implementation cases in the developed countries (Davenport, 1993; Parr et al., 1999; Lee et al., 2000, for example), there is very little literature and information on the experiences of companies in Asia and other parts of the developing world (Liyang, 2002; Tarafdar et al., 2002). At the same time, the rate of adoption of ERP in these regions has been quite high. There is a need to study and analyze issues and problems associated with ERP adoption in these companies. This is because their problems are significantly different than issues faced by organizations in the developed world, because of differences in the sophistication of IT use, and in cultural and social contexts. We describe, in this chapter, some of the experiences that companies in India have gone through, in the implementation of ERP. We develop a framework for analyzing the critical factors and issues that influence the ERP adoption process, and highlight the areas of opportunity and risk. The framework is based on empirical research. It agrees well with existing theoretical concepts in this domain, and is sufficiently general so as to be extended to other developing countries.

BACKGROUND

The deployment and use of ERP software is quite different from traditional software development. ERP software is a single program that serves the needs of all the different functions in the organization. It is bought off the shelf and then configured to include the specific characteristics of processes of individual companies. Parts of the software have also to be customized such that it can correctly represent the workflow and processes of the particular company. Although similar packaged software, like Supply Chain Management and Customer Relationship Management packages is now available, ERP systems were the first of such software to be developed, sold, implemented and used. The study of ERP implementation experiences in Indian companies is an interesting case of new technology adoption because many Indian companies go from very rudimentary IT based systems to sophisticated ERP systems in one quantum jump (Sharma, 2001). This gives rise to some crucial issues that need to be addressed during ERP implementation, and the subsequent use of the software (Markus et al., 1999). The documentation of the ERP experience in India has been mostly in the nature of journalistic articles in professional/business publications, which either describe the current state of affairs in the ERP industry or report on implementation strategies of individual companies (Connor, 1999; Sadagopan, 1999; Dasgupta, 2001; Sharma, 2001). There is an absence of systematic research, which analyzes and generalizes the

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