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ERP Implementation in India: An Empirical Study

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Abstract – In India, majority of companies have had nothing but disaster with Enterprise Resource Planning (ERP) implementation projects. In this study, by means of a case study we examine the generic and unique factors that affect ERP implementation success in India. We believe that the comprehension of these factors will deepen the understanding of ERP implementations and will help avoid implementation mistakes, thereby increasing the rate of success.

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INTRODUCTION

The challenges faced today by global businesses are expected to grow in intensity and complexity as we go further into this century. Expanded global competition has become the norm rather than the exception, with an unprecedented number and variety of products available to satisfy consumer needs and desires. In particular, many firms have implemented company-wide information systems called Enterprise Resource Planning (ERP) systems. The goel of ERP systems to businesses is to improve their productivity and customer service while lowering costs and inventory levels. Several studies (DeLone and McLean, 2003; Markus et al., 2000) have concluded that organizations implementing ERP systems can expect transactional, informational as well as strategic benefits. Hence, ERP systems hold the promise of providing companies with greater competitive advantage.

The inherent appeal of ERP has not gone unnoticed in Asia (Xue et al., 2005). Indeed, recent years have witnessed a dramatic increase in the adoption and diffusion of ERP systems in India. The transfer of information systems like ERP systems, which are typically developed in industrialized countries, to developing countries is often suffered by problems of cultural mismatch with local cultural, difference in economic and regulatory requirements (Molla and Loukis, 2005).

Her we are considering that this fundamental misalignments are likely to exist between foreign ERP systems and Indian companies whose existing structures and processes are largely determined by the Indian culture, results in undesirable design which tend to lead to underperforming systems (Heeks, 2001; Walsham, 2001). According to Recht and Wilderom (1998) "… tools transferred from one country to a specific enterprise abroad suffer a double-layered acculturation: the technology is confronted with a foreign national and alien corporate culture…"

Indian business culture is quite different from those of Western in terms of the four dimensions of national culture . Particularly, the dimension of uncertainty avoidance is highly relevant to information system implementation. Therefore, there is a need of research to examine generic and unique factors that affect ERP implementation success in culturally different contexts.

The purpose of our study is to investigate the general and unique factors (both cultural and non-cultural) affecting ERP system implementations in India. We will first briefly discuss the existing literature on ERP system success. We will then focus on the implementation of an ERP system at an Indian company and identify the factors that facilitated or inhibited the success of the ERP implementation.

There is very limited research on ERP implementations in culturally different contexts. We believe that the our disscission will assist both practitioners and academicians to better understand and prepare for ERP implementation projects. By focusing on these issues that are vital for a successful implementation; global executives, managers, and decision makers can utilize organizational resources in the best way and minimize potential problems associated with these large scale system implementations. The study will provide an insights to researchers investigating global information systems and associated business models. This discussion can also be used in the classroom to discussion on the most recent and important issues, concepts, trends in the field of global information technology management.

LITERATURE REVIEW

There is a growing body of literature in the information systems domain that focus on identifying the critical factors for successful ERP implementations. For example, after an extensive

review of the relevant literature, Esteves and Pastor (2000) created a unified critical success factors model for ERP implementation projects. Parr and Shanks (2000) built a phased project model consisting of planning, set-up, and enhancement phases and then identified the critical success factors that are important within each phase. Umble et al. (2003) identified success factors, software selection steps, and implementation procedures critical to a successful ERP implementation. Tatsiopoulos et al (2003) proposed a structured risk management approach for successful implementation of ERP systems, and examined its application. Based on a case study, Motwani et al. (2005) identified the factors that facilitated the success of ERP implementations. The authors also examined the factors that initially inhibited the success of the implementation process and explained how these barriers were overcome.

Most of the existing studies that investigate the success factors for ERP implementations focus on the projects that have been carried out in North America and Western Europe (Davison, 2002). However, more recently, recognizing the fact that natural culture can impact the adoption and successful implementation of ERP software, researchers have started to examine the ERP implementations in other countries, particularly in Asia. For example, Martinsons (2004) investigated the ERP implementations in China and concluded that there was a poor fit between ERP systems and traditional Chinese management systems. Davison (2002) compared educational ERP system implementation practices in North America and Hong Kong. Soh et al. (2000) discussed the cultural misfits of ERP packages from a Singaporean perspective. Lastly, Molla and Loukis (2005) identified two main sets of culture in any ERP situation: development or system culture, and implementation and use or host culture. According to the authors, system culture is a culture embedded in the ERP software reflecting the views of the ERP developers, vendors and consultants. On the other hand, host culture is a culture reflecting the views of the implementing organization's project team, managers and users. The authors also presented a framework that allows analysis of these two cultures and their impact on ERP success and failure.

Prior studies (Davidson, 2002; Soh et al., 2000; Zhang et al., 2003) have also identified the following cultural problems associated with ERP implementations: (1) different beliefs in providing access to information, (2) difficulties in reengineering organizational processes, (3) incompatibilities in processing procedures required, (4) incompatibilities in terms of data format, and (5) incompatibilities in the presentation format and the information content of reports.

Case Analysis Background of Case Company and Identification of Business Need

The case involves the implementation of an ERP package at an XYZ supplier in India that has its own brand of indoor air cooling units. The information for this case study was obtained from secondary sources, mainly the Internet. The case company operates in a highly competitive business environment, which is based on seasonal demand patterns and high requirements during festivals. The company has five operational manufacturing units and is heavily dependent on seasonal demand cycles. In order to handle demand fluctuations, gain better inventory visibility, reduce inventory levels, and provide effective analysis and forecasts, the company decided to move to an integrated information system. Another important reason behind this decision was to the intense competition from Chinese products. Due to the high competition from low-priced Chinese products, the company had to scale up its operational efficiency to support its growth targets. Defying the traditional myth that ERP is only meant for large enterprises, the company decided to implement an ERP system.

The solution provided everything the company was looking for: robustness, close fit with the business requirements, and cost-effectiveness. One of the key concerns during the vendor and package selection was the time necessary to adopt new information architecture and the disruptions that could arise in the organization's operations during this period. None of the vendors the other ERP vendors that were evaluated (SAP, Oracle and a few local ERP players) could promise the delivery of implementing an ERP system within two months of its lean production period. In addition, cost was another deciding factor .

Since the need of the hour was to install and get the system running in the shortest possible time frame, the company chose the most experienced consultants for implementation. The company implemented the Manufacturing, Finance, and the Distribution modules of ERP IV. The Manufacturing module provides functionalities like Master Production Scheduler (MPS), Material Requirement Planning (MRP), Shop Floor Control SFC), Production Planning (PP) and Control, and Capacity Requirements (CCR). Under the Finance module, the solution delivers functionalities like General Ledger, Accounts Payable and Receivables, Costing, Budgeting, Fixed Receipts, and Taxation. The distribution module includes Purchase Control, Inventory and Sales and Marketing functions.

Critical Factors Contributing to ERP Implementation Success

The company's initiative for the ERP system came from both top and mid-level management and they design a strategic approach to their ERP implementation efforts from the start. Prior to ERP implementation, the company had done an extensive background work in terms of requirements assessment, outlining the needs and objectives, and the kind of solution required. The management people started the preparations eight months prior to

the beginning of the implementation. They focused on three key issues, including the gathering of business data, the setting and follow up of business policies, and establishing standard business practices that the application will handle.

With top management being directly involved in day-to-day activities of the implementation, the decision-making cycle was considerably shortened, as there was no time wasted in accessing the different hierarchies for the decision to be taken. Other issues that lead to successful implementation included: (1) Setting up regular meetings, involving top management, for resolving contentious issues, (2) Ensuring completion of mapping and master data for remote sites through effective project management and coordination, (3) Conducting proper documentation of processes for effective knowledge transfer, (4) Streamlining and changing non-standard practices and procedures using SSA Baan ERP procedures, BPR, and change management techniques, and (5) Very effective and logical system-testing that gave sufficient confidence to the company to completely switch over to SSA Baan ERP rather than following the normal practice of using the legacy system simultaneously. This also helped prevent duplication of data entries.

The ERP implementation eliminated the information islands that were scattered across the company's business units and replaced disparate systems with a single one. One of the major benefits of deploying ERP at the company has been the increased effectiveness of the inventory control function. After the implementation of the ERP system, the company is now able to maintain the right inventory levels for all its product lines, avoiding both excess inventory and running out of stock. Also, the visibility of inventory across different units has helped the organization to make better-informed decisions. The company can now deliver the shipments on time and successfully keep its commitments to the customers.

CONCLUSIONS AND RECOMMENDATIONS

Companies that have or are in the process of implementing ERP systems, have realized that these systems require vast resources. A single license for these software packages (such as The Baan Co., J.D. Edwards & Co., Lawson Software, Oracle, PeopleSoft Inc. and SAP AG) can cost a lot. However, the real expense is in building an IT infrastructure that supports the complex applications and in hiring and retaining experienced programmers to customize and maintain the applications. Companies are realizing that spending 10-20 million in building data centers and eight months implementing a full ERP solution is hardly feasible.

In India, majority of companies have had nothing but disaster with ERP implementation projects. The main reasons for failure of ERP in Indian companies are, First, traditional departments in India depend more on IT professionals rather than business professionals for commercial software development, whereas ERP systems place more emphasis on the domain knowledge of the functions rather than IT skills. Second, the work culture in India in most organizations is different from that in Western countries that have created and successfully implemented ERP systems. Indian culture is more authoritative instead of participative. In India, managers prefer to withhold information rather than making the information transparent and available to everybody, which an ERP system requires. Third, an ERP system implementation is expensive. In addition to the hardware and software costs, there are other costs associated with an ERP system implementation, such as training costs, data creation costs, etc., which if not properly realized during the planning process can lead to ERP implementation failures.

Our findings support the conclusions of Davenport (2000) that "A well-planned and well-executed ERP implementation, in conjunction with a good change management program, can create a dramatic turnaround for the company." In our case, the management of the Indian company was very aware of the cultural reasons why ERP initiatives have failed in India and made it a point to make the necessary adjustments in their strategies, processes, and approaches to ensure success. A senior manager stated that if they had not done their initial research on ERP success and failures; they would not been prepared for ERP implementation and the implementation would have been a total failure.

Based on the above discussion, we can say that there exist some common underlying threads that are critical for ERP success (See Figure 1). These threads or critical factors are consistent with the findings of prior research studies and are not culturally bound. First, according to Lee (2000), top management needs to publicly and explicitly identify the ERP project as a top priority. In this case, the company implemented a well-planned strategy. As such, they were more successful as the top management was able to develop a shared vision of the organization and to communicate the importance of the new system and structures more effectively to their employees. Second, a clear business plan and vision to steer the direction of the project is needed throughout the ERP life cycle (Amin et al. 1999). The case company had a clear business model of how the organization should operate behind the implementation effort. Third, the composition of the project team is crucial and must convey the strong will to ensure the representatives of the various company functions (Brown and Vessey 1999). The project team, in the case study company, did include

the representatives from the main processes of the company. Fourth, project champion is critical to drive consensus and to oversee the entire life cycle of implementation (Bingi et al. 1999). In this case study, the project teams worked very closely with vendors to obtain inter-organizational linkages. Lastly, the progress of the ERP project should be monitored actively through set milestones and targets. According to the experts interviewed, process metrics and project management tools and techniques were used to measure progress against completion dates, costs, and quality targets.

Managerial Implications and Future Trends

In sum, we strongly believe that the future trend is going to focus on outsourcing services for ERP packages, which include manufacturing, human resources, distribution and financial applications. The business prospects for off-site ERP application hosting are enormous. A big advantage in favor of outsourcing is that it allows the company to focus on the company's core mission rather than fiddling with ERP software (DePompa, 2003). However, in order for these outsourcing initiatives to be successful, ERP vendors must develop and deliver products that can scale over the Web and iron out the security issues.

REFERENCES

Amin, N., Hinton, M., Hall, P., Newton, M., and Kayae, R. (1999) "A Study of Strategic and Decision-Making Issues in Adoption of ERP Systems Resulting from a Merger in the Financial Services Sector," *Proceedings of the 1st International Workshop on Enterprise Management Resource and Planning Systems (EMRPS),* Venice, Italy, pp. 173-181.

Bingi, P., Sharma, M., and Godla, J. (1999) "Critical Issues Affecting an ERP Implementation," *Information Systems Management,* 16:3, pp.7-8.

Brown, C. and Vessey, I. (1999) "ERP Implementation Approaches: Toward a Contingency Framework," *Proceedings of the International Conference on information Systems*, pp. 411-416.

Davenport, T. H. (2000) *Mission Critical: Realizing the Promise of Enterprise Systems*, Boston, Massachusetts: Harvard Business School Press.

Davison, R. (2002) "Cultural Complications of ERP," *Communications of the ACM,* 45:7, pp. 109-111.

DeLone, H.W. & McLean, R.E. (2003) "The DeLone and McLean model of information systems success: A ten-year update," *Journal of Management Information Systems,* 19:4, pp. 9-30.

DePompa, B. (2003) "Time to Outsource ERP?" *Computerworld,* August 4.

Esteves, J. and Pastor, J. (2000) "Towards unification of critical success factors for ERP implementations," *Proceedings of the 10th Annual Business Information Technology (BIT) Conference,* Manchester, UK, pp. 44-52.

Heeks, R. (ed.) (2001) Reinventing Government in the Information Age.

International Practice in IT-enabled Public Sector Reform, London: Routledge.

Hofstede, G. (2001) *Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations across Nations*, 2nd ed., Sage Publications: London, England.

Holland, C., Light, B. (1999) "Critical Success Factors Model for ERP Implementation," *IEEE Software,* May/June, pp. 1630-1636.

Lee, A. (2000) "Researchable Directions for ERP and Other New Information Technologies," *MIS Quarterly,* 24:1, pp. 3-8.

Markus, M.L., Axline, S., Petrie, D. & Tanis, C. (2000) "Learning from adopters' experiences with ERP: problems encountered and success achieved," *Journal of Information Technology,* 15:4, pp. 245–265.

Martinsons, M. G. (2004) "ERP in China: One Package, Two Profiles," *Communications of the ACM,* 47:7, pp. 65-68.

Molla, A. and Loukis, I. (2005). "Success and Failure of ERP Technology Transfer: A Framework for Analyzing Congruence of Host and System Culture," Development Informatics Working Paper Series.

Soh, C., Kien, S. S., and Tay-Yap, J. (2000) "Enterprise Resource Planning: Cultural Fits and Misfits: Is ERP a Universal Solution?" *Communications of the ACM,* 43:4, pp. 47-51.

Tatsiopoulos, I., Panayiotou, N., Kirytopoulos, K., and Tsitsiriggos, K. (2003) "Risk Management as a Strategic Issue for the Implementation of ERP Systems: A Case Study from the Oil Industry," *International Journal of Risk Assessment and Management,* 4:1, pp. 20-35.

Umble, E., Haft, R., and Umble, M. (2003) "Enterprise Resource Planning: Implementation Procedures and Critical Success Factors," *European Journal of Operational Research*, 146:2, pp. 241-257.

Walsham, G. (2001) *Making a World of Difference: IT in A Global Context*, Chichester: John Wiley.

Xue, Y., Liang, H., Boulton, W.R., Snyder, C.A. (2005) "ERP Implementation Failures in China: Case

studies with Implications for ERP Vendors," *International Journal of Production Economics,* 97:3, pp. 279-295.

Zhang, Z., Lee, M. and Huang, P. (2005) "A Framework of ERP Systems Implementation Success in China: An Empirical Study," *International Journal of Production Economics,* 98:1, pp. 56-80.

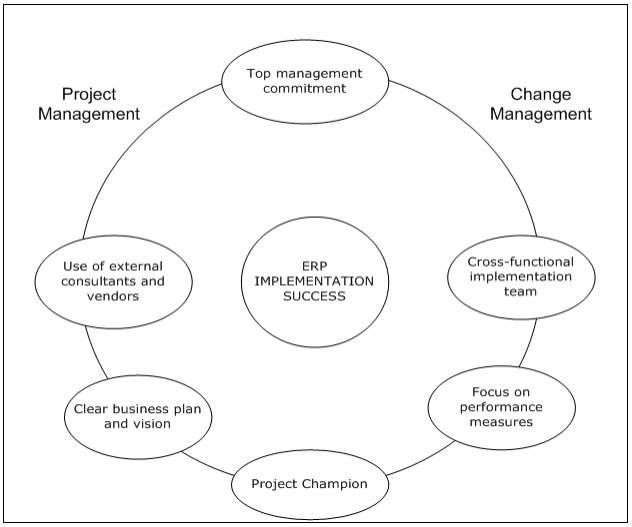

Figure 1: Critical Factors Contributing to ERP Success