

# Enterprise Resource Planning (ERP) Implementation Issues: An Empirical Study in Commercial Banking Industry of Pakistan

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## Abstract

In this modern era of digital technology and continuous changing global business environment, firms have no other choice rather persistently improve their capabilities and enhance their competitive advantages. To get this objective, many organizations are now focusing towards adoption of Enterprise Resource Planning (ERP) frameworks. An ERP system uses different sorts of data preparing abilities and place the accumulated information into a solitary database. Enterprise Resource Planning (ERP) systems are very complex integrated systems. ERP implementation is a tough, lengthy and expensive procedure for an organization who adopt it and most of time it leads to failure. In developing countries, the success rate of implementing ERP systems is extremely lower than that in western world. Thus, ERP implementation success is treated as dependent variable in this study, it used explanatory and predictive orientations. First, it identified the critical factor from past studies then explain the impact on the ERP implementation success in Pakistan banking sector context. Collected data was analyzed using SPSS. Finally, results and discussions were presented.

**Keywords:** Enterprise resource planning (ERP), Manufacturing requirement planning, (MRP), centralized database, Information System, Management commitment.

## 1. Introduction

In this era of intense corporate competition, firms are continuously exerting more focus on the adoption of integrated system to improve their core competencies and abilities to meet the global standards (Qureshi and Abdulkhalaq 2015). Enterprise resource planning is available as solution to the growing demands of business community to improve client services, increase efficiency at less cost by centralizing all operations at one centralized database (Liou 2015). ERP system originated from its old version manufacturing requirement planning which mostly focus on large manufacturing enterprises. ERP manage the firm all resources in very efficient and effective manner and reducing the expense by providing in time information (Egdair, Rajemi et al. 2015). ERP also very helpful in decision making as it provide all real time information through business intelligence portal to higher management(Hwang and Min 2015). ERP links sales with all other departments including production and ware housing so there is no need to excess inventory keeping it help to cut expenses by adopting just in time rather keeping excess amount of inventory every time. It keeps updating all real time information to avoid any delay, data duplication (Kilic, Zaim et al. 2015). Past studies mostly focus was on large scale enterprises rather service sector medium enterprises. The success of ERP implementation in service and manufacturing sectors are equally important thus the gaps in pakistan banking sector ERP implementation are:

What is the most critical inter organizational, technological and individual factor that influence success of ERP Implementation in pakistan banking sector?

The main objective of this reserach was to identify the factors influencing critically upon the successful implementation of ERP in pakistan banking sector (Qureshi and Abdulkhalaq 2015).ERP implementation is very critical due to complexity and heavy cost. There are many risks involved if ERP is unstable, so practitioners should pay proper attention on all phases of ERP implementation. There are three stages of ERP implementation, initial phase before implementation, middle phase when implementation is in progress and last phase after the complete implementation (Pavlovna, Aleksandrovich et al. 2015). Each phase has critical success factors which must not be neglecting in any case. ERP in banking sector involved huge investments and due to sensitive nature of business, each transaction must be secured. Minute distortion of data cannot be affordable at any cost. It requires hundred percent precision and accuracy in routine transaction (Panayiotou, Gayialis et al. 2015). To mitigate the risks and to curtail unforeseen happenings, there are certain critical successes factors regarding technological, organizational and individual perspective which identifies through this research work must be consider. This study will be very helpful for the banking sector in Pakistan to get the fruitful results of the ERP software package.

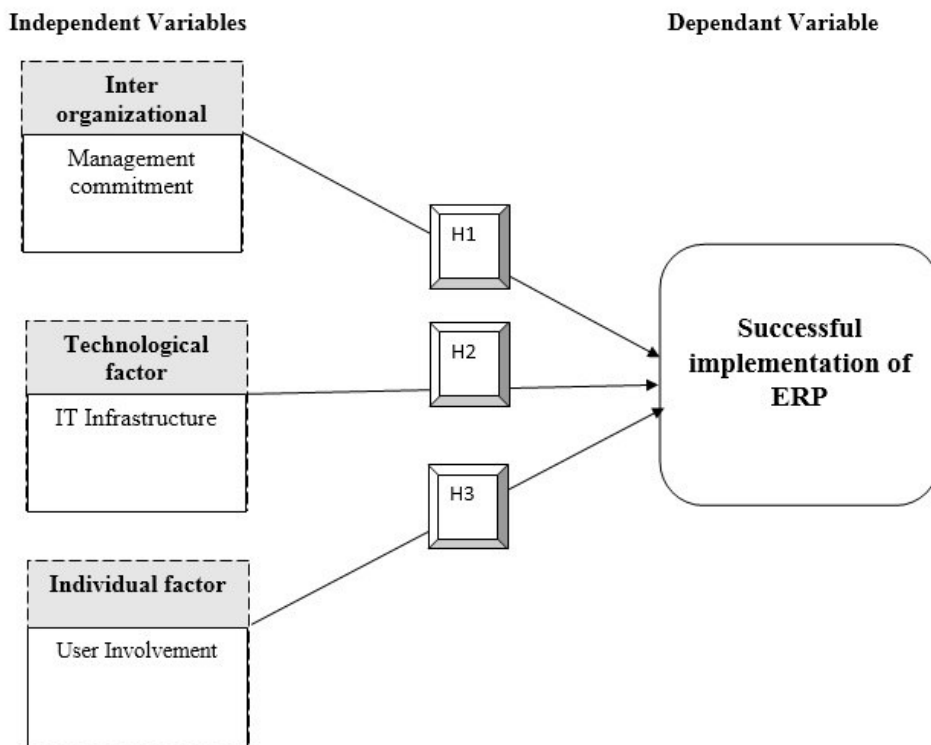
## 2. Literature review

Mostly past studies discussed the ERP critical success factors of large scale enterprises in western countries having different context than developing countries (Kocaoglu and Acar 2015). Enterprise resource planning software has gained importance from last decade due to its numerous advantages to an organization and continuous emerging global consumer markets, the firms always seeking optimal solutions to integrate all its operations in an effective way (Kłos 2015). ERP implementation, however, brings not only business gain but also business pain. Although ERP systems have many advantages and become a focal point of business and technology planning, implementing ERP systems is expensive and time consuming (Turkes, Raicu et al. 2014). Firms typically fail to obtain the benefits of ERP investment within the anticipated timeframe. Besides, little attention has been given to the impact of external and internal environmental factors of firms that have implemented ERP. BAVISKAR (2015) illustrated ERP implementation as very complex, expensive procedure and mostly it crosses the allocated budget. The process includes a brief probing of the business procedures in the business; selection of the best available software package that suits the requisite of the organization, training of users, customization of software especially user interface, installation of selected modules, At last all previous management information system and software has been replaced by the new software (Bradford 2014). The implementation procedures are in progress in whole enterprise without affecting the daily business routines. The key elements to success are infrastructure, an effective implementation ERP plan, and quality procedures to measure and constantly check through the whole implementation phases (Oseni, Rahim et al. 2014). This study explains the identification of critical issues has been carried out for successful implementation of ERP in small and medium enterprises and also finds their relationships. Research objectives include finding critical success factors and their interaction in all phases of implementation and the intensity of impact upon the implementation procedures (Olson, Van Huy et al. 2012). Critical success factors are found out through intensive literature review of past studies regarding ERP implementation in corporate sector. In the next phase of this study the CSF applicable to SMEs was investigated. And then a survey was carried out to find the largest impact of certain CSF on particular implementation stage. (Choi, Chow et al. 2013) described ERP software is a cross-functional system which combines different units in the company with an attempt to minimize processing time, increase receptiveness, and achieve competitive edge. While all modules are very beneficial and important but order-to-cash module has special significance. In this paper author selected Levi Strauss & Co. in China-Hong Kong as the target case organization. Authors collect data using semi-structured interviews and discussions with staff members of the organization and investigate the implementation of Order to cash module in ERP system. The advantages and the problems faced during the system implementation process were examined. Based on the findings and the broad literature review, conclusion has been drawn that whether implementing fashion ERP systems in China can enhance production successfully and operations management depends on certain actions which include understanding the “human mindset” in China and emphasizing the significance of guanxi with both internal staff and external business suppliers, providing beautiful tangible and intangible benefits to participants. Authors argued that if the mentioned measures are successful in implementations technological information software in China can be better than the ones in the other countries because of the Chinese culture which is rich with “cooperation” when Chinese people experience respect. In this study authors demonstrate that how business performance can be improved by ERP system and how new ERP system adoption brings changes in company operating in China. And certain critical success factors identified like commitment of staff is most critical one to get better results from ERP in the long run. (Hwang and Min 2013) conducted an empirical study in Korea and identify a multitude of drivers that support or delay the implementation of enterprise resource planning (ERP) in business organizations. Authors analyzed ERP role in supply chain process and evaluate its impact on supplier capacity and performance from supply chain perception based on contingency theory and a resource-based view of the organization, the research formulated a series of propositions regarding the use of ERP for premeditated sourcing (Hsu 2013). Using structural equation model technique they found the organization’s external environment has minor impact on its decision to approve and implement ERP. However, through the mediating role of an in-house environment and external environment in some way effects the ERP adoption and ERP implementation decision. In this study authors find ERP critical success factors identifications and their practical implications for organizations which must manage with the challenges of more wobbly supply chain processes in an age of technological modernization. First, the company’s ERP adoption and implementation choice is mainly influenced by its internal environment. The firm’s External environment such as technological changes has less impact on its choice to adopt and apply ERP. However, through the mediating role of an Internal Environment, an External Environment still manipulates the ERP approval and implementation decision. This study results implies that the successful ERP implementation depends on the firm’s organizational compatibility with ERP (Nwankpa, Roumani et al. 2013). Without bringing together top management support, implementing the open communication channel, business process reengineering, and establishing the infrastructure, the company will encounter strict complexity in reaping the full advantage of ERP. Before undertaking the ERP project, the company should ensure that the ERP implementation must be led by top

management to make change in organizational culture and high flow of information throughout the organization supply chain. Second, we found that ERP could improve the ERP adopter’s capabilities which include the supplier’s information accessibility, process development ability, product novelty skills. Since this improved capabilities could make the buying organization’s supply base more consistent and stable, it would support the buying firm not only reduce the risk of supply disruptions, but also increase the chance of new product development. ERP implementation could generate “win-win” approach for both the buying company and its suppliers and thus make their supply chain more flexible. This study discover the ERP’s deep insight impact on the ERP’s adopter’s capabilities so that better utilization ERP for supply chain operations, the competent ERP adopters should begin with the feasibility study, the removal of internal functional obstacles, the establishment of a positive partnership with its suppliers, education and development of ERP performance indicators (Kurbel and Nowak 2013). The feasibility study supports the potential adopters to check the appropriateness of ERP to its specific institute settings and supply chain requirements. The removal of internal functional obstacles would help the integration of internal business functions and thus abolish redundancy (Uwizeyemungu and Raymond 2012). In the light of above context and literature review conceptual model has been developed containing management commitment as inter organizational top most critical factor, IT infrastructure as highest technological critical factor and user involvement as most prioritize individual factor. After analyzing the mentioned critical success factors, this research study will help organizations to design and implement ERP project successfully for their business performance. ERP implementation affects the entire organization, important issues related to ERP implementation should be examined. These are inter organizational factors, technological factors and individual factors impact the ERP implementation. Therefore, this study intends to provide new perspectives in understanding both the impact of the environments on successful ERP implementation and the role of an ERP in creating sustained competitive advantages for the firm. Based on contingency theory, the resource-based view of a firm theory, and the dynamic capabilities theory, this paper proposes that successful ERP implementation enables banking sector of Pakistan to improve organizational capabilities as well as customer value.

### 3. Theoretical Framework

Past literature revealed the most important factor which impact the successful implementation of ERP mentioned as Management Commitment which come under the category of Inter-Organizational Factors, IT Infrastructure which come under the umbrella of Technological Factors, third one is User Involvement fall under Individual Factors.



Theoretical framework comprises four factors, Management Commitment, IT Infrastructure and User Involvement act as independent variables while successful implementation of ERP serve as dependent variable, Arrows show the independent variables affect the dependent variable.

#### **4. Hypothesis Formulation**

##### **Management Commitment and Successful Implementation of ERP**

Top management plays active role in ERP implementation include developing an architecture and base as well as limitations of IT department and establish clear objective and supporting policies so that chances of failure become minimize and System can be implemented within allocated budget and building strong strategies and time frame to all technical staff as well as users (Elbanna 2013). Top management also ensure the effective utilization of resources and provide necessary training and education and constantly review each phase progress and take certain measures in case of any delay and issue and take proper measure to make the system implementation successful (Hu, Dinev et al. 2012). Top management should share the vision of the organization to all staff and take the confidence of all employees and technical staff for implementing new system and procedures. There must strong communication between top management and field staff and it must be two way communications so that if any bottleneck arises, top management immediately becomes aware of that issue while in case of any conflict proper mediation sources must be established so that smooth implementation can be achieved.

##### **H1: Management Commitment has significant and direct relationship with Successful Implementation of ERP in Banking Sector of Pakistan**

##### **IT infrastructure and Successful Implementation of ERP**

ERP is a complex software package which needs strong hardware specification of systems to run smoothly. So IT infrastructure must be suitable and compatible with the ERP software being implemented and proper backup sources should be available so that there is no link down issue occur, because ERP is a LIVE environment and always connected to server for fetching data and if there is power issue and connectivity link down then ERP system cannot access the server and data cannot retrieved which effect the efficiency of organization service which may annoy the client so organization should pay proper attention towards building solid hardware infrastructure base (Nah & Lau, 2001), bandwidth should be enough for online transactions and there should be no packet dropping issue, media backup is recommended by many vendors of ERP, because media is bridge between client and server so it remain always connected. Most vendors will also offer complete package regarding software and hardware package like turnkey projects (Shen 2015). ERP also offers interface customization as per organization environment; it can be done in house expert or from third party application specialists. But compatibility issue of application always there main factor so first inspect the overall IT infrastructure of organization before implementation (Samuel, Belachew et al. 2013). Organization should buy the hardware according this process requirement as some time high tech gadgets may increase financial burden but not practically benefit. So to remain in budget and keep the functions efficient and effective, a proper workout should be done on IT infrastructure before implementation of ERP as it requires whole business reengineering in terms of processes and also in term of infrastructure, because manual system become abolished and paperless environment has been created, server backup is also very necessary for safety issue, and server specification should be enough to manage all data of organization and it has up gradation option as when organization expand, large chunks of data stored on server and large number of queries made to server, which may reduce the responsiveness of server, so keep the system robust it need constant interval maintenance and up gradation.

##### **H2: IT Infrastructure has significant and direct relationship with successful implementation of ERP in Banking Sector of Pakistan**

##### **User involvement and successful implementation of ERP**

User is an individual who will operate the ERP module in an organization as per his or her job description, user involvement is very important as he should be guided accurately so that implementation of ERP become victorious (Parr, Shanks et al. 2013). Motivated users can adopt the new system easily but also identify issues which may curtail the successful implementation of ERP and improve implementation quality (Hong, Dobrzykowski et al. 2012) User involvement means the participation of the user in the ERP implementation process. The functions of the ERP system depend on the user ability to utilize the module after GO LIVE while user should also realize himself a major factor in the implementation (Seethamraju and Sundar 2013)

##### **H3: User Involvement has significant and direct relationship with Successful Implementation of ERP in Banking Sector of Pakistan**

#### **5. Methodology**

This study is quantitative in nature. Explanatory research design, positivist research philosophy and deductive approach has been used in this research. Core team managers in the commercial banks of Pakistan where ERP completely installed were chosen as population. Due to time and financial limitations Punjab Region commercial banks were selected having central offices in Lahore. Sample size of 300 has taken and fully structured questionnaire emailed to them. Total 150 filled questionnaires were received in which 15 are partially filled so

135 questionnaires were considered for data analysis. Reliability of questionnaire was checked through Cronbach alpha and questionnaire is valid as all elements are adapted from previous studies. SPSS software has been used for data analysis

## 6. Findings

### Reliability Analysis

Reliability of questionnaire was checked through Cronbach alpha. Coefficient alpha greater than .5 which is considered acceptable in research.

### Reliability of the Constructs

Variables	Items	$\alpha$ -Values
Management Commitment	4	.642
IT infrastructure	4	.668
User Involvement	4	.661
ERP implementation.	5	.589

### Correlation Analysis

“r value” between Management Commitment and ERP Successful Implementation is 0.838 which is significant at 0.00 level < p-value (0.05) . It means positive and strong correlation exists among Management Commitment and ERP Successful Implementation. IT infrastructure correlation value is .646 significant at .000 <0.05 p-value which shows that positive and strong correlation exists among IT infrastructure and ERP Successful Implementation. Correlation value for user involvement is .733 significant at .000 level less than .05 p -value. It describe positive and strong correlation exist between User Involvement and ERP Successful Implementation.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	-1.608	.295		-5.443	.000		
Management commitment	.617	.056	.539	10.990	.000	.544	1.839
IT infrastructure	.261	.057	.204	4.585	.000	.659	1.517
User Involvement	.323	.059	.264	5.480	.000	.563	1.776

### Regression Analysis

Here multiple regression analysis was used to show the impact of predictors upon criterion variable. Above table shows that Management Commitment has significant relationship with ERP Successful Implementation as beta shows  $\beta=.617$ ,  $t = 10.99$  with  $P = .000 < 0.05$  p- value. So H1=Management Commitment has significant and direct significant relationship with ERP successful Implementation is accepted. It shows that if one unit change occurs in Management Commitment variable it will change the dependent variable 61.7 %. Beta value for IT infrastructure is .261 with t- value 4.58,  $P =.000 < (p \text{ value} =.05)$ . So H2= IT infrastructure has significant and direct relationship with ERP Successful Implementation is accepted. It shows that as one unit change occurs in IT infrastructure variable it will change the dependent variable 26.1 %. For User Involvement  $\beta = 0.383$ ,  $t = 5.480$  is significant at .000 < (p value=.05). So H3= User Involvement has significant and direct relationship with ERP Successful Implementation is accepted. It shows that as one unit change occurs in User Involvement variable it will change the dependent variable 38 %.variance inflation factor values less than 5 which show no multicollinearity exist in data.

### Model Summary

R- value =.833 is significant at .000 level < 0.05 p-value. It means if one unit change is occur in independent variables then it will change the dependent variable 83.5 %. F-value = 106 is also significant at .000 level < (p-value =.05). It means model is fit. Value of Durbin Watson is 2.10 which shows that no auto correlation exist among the variable.

## 7. Conclusions and Discussion

This study generalized the most critical factors identified from previous literature on banking sector in Pakistan and found that Management Commitment, IT infrastructure and User Involvement has positive impact on success of ERP implementation in Banking Sector of Pakistan. It is clear an efficient ERP solution gives competitive edge to any organization. Top management commitment acts as catalyst in the progress of ERP implementation, Management active role keep the progress at pace and involve all team members. Supportive policies are crucial for the achievement of implementation. Management reviews help to keep the implementation working on track and align to the objectives of organization. Management liaison with vendor is necessary to update the progress with new inventions in the system. IT infrastructure in Pakistan banking sector considered as compulsory arrangement with the implementation of ERP so IT gadgets are usually upgraded with ERP implementation, mostly ERP vendors provide combine hardware and software solution. User involvement and active participation during all phases of ERP implementation bring the procedure more easy and successful because user lack of interest and passive can increase failure rate.

## 8. Recommendations

The findings of this research proposed a practical model for field persons to implement ERP smoothly by minimizing the risk factors to save billion dollars investment and provide an applied guide to use as proactive approach while pre-implementation phase is in process. Practical strategies can be formulated by considering Management Commitment as the essential factor for successful implementation of ERP. Management should keep constant liaison with core team so that ground realities can be understood and matters can be resolved promptly. IT infrastructure should be updated and matched with the ERP system. End user should always be educated about ERP implementation progress and perceived benefits achieved after ERP implementation. User involvement is crucial toward successful implementation of ERP otherwise it may lead to failure. This study also provides future layout to extend this model in other context. In this study only Banking Sector of Pakistan is considered and target population Punjab commercial banks were taken for data collection where ERP has been fully implemented successfully. In future same research can be conducted in other non financial sectors of Pakistan. It will also assist to identify CSF in other corporate sectors in Pakistan.

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