ERP Software Implementation in Indian Small and Medium Enterprises

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Abstract: ERP (Enterprise Resource Planning) is a way to integrate the data and processes of an organization into one single system. Its main goal is to integrate data and processes from all areas of the organization and unify it, to provide ease of access and an efficient work flow. ERP Systems usually accomplish this through one single database that employs multiple software modules. In India, SMEs are the backbone of the economy and are today faced with global competition. Therefore, it becomes imperative to look for means of responding to the dynamic markets. ERP systems have become the most common IT strategy for most large companies. Present research argues that ERP implementation in Indian SMEs should extend its scope beyond the configuration to the strategic, managerial, technical and organizational issues by considering critical success factors for successful ERP implementation at Indian SMEs that may put Indian SMEs on the competitive position. In this paper, we have examined ERP in India.

Keywords: SME.

1. INTRODUCTION

ERP (Enterprise Resource Planning) is an outcome of Information Technology and is a way to integrate the data and processes of an organization into one single system, using sub-systems that include hardware, software and a unified database in order to achieve integration, to store the data for various functions found throughout the organization. The term ERP used to refer about how large organizations of the industrial type planned to use organizational wide resources. Today ERP is used in almost any type of organization it doesn’t matter whether it is large, small or what industry it falls in. How do we know what software system can be considered ERP? First, it must provide an organization with functionality for at least two systems or more. However, many of today’s ERP systems can cover more than just two functions and integrate them into one unified Data Base. Human Resources, Supply Chain Management, Customer Relations Management, Financial, Manufacturing functions and Warehouse Management functions can be found on modern companies under one umbrella - the ERP system.

The Key to ERP is integration. Its main goal is to integrate data and processes from all areas of the organization and unify it, to provide ease of access and an efficient work flow. ERP Systems usually accomplish this through one single database that employs multiple software modules. The ideal configuration is then to have one ERP system for an entire organization, but organizations that are very large have been known to create an ERP system and then add external interfaces for other stand alone systems considered more powerful or able to fulfill the organization’s needs in a better way. Recently the ERP vendors have developed and customized the ERP software for the use of all types of industries. This has created a great demand on the use of ERP among business entities to integrate and maximize their resources. The growing demand for ERP applications among business firms has several reasons:

• Competitive pressures to become a low cost producer.
• To increase the revenue growth.
• Ability to compete globally.
• Maximizing the resources and the desire to re-engineer the business to respond to market challenges (Gattiker and Goodhue, 2005).

2. LITERATURE REVIEW

This area has been subjected to a significant amount of prior research. Several approaches have been taken. Slevin & Pinto (1987) originally proposed ten CSFs for project management. Their work was built upon by Holland & Light (1999). They partitioned the implementation process into strategic and tactical subgroups, adding factors specific to software projects. The application and modification of existing project management techniques to ERP was also addressed by Weston (2001), who also considered the issues surrounding the development stages that the project passes through, associated metrics, and the software used in ERP implementations. These issues have been further investigated by other researchers. Notably Ahituv et. al., (2002) who investigated systems development methodologies for ERP systems, while Huang et al., focused upon the need for organizations to create a repository of implementation best practice to ensure
consistency across ERP implement (Huang, 2004). Zviron et al., considered the issues surrounding the measurement of user satisfaction and perceived usefulness in the ERP context (Zviron, 2005). While Sumner (1999) considered implementation issues through series of ERP case studies resulting in a set of guidelines designed to promote success in large software project implementations. Nah, Lau and Kuang (2001) undertook a literature search of ERP implementations and identified eleven CSFs and considered their relationship to Markus and Tanis's process-orientated ERP Life cycle model (200). Bajwa and Garcia (2004) developed an integrative framework for the assimilation of ERP systems, extending the literature in the area of critical external antecedents, while Gulledge and Sommer (2004) examined the issues surrounding scopng business processes when splitting SAP instances. Parr and Shanks (2003) built on their earlier research into CSFs, identifying ten enabling factors, then using further case research to construct a project phase model for ERP implementation. Meanwhile an influential study by Somers and Nelson (2001) also the literature for CSFs and took Cooper and Zmud's six stages IT implementation process model (1990) as a basis for ranking and categorize them by stage. The Somers-Nelson CSF classification was extended by Akkermans and van Helden who, through the application of a longitudinal case study, showed that inter-dependencies both indirect and direct exist within the success factors and importantly that 'they all influenced each other in the same direction i.e., all positive or negative, leading to a self perpetuating or cycle of good or poor performance' (2002). Research has also been undertaken on subsets of CSFs classifications; for example, Sarker and Lee (2003) examined three major social enablers in ERP implementations, while Gefen (2004) considered the issue of trust between vendors and clients within ERP implementations and Luo and Strong proposed a framework for evaluating implementation choices pertaining to the customization of an ERP (Luo, 2004).

3. CHALLENGES IN ERP IMPLEMENTATION

A lot of firms in the developing countries face numerous challenges in implementing technologies such as Enterprise Resource Planning (ERP) systems, including a lack of human and financial resources to support such initiatives (Wright et al., 2002). Furthermore, the government’s commitment to the development of technology infrastructure can also be seen from the Indian Industrial Master Plan from 2006-2020, coinciding with the country’s vision for 2020. For example, the government has implemented numerous policies and strategies under this plan which was formulated to enhance the growth of the industries through the entire value chain and to encourage cluster based industrial development. However various studies have revealed that not all ERP implementations are successful in improving the productivity and competencies of a company. According to Gattiker and Goodhue (2005), ERP implementation failure rate is from 40%, yet companies try to implement these systems because they are absolutely essential to responsive planning and communication. The competitive pressure unleashed by the process of globalization is driving implementation of ERP projects in increasingly large numbers, so a methodological framework for dealing with complex problem of evaluating ERP projects is required. It has been found that, unique risks in ERP implementation arises due to tightly linked interdependencies of business processes, relational databases, and process reengineering (Wright and Wright, 2002). According to Gordon (2006), three main factors that can be held responsible for failure of ERP system are:

- poor planning or poor management
- change in business goals during project
- lack of business management support.

In another study, it has been found that companies spent large money in developing ERP systems that are not utilized. From a software perspective ERP systems is complete. But from the business perspective it is found that software and business processes need to be aligned, which involves a mixture of business process design and software configurations (Mabert et., 2003). So a purely technical approach to ERP system design is insufficient. According to Gordon (2006), a careful use of communication and change management procedures is required to handle the often business process reengineering impact of ERP systems which can alleviate some of the problems, but a more fundamental issue of concern is the cost feasibility of system integration, training and user licenses, system utilization, etc. need to be checked. A design interface with a process plan is an essential part of the system integration process in ERP.

4. OBJECTIVE OF STUDY

The primary objective of this research is to examine the critical success factors of ERP implementation to minimize the ERP implementation failure rate among the local companies. The research was focused in different sectors of the economy. Apart from that the study also aimed to identify the ERP usage contribution to the business performance of the organizations. ERP implementations completed between 1995 and 1998 in India can give a sense of specific hurdles that companies may encounter in ERP deployment. Several companies were surveyed, and numerous ERP professionals were interviewed in order to assess the state of ERP in India. The results indicate that Indian companies are moving forward with ERP implementation primarily in response to thrushes from parent collaborators, to revamp in order to meet increased load, or to reduce lead times and inventory levels, and improve customer satisfaction. Resistance to change was a major hurdle faced during many ERP
implementations. Additionally, the duplication required in the initial stage, and the intense pressure exerted on manpower proved to be problematic, as did the level of customization necessitated by disparities between company requirements and solutions offered by ERP software. This problem is diminishing due to advances in the software facility models. Cost overruns also proved to be a pervasive problem with ERP implementations. To avoid this problem, top management must develop the necessary commitment to ERP, and all employees should be prepared for the change before the ERP implementation process is started. This model should help to eliminate needless project time and cost ballooning.

5. ERP IN INDIA

Some of the first Indian companies to have adopted ERP practices are HLL, ONGC, ESSAR, Godrej Soaps, Cadburys, BASF, Telco, Maruti Udyog Ltd., Century Rayon, Citibank, ACC, ANZ Grindlays, German Remedies, Blue Star, Mahindra & Mahindra, Rallis India, Sony India Pvt. Ltd., Ceat Ltd., Indal, Ford Motors, Kirloskar, Knoll Pharmaceuticals, and Glaxo. First tier companies (those with a turnover greater than Rs.10 billion) implement ERP to increase internal efficiency and external competitiveness. Once ERP is established at this level, these large companies begin to desire similarly increased efficiency from their suppliers. Hence, second tier companies are pressured to implement ERP, and a trickle-down effect ensues. Powered by the axiom that a chain is only as strong as its weakest link, Indian industry quickly has recognized that in order to work at maximum efficiency, ERP must be implemented at all levels. Initially, the majority of ERP solutions have been marketed to companies with greater than Rs. 2 billion, and generally, according to industry reports, the total cost of deploying ERP has ranged between 1 and 2 percent of companies' gross sales. Lower cost solutions are available for comparatively smaller sized companies. Though the market seems to be very encouraging for ERP implementation, the time-frame for deployment may be an issue. However, since many companies that have not yet implemented ERP are leaders in their markets, it reasonably can be assumed that they will go for it within next five years. In fact, the ERP market should grow at a rate somewhere near the industrial growth rate. Some industry categories, such as Automotive, Steel, Consumer Durables, Engineering, and Textiles have shown a very high ERP penetration. This means that these categories represent the greatest potential markets in next two years - other industries will follow.

6. ERP IN THE SERVICE SECTOR

Transportation, medical care, hospitality, courier service, telecommunication, banking and financial services, and entertainment represent the major components of India's service sector, and on probing into the various needs of these groups, it becomes apparent that the courier, transportation, and entertainment industries do not have specific current needs for ERP. Banking and telecommunication each have very specialized requirements that the manufacturing-inclined software solutions on the market would not effectively address. The same holds true for the medical care and hospitality industries. The service sector has the potential to become an important ERP market within a few years. At this time ERP implementation in the services sector is very limited - only a few hospitals and banks have done small-scale experiments. New software and processes will need to be developed to meet the specific demands of the service industries, so ERP players should begin now to prepare themselves for the tremendous potential of this future market.

7. SMEs AND ERP

While many new SMEs start each year, nearly 50% cease to exist in the first 3 years of business itself. Though it is assumed that all SMEs desire growth, only 40% survive beyond 10 years. Majority of the firms do not think of long-term business strategy but focus only on survival. They think of change only when the business begins to fail as a result of not keeping track of the changing market scenario. The firms who survive and grow are the ones who have the ability to take risks and respond to the changing circumstances (Levy et al, 2006). An ERP system would allow SMEs to integrate their business functions. SMEs would be able to increase their efficiency and productivity by implementing a suitable ERP system. Over the next five years, the ERP market in India is expected to reach Rs. 1,550 crore ($341 million), according to International Data Corporation (IDC), a market research and analysis firm. Of this, the SME potential in India for the enterprise class is projected to be Rs. 728 crore ($160 million) 47% of the overall market (Munjal, 2006). ERP vendors like SAP, Oracle, Microsoft, QAD etc. are all trying to increase their customer base in the SME segment and have products specifically designed to cater to the needs of SMEs. Though SMEs are risk averse, they are keen on adopting ERP systems for several reasons. Some of them are:

- Pressure from larger counterparts: Due to globalization, SMEs today operate in a wider arena. Majority of them have MNCs as their clients. These MNCs require SMEs to implement the same ERP system as them to allow for tighter integration in their supply chain, which permits them to design and plan the production and delivery so as to reduce the turnaround time.
- Peer pressure: Several SMEs are adopting ERP systems as their peers have done so.
- To gain competitive advantage and respond quickly to the dynamic market scenario.
- E-commerce benefits: This benefit will accrue from the close integration between large enterprises and SMEs.
• Cheaper and faster Internet: Easier access to Internet reduces the costs further.
• Cheaper hardware and software: With the advances in technology, the costs of both hardware in the form of servers, cables, switches etc. and software like databases have come down.

8. CRITICAL SUCCESS FACTORS FOR ERP ADOPTION

Nah et al. (2006) investigated critical success factors for ERP implementation by conducting a literature review. They found that key organizational issues were teamwork, change, management, top management support, plan and vision, business process management and development, project management, monitoring, effective communication, software development and testing, the role of the project champion and appropriate business and IT legacy systems. Their study shows that the complex organizational change issues must be comprehensively addressed and that they cannot be overcome by using technical solutions alone. Similarly, Huang et al. (2003) suggest that in addition to developing the technical aspects of ERP, more effort is required in understanding the more complex organizational issues involved.

Although the ERP systems have been progressively developed over at least a decade, the continual pace of change in organizations and their environments has resulted in complex technical organizational, cultural and political issues that have made the integration process a very challenging task (Huang et al., 2003). In response to ERP systems implementation issues, there are some academic journals which have revealed specific metrics for ERP implementation success. Somers and Nelson (2004) are well-known as one of the top ‘guru’ of ERP implementation who came up with the unified critical success factor model for the industries in United States. Their research work has received high number of citation in the literature and can be validated from the social science citation index (SSCI) platform. Apart from that, from research perspective, usage of a validated study that has been published by Somers and Nelson has been used to form the structure of this study. The idea is to test the model/factors proposed by these authors and see if it is applicable in the context of a developing country i.e. India.

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6. IMPACT OF THE PROPOSED RESEARCH WORK ON ACADEMICS / INDUSTRY

The results of this study will have important practical and research implications. The key findings of this study would be of value to the management of the Indian small and medium enterprises (SMEs) firms when taking decisions regarding the adoption of ERP. Moreover, it provides information systems researchers and ERP consultants with better understanding about the adoption of ERP systems in the context of developing countries such as India to ensure successful implementation of ERP. It, however, should be acknowledged that since this research emerges from an in-depth single-case study, the ability to generalize the findings is limited. The findings of the study are expected to be more transferable within the context of Indian SMEs in general. Furthermore it will also provide a benchmark to further enhance the research scope of Indian ERP implementation among academicians and researchers.


