

## **Exploring the Impediments of Successful ERP Implementation: A Case Study in a Public Organization**

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### **Abstract**

*The implementation of ERP systems in the organizations is a complex process and a challenging task. Various factors may affect ERP system implementation leading to its success or failure in the organization. The on-going case study attempted to understand how and why different factors impeded successful ERP implementation in a public organization that outsourced the development and implementation of ERP system to a multi-national software company. The case study analysis explains that lack of consideration of certain factors such as top management support, user involvement, vendor support, overlooking of change management aspects, turnover of vendors team member, transfer/posting of top management of beneficiary organization affected ERP systems implementation in the organization and the project run over cost, behind schedule and was unable to meet user requirements. The findings are expected to provide valuable guidelines to the organizations planning to implement ERP systems.*

**Keywords:** ERP Systems, ERP System Implementation Success, User Involvement, Change Management, Case Study.

### **Introduction**

Organizations are adopting Enterprise Resource Planning (ERP) systems to meet the existing challenges of information era and for competitive advantages. ERP systems facilitate organizations to get the key business processes to be automated and integrated. ERP systems facilitate timely flow of information among different parts of the organization freely which consequently helps the management in making strategic decisions. ERP systems are integrated enterprise wide systems that automate core enterprise activities such as human resources, manufacturing, finance and supply chain management etc. to generate and access information in real time environment (Rasmy et al., 2005; Nah and Lau, 2001). Various factors relevant to ERP implementation success or failure have been highlighted in the past research, however, mostly the research has been carried out in developed countries. (Moohebat et al., 2010). At present developing countries are also taking keen interest to adopt ERP systems in their organizations, so the factors that affected ERP implementation in developed countries may also need to be studied in the context of developing countries.

A public sector organization in a developing country like Pakistan was selected for conducting research study to explore the potential impediments of successful ERP implementation. This organization outsourced the development and implementation of the ERP system.

The organization's major goal was to get its office routine tasks to be automated as per business requirements of the organization. The name of the public organization under study is not disclosed to maintain anonymity. This paper is organized into four sections. The first discusses the relevant literature on ERP implementation, the second provides a brief detail about the organization under study, the third one addresses the research method adopted for this research. Finally, the last section encompasses the research findings and analysis along with future directions for further research work.

### **Literature Review**

Enterprise resource planning (ERP) systems have become a strategic need in today's working environment and organizations are in process to implement ERP systems. The organizations are purchasing the ERP software packages for automation of their business processes (Davenport, 1998, Shanks et al., 2000). The implementation of ERP systems usually require organizational work processes to be changed to adopt best business practices which are encapsulated in ERP systems for smooth running of the business processes of an organization. Consequently it improves the work processes, decrease costs and improves performance of the organization.

Enormous benefits may be gained on successful implementation of ERP system that eventually lead to organizational and its survival (Chan and Mills, 2011; Markus et al., 2000). ERP systems may contribute to improve organizational business process flows, decision making and to manage customer services efficiently (Woo, 2007, Shank et al. 2000). Although the implementation of ERP systems is expensive but the organization those have successfully implemented ERP systems are gaining the benefits expected (Pham and Teich, 2011; Markus et al., 2000).

The past research reflects that success of ERP system is questionable. Implementation of ERP system is not an easy task as it encompasses socio-technical aspects relating to people, organization and technology. Many ERP systems failed due to poor planning and management, lack of business management support (Gordon, 2006). The systems that could not be completed on time, within budget and were unable to provide the benefits expected may lead to failure (Shank et al. 2000; Al-Mashari et al., 2006; Upadhyay et al., 2010). The failure rate of ERP system implantation is disappointing (Moohebat et al., 2010; Leon, 2008).

The implementation of ERP systems requires drastic change to the existing work processes and such change need to be managed for its success. Researcher claims that success of ERP systems is very much concerned with degree of mutual fit between the ERP system and business processes (Olson, 2004; Nah et al., 2001). Various challenges that organizations commonly faced during ERP implementation had been addressed in past research (Spitze, 2001; Thavapragasam, 2003). Leon (2008) mentioned 69%, 28% and 13% failure rate of the ERP systems due to people, process and technological problems respectively. It shows that people problems are more critical as compared to the rest ones. No doubt, ERP implementation requires massive investment and its higher failure rate invites researcher's attention to better understand the problems to suggest potential solutions to achieve successful ERP implementation in organizations (Somer and Nelson, 2003; Singh and Wesson, 2009; Shah et al., 2011). It is noted that organizations with inadequate IT infrastructure, unfavorable governmental policies, lack of IT/ERP experience and low IT maturity may be cause problems during ERP implementation (Huang and Palvia, 2001).

Several factors may affect ERP adoption in organizations (Shah et al., 2011). These factors include change management (Aleballa and Al-Mudimigh, 2011; Leon, 2008), lack of top management support (Supramaniam and Kuppusamy, 2011; Shah et al., 2011; Finney and Corbett, 2007; Bhatti, 2005; Wong et al., 2005), business requirement gap (Shah et al., 2011; Wong et al., 2005), user involvement (Francoise et al., 2009; Rasmy et al., 2005) and vendor support (Al-Mashari et al., 2006; Thavapragasam, 2003) which consequently may cause ERP implementation failure. Such factors are briefly explained in next coming paragraphs for their understanding.

ERP systems always require changes in work flows which need organizational alignment that may be accomplished on the part of top management. Top management commitment and support is noted as a critical factor having positive impact on the success of ERP implementation success (Rasmy et al., 2005; Supramaniam and Kuppusamy, 2011, Shanks and Light, 1999; Shah et al., 2011). Finney and Corbett (2007) mentioned that top management support has the 1<sup>st</sup> most commonly cited critical success factors regarding ERP success in his research. It not only restricted to moral support but ethics, finance and other resources allocation to achieve the project/organizational objectives at the best in time.

Different roles of top management towards ERP implementation may include developing an understanding of the capabilities and limitations of ERP system, establishing reasonable goals and exhibiting strong commitment to the successful introduction of ERP system, and also communicating the ERP strategy to all employees in the organization (Svensson and Aurum, 2006; Al-Mashari et al., 2006). The support of project sponsor and project champion may be associated with ERP systems implementation. The strong leadership at top level management has been empirically proved as an essential factor for the successful implementation for ERP implementation (Sarker and Lee, 2000). Lack of top management support may lead to ERP implementation failure (Bhatti, 2005).

ERP implementation is not a technology but a people project (Leon, 2008). So, users' role in the ERP System implementation can not be ignored (Zhang, et al., 2002). Zhang et al. (2002) reported that user involvement at initial stage of ERP system implementation is helpful for the user to understand the system and to provide a valuable feedback. Hartwick and Barki (2001) defined user involvement as "A psychological state of the individual, and as the importance and personal relevance of a system to a user". It has been noted that user participation/involvement in defining the needs and implementation of ERP systems is always important (Francoise et al., 2009; Ngai et al., 2008; Rasmy et al., 2005). The involvement of the users during the phase of defining organizational information needs may decrease the resistance of users towards ERP system implementation (Motwani et al., 2005). The user involvement may lead to better user requirements, achieving better quality system and system usage (Motwani et al., 2005; Estevez et al., 2003). The success of ERP system depends on the use of the system after its successful implementation. The participation/involvement may lead to system usage (Subramanyam et al., 2010) and user satisfaction (Al-Mashari et al., 2006; bokhari, 2001). User satisfaction is a critical factor for the successful ERP system implementation. ERP system success is measured in terms of user satisfaction (Thavapragasam, 2003; Al-Mashari et al., 2006).

Vendor support that best serves the implementation process is also an important aspect (Rasmy et al., 2005). Vendors' support may be supportive in the implementation process ERP systems. It includes software support, technical assistance, emergency maintenance, updates, and special user training. During the vendor selection process, past ERP system implementation experience of vendor should be considered (Roberts and Barrar, 1992). Sumner (1999) identified that the risks of ERP project failures may be contained by acquiring external expertise through vendors and consultants.

Implementing an ERP system is a change and it is a human nature to resist change (Leon, 2008). For successful ERP system implementation, Change management is considered as a critical aspect (Alballaa and Al-Mudimigh, 2011; Wood, 2010; Finney & Corbett, 2007). Lack of change management may appear as hindrance for successful ERP implementation (Lindley et al., 2008; Estevez et al., 2001). For effective change management, training of the users is essential (Nah et al., 2001). This factor is a primary concern of organizations involved in ERP system implementation (Somers and Nelson, 2003). Organizations which underestimate change management, fail in ERP system implementation. For successful ERP system implementation, the organizations manage two types of changes. One, the way organizations do business, will need to change and the other, people do their jobs, will need to change (Kakumanu, 2005; Nah et al., 2001). Researchers noted resistance to change as a major issue faced by the organizations during ERP implementation and usually may lead to conflicts among stakeholders (Biehl, 2007). Carefully managing the changes to business processes is required to overcome the resistance (Shanks et al., 2000).

### **Brief history of public organization**

The organization under study was a public organization in Pakistan. The culture of the organization was bureaucratic. The organization has different subsidiaries. There was no automation of the existing business process neither in the host organization and nor in its subsidiaries organization. The common business processes within the organization deals in Inventory Management, Finance & Budgeting, Human Resource and project management etc. The manual system was major cause for delay regarding access to information needed by officers/officials to work effectively. The manual system was unable to provide the required functionality for smooth running of businesses processes in an efficient way and to provide services to other stakeholders concerned. So the organization decided to adopt an ERP solution that might enable it to integrate its work processes, resource and information requirements to implement its operating procedures efficiently. This ERP solution was needed to encompass different modules such as Inventory Management, Finance & Budgeting, Human Resource Management and Project Management.

## Methodology

A case study approach was adopted to explore the impediments of ERP systems implemented in a public organization. It is commonly used in the Information Systems field as one of the methods available to conduct research (Orlikowski and Baroudi, 1991, Benbasat et al., 1987). Case study may help to investigate a contemporary phenomenon within its real-life context (Yin, 2003). Some argue that case study seems to be a better strategy for conducting an enquiry in contextual setting of organizations in less developed countries (Montealegre, 1999). Despite various studies have been conducted to explain different factors affecting ERP implementation, however, there is a lack of research conducted in public organization in Pakistan. Case study as a research strategy seems to be more suitable to investigate the phenomena under research to explore the issues where little theory is available (Yin, 2003; Benbasat et al., 1987). Semi-structured interviews of the top management, end users, and project team were conducted during the study. In addition, shareable documentation related to ERP implementation process was also used as a source of information. Our research attempted to explore the factors that impeded the development & implementation of ERP system as planned. As discussed in the previous research (Leon, 2008), there might be various factors effecting ERP implementation (Shah et al., 2011). During the research study the impeding factors such as top Management support, User Involvement, Change Management, and Vendor Support were found important that affected ERP system implementation.

## ERP implementation in Public Organization: A Case Study

The organization under study felt the need to get their business processes automated for its operational efficiency and effectiveness. All the business processes within the organization were running manually. The flow of information was very slow and to collect in-time information seemed to be problematic. Such situation was the major cause for delay in decision making and furthers its implementation. Consequently, it may affect organizational and effectiveness. In order to overcome such situation the top management decided to get work processes automated. In 2003, as per the decision of the management, the development and implementation of an ERP system was preferred to be outsourced instead of buying of-the-shelf ERP solution. The contract was awarded to a multi-national software vendor, as he full-filled the vendor selection criteria mentioned in Request For Proposal (RFP) regarding the ERP solution. The vendor selected has quoted lowest bid among his competitors'. Although the ERP solution was needed to be implemented in the parent organization, however, the execution of the project was assigned to one of the subsidiary of the public organization.

The facts collected showed that the vendors hardly encouraged the users' participation at the outset of the project particularly during requirement elicitation. The interviewees (end users) told that the requirement elicitation process was not rigorous. The vendor usually contacted with the executing agency only for the requirement elicitation rather than end users. Such situation caused a gap regarding what the users want and what eventually was delivered. The information collected through unclassified documentation and further interviews from top management of the beneficiary organization, the project director and its team of the executing agency and development team of the vendors reflected that very few meetings were organized among stakeholders at the outset of project. There was a lack of communication among the stakeholders. Moreover, the users also told that vendors hardly studied the manual work processes to be transformed into work processes for effective automation.

There should be participation on the part of users during ERP implementation. When users were interviewed, they said that they were not involved during the documentation of requirement specification, whereas they were the main domain experts of the manual system running in the organization and knew well business processes. The team of the Executing Agency said that when ERP system was launched in the organization first time, the attitude of the users' toward the ERP system was not supportive. Despite the Executing agencies circulated users' training sessions' schedules in the organization, the user participation in the training sessions were minimal. They did not own the ERP system. The users told in an informal discussion that the automated business processes were complex, time consuming and not user friendly, So, most of them were against the transition of manual system to automated systems. Users also said that the top management did not encouraged users for their participation; however, the management blamed users for their lack of interest in the ERP system. The users felt fears regarding loss of job, change in jobs profile and alternatives in current job responsibilities, so they hardly cooperated with other stakeholders. The matter appeared as user resistance and consequently negatively affected ERP implementation process.

As per the end users view, the top management of the organization under study usually made verbal commitments to provide maximum support during ERP implementation; however a reasonable strategy through continuous monitoring the implementation process and offering incentives/rewards to dedicated employees was hardly adopted. The relevant un-classified documents revealed that the posting/transfer of top management was also frequent. The users were of the opinion that lack of interest on the part of top management was due to the reason of frequent their posting/transfer. Such situation did not provide sufficient time to the key post holders to understand the matters in-depth for making decisions on their part. It is observed that some of the officers working on key posts were at the verge of their retirement so they hardly appreciated IT-enabled environment. The relevant un-classified documentation reflected that meetings of executing agencies/ERP vendor and top management of the beneficiary organization were not held frequently at the outset of the project. The executing agencies also painted one-side picture during the meetings held so far. So the critical issues never surfaced causing top management not to had updated information. The end users told that top management support needed for success of ERP system implementation was lacking, vendors hardly took responsibility as professionals causing project behind schedule. In-adequate top management support seems to be one of the impediments regarding ERP successful implementation.

The adoptions of ERP systems always demand both technical and social changes on the part of the organization. The end users needs to be informed about the benefits that may be gained and the challenges that organization may face during ERP implementation in order to get all those mentally prepared for the change expected. Change management is a critical aspect, and the organizations did not under estimate it during the implementation of ERP system. During the study, lack of user motivation regarding ERP system adoption was observed. We conducted informal interviews with the users and were asked that whether you have been informed about ERP benefits likely to be adopted or motivated/ encouraged in this regard. According to them no awareness seminars/workshops were held in the organization, moreover our participation was minimal at the outset of the project. They further added that they were un-aware even about the objective of the project and its benefits. It reflects that no ground work has been done so far to introduce cultural change to be expected on implementation of ERP system. The top management did not make requisite efforts to change the behaviour of the users of system. So as a result users showed their resistance to accept the system. The master trainers of the executing agency commented that the users showed least interest during the users training sessions held in the beneficiary organization premises. The users were not enthusiastic. So there was a lack of cooperation on their part. They hardly realized the benefits of the ERP system. Moreover it was also observed that no champions were created among the users for their participation, however it may assist in reducing the resistance on the part of the end users. It seems that the aspects of change management were hardly realized.

Although the selection of the vendor was in accordance with the public organizations rules and regulations as mentioned in the relevant un-classified documentation, however, the interviewees of executing agency told that selected vendor has not vast experience of development and implementation of ERP systems. It looks that the vendor had took this project as a challenge. The vendor started development work with minimal understanding of the business process of the organization. The vendor did not have direct interaction with the end user and whenever issues occurred in the ERP system, it was forwarded to the vendor through executing agency. This required an extra time and efforts to resolve the issues. In most of the time there was a disagreement between vendor and the user. This created a negative impact on the motivation of the users' of the system towards its usage. The resistance of the users' was also amplified. It was also observed through relevant un-classified documentation that the vendor has no appropriate Standard Operating Procedures to support the users' of the system. Moreover, the turnover rate of the technical staff of the vendor organization was also high, so it adversely affected the system development and implementation. The Quality Assurance (QA) section in the vendor organization was not efficient as told by the executing agency team. Under such circumstances it may speculated that the vendor was unable to provide the support that at least should be required during ERP system implementation.

### **Conclusion**

This study helped to understand different impediments relating to implementation of ERP solution in a public organization in developing countries like Pakistan. The vendor started development work with minimal understanding of the business process of the organization. The involvement of user during requirement elicitation was almost very low. It leads to an extensive gap between "what ERP system delivered and what users want".

It happened due to lack of user participation and effective communication between the developers and users. On the deployment of its first full release in December, 2007, the users complained that the developed ERP system was not inline with their current business process, and the system was not used by the users leading to its disappointment.

The research findings reflect that top management hardly realized the importance of user involvement and did not encourage their participation at the outset of the project. Due to lack of management support the users were not enthusiastic to be part of the implementation process. Lack of Top management appeared as a barrier to successful ERP implementation. Lack of user involvement during implementation of ERP system led to resistance in adoption of such change. Consequently, the user pretended that system is not user friendly, so they did not use the system. The findings are in compliance with the previous research that stresses top management support, user involvement as most important factors in achieving ERP system success.

The organization focused on technological change aspects rather than considering social ones. Both factors have their own importance. The social change plays a vital role for the successful ERP system implementation and seems to be ignored on the part of top management. The change expected due to ERP system implementation was not taken seriously by the top management leading to lack of user acceptance of ERP system. As change management was hardly addressed so it caused a disappointing situation regarding ERP implementation success.

The vendor knowledge and experience about the business processes of the organization to be automated is an important aspect. The vendor was unable to understand the complex business processes of public organization as it was their first experience to develop and implement such a large and complex ERP system. Lack of experience of vendor was consequently affected ERP implementation leading to project cost overrun and behind schedule. It is also important to mention that the vendor did not get users fully involved during requirements elicitation and design phase. It was a major cause of poor performance of the system and appeared as an impediment for the system to be beneficial for the organization.

This study focused on exploring the impediments towards successful implementation faced by public organization where the development and implementation of ERP system was outsourced to a vendor. Although the past research addressed the same factors and how they affected ERP system implementation but they were off-the-shelf ERP solutions offered by SAP, BAN, PeopleSoft etc.). The ERP system under study was outsourced, so get developed and implemented by a multi-national vendor. The findings showed lack of user involvement, lack of top management support, lack of vendors experience and support, and lack of change management as impediments of ERP successful implementation. The factors explored in developing country have not been found different but same as developed countries. Moreover, turnover of ERP developers team members and transfer/posting or retirement from service of top management of beneficiary organization were also found as impediments towards successful implementation of ERP system. The factors mentioned caused the project to be cost over run, behind schedule and not according to user requirements.

The findings may be a valuable contribution to the existing body of knowledge and handy for the organization attempting to implement ERP systems.

For the findings to be generalized there is a need to replicate the case study in both public and private sectors in Pakistan or other developing countries.

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