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CRITICAL SUCCESS FACTORS IN IMPLEMENTING ENTERPRISE RESOURCE PLANNING (ERP) SYSTEM IN PAKISTANI ORGANIZATIONS

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ABSTRACT

The intention of this paper is to explore the critical factors that are important in the successful implementation of ERP system in the context of developing country like Pakistan. Mixed method approach is used to collect perception based data for this study. Quantitative approach is used to collect data from a sample of 25 manufacturing companies..Qualitative approach is used to collect data within two organizations through tweleve semi-structured interviews..The date is collected from different groups including implementation team, senior management, and business user in order to cover different perspectives for the ERP implementation. Twelve

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interviews were conducted within these two organizations. The results revealed that the most important factor for an organization to implement successful ERP system is top management support as without their guidance and commitment, ERP system can never provide satisfactory results. The other most critical factors include functional support and good implementation partner. The findings of this study are important for the professionals and researches that either plan to implement ERP or to conduct research.
KEYWORDS: ERP implementation; Critical success factors; Issues; Developing countries.

Introduction

In this era of intense competition, organizations should actively participate in sharing important information with clients, suppliers and traders (Gupta, 2000) . This pressure of competition, forces the organizations to reduce costs, short delivery time, develop better quality, effectively fulfill demand, and supply needs. Enterprise Resource Planning (ERP) system is software that solved these major issues. By using ERP system, it can be said that whole organization is under one roof because all the departments would be strongly integrated after its successful implementation (Bingi, Sharma, & Godla, 1999).

Enterprise Resource Planners (ERP) systems are integrated packaged applications with unified database. The objective of ERP is to integrate key processes of the organization (Richards & Media, 2008). Successful implementation of ERP systems brings many benefits to the organizations. They enable the Organizations to achieve greater effectiveness and cost savings (Sundar & Saravanan, 2014). Benefits of ERP are termed as integration and coordination of processes and information, reduction in carrying costs, reduction in cycle time, improvement in responsiveness to customer needs (Khaparde, 2012). However, these benefits need a tremendous effort by the organization for the realization. Even the risk of failure of such ERP implementations is very high. The implementation of ERP systems is a difficult and high cost proposition that places tremendous demands on corporate time and resources (Umble, Haft, & Umble, Enterprise resource planning: Implementation procedures, 2003). ERP related studies are conducted by the researchers to identify the Critical Success Factors (CSFs) that can help professionals for the success of the project.

In developed countries, organizations are implementing ERP system because of its long-term benefits but the scenario becomes critical when the system is not implemented in a quite satisfactory manner. It has been practiced in many organizations that implementation of ERP is very complex and the ultimate results are indecisive even with heavy investment (Mabert, Soni, & Venkataramanan, 2001).

Different authors have recognized different factors like clear understanding of strategic goals, commitment by top management, excellent project management, organizational change management, a great implementation team, data accuracy, extensive education and training of team members, focused performance measures and business process reengineering (BPR) & minimum customization that may be important for the successful implementation of ERP system. However these studies have mainly been conducted in the context of developed countries. There is a dearth of literature that identifies the critical success factors (CSF's) in the implementation of ERP system in the context of Pakistani organizations. In order to bridge the gap in existing literature, this paper identifies CSF's in the implementation of ERP system in Pakistani organizations. The findings of this study help practitioners and policy makers, especially in this part of world, in the effective implementation of ERP systems.

Methodology

A mixed method approach is used to collect the data and conduct the study. Both quantitative and qualitative methods are used in this study. This gives advantages of both the methods for the collection of data. The advantages of quantitative data collection method were observed to cover comparatively larger spectrum of respondents. In addition to this, a qualitative approach is also used to collect data within two organizations and identify the pattern of critical success factors in ERP projects. The data is collected through semi-structured interviews within these organizations. The respondents are selected from different groups including implementation team, senior management, and business users in order the cover different perspectives for the ERP implementation. Twelve interviews were conducted within these two organizations. Qualitative approach helped in gaining detailed perspective of the individuals.

Mixed method approach provides the opportunity to gain better understanding of the critical success factors in the implementation of ERP projects using both quantitative and qualitative methods. In quantitative research, the choice of data collection instrument has an effective and critical role. In addition, survey method is a best option to collect data in a quantitative research strategy. All the questionnaires were self-administered and completed by visiting and meeting the top management of the organizations for its validity.

Respondents

Different factors like the nature and level of the information required in a questionnaire determines who should be the respondents. Top management of the organizations having an adequate knowledge of the items of constructs and the personnel who had direct or indirect linkages with the implementation of ERP system were selected to participate in this research.

Development of the Scale

Likert scale is used in this survey research. In a Likert-scale, there are two boundaries, one is "strongly agree," and the other is "strongly disagree". In addition, the mid of these boundaries is neutral or undecided. There may be different point scales used to categorize the level of agreement but a 5-point scale is commonly used formats going from strongly agree to strongly disagree (Bryman, 2008).

Data collection method

Sources of data collection included self-administered questionnaires, semi-structured interviews and observations... ERP system has been implemented in various organizations of Pakistan that includes Sui Northern Gas Pipeline, Unilever Pakistan Limited, Lahore Electricity Supply Company, Shell Pakistan Limited, Pakistan Telecommunication Company Limited and Telenor Pakistan limited. As our respondents were senior management and were scattered therefore convenient sampling method is used.

Different statistical techniques like mean and prioritizations were used to analyze the data.

The strongly agree item is the one having a value of 1 and the strongly disagree is the one having a value of 5.

Reliability and validity of the questionnaire

Reliability and validity are two important concepts in justifying the research constructs and its individual items. Both terminologies are dependent to each other. A strong reliable data may not be the valid one but valid data will always be must be the reliable one. Reliability means dependability and validity means truthfulness or faithfulness (Neuman, 2006). In a questionnaire, there must be compatibility between the theory and what is actual in the world; otherwise questionnaire would not be valid.

Cronbach's alpha could be used to ensure the internal reliability of any instrument (Bryman, 2008). The level of internal reliability of the instrument could be recognized from the value of Cronbach's alpha. This value varies between one and zero. Ideal internal reliability is at value 1 whereas zero means no internal reliability. In short, all values, which are above 0.7, are satisfactory. All the items used in questionnaire were taken from (Kale, Banwait, & Laroiya, 2010).

Literature Review

ERP is an integrated information system that has a broad scope encompassing the resource utilization to improve efficiency and effectiveness within an enterprise. According to Nah and Lay (2001) ERP is a “packaged business software system that enables a company to manage the efficient, and effective use of resources materials, human resources, finances etc.) by providing a total, integrated solution for the organization’s information-processing needs”.

Implementing an ERP system is not inexpensive or risk free venture (Khaparde, 2012). ERP implementation is a difficult and expensive project as it needs high cost and resource utilization (T.R.Bhatti, 2005). ERP is a complex system that requires integration of all departments within the organization and automation of all processes ((Ijaz, Malik, Lodhi, Habiba, & Irfan, 2014); (Umble, Haft, & Umble, Enterprise resource planning: Implementation procedures, 2003)).

Critical Success Factors in Implementing Enterprise Resources Planning

Different authors have contributed for the development of ERP system in different ways. Following table shows that the studies of different authors confirm different critical factors that are important in the successful implementation of ERP system.

Table 1

Critical Success Factors

Critical success factors	**Studies of different authors**
Clear understanding of strategic goals	(Umble, Haft, & Umble, 2003), (F.F.Nah, Lau, & Kuang, 2001), (Duplaga & Astani, 2003), (Jarvenpaa & Ives, 1991) and (Ike C. Ehie, 2005)
Commitment by top management	(Umble, Haft, & Umble, 2003), (Bingi, Sharma, & Godla, 1999), (Holland & Light, 1999), (Al-Mashari, Al-Mudimigh, & Zairi, 2003), (Dixit & Prakash, 2011), (Dezdar & Ainin, 2011), (Upadhay, Jhanyan, & Dan, 2011), (T.R.Bhatti, 2005), (Ngai, Law, & F.K.Wat, 2008), (Bajwa, Gracey, & Mooney, 2004), (Helo, 2008) , (Ijaz, Malik, Lodhi, Habiba, & Irfan, 2014) and (Umble, Haft, & Umble, 2003).
Excellent project management	(Umble, Haft, & Umble, 2003), (F.F.Nah, Lau, & Kuang, 2001), (Annamalai & Ramayah, 2012), (Dezdar & Ainin, 2011), (Bingi, Sharma, & Godla, 1999), (Nah & Deldado, 2006), (Remus, 2006), and (Helo, 2008).
Organizational change management	(F.F.Nah, Lau, & Kuang, 2001), (Umble, Haft, & Umble, 2003), (Koch, Slater, & Baatz, 1999), (Hong & Kim, 2002), (Duplaga & Astani, 2003), (Helo, 2008) and (Richards & Media, 2008).
A great implementation team	(Bingi, Sharma, & Godla, 1999), (F.F.Nah, Lau, & Kuang, 2001), (Umble, Haft, & Umble, 2003), (Bajwa, Gracey, & Mooney, 2004), (Amini & Sadat, 2013), (Kumar, Maheshwari, & Kumar, 2003), (Wei & Wang, 2004), (Shehab, Sharp, Supramaniam, & Spedding, 2004), (Zhang, Lee, Huang, Zhang, & Huang, 2005), and (Richards & Media, 2008) .
Data accuracy	(Dixit & Prakash, 2011), (Umble, Haft, & Umble, 2003) and (Zhang, Lee, Huang, Zhang, & Huang, 2005).
Extensive education and training	(Bajwa, Gracey, & Mooney, 2004), (Gupta, 2000), (Bingi, Sharma, & Godla, 1999), (Umble, Haft, & Umble, 2003), (T.R.Bhatti, 2005), (Amini & Sadat, 2013), (Nah & Deldado, 2006) and (Koh, 2007).
Focused performance measures	(Umble, Haft, & Umble, 2003), (Oden, Langenwalter, & Lucier, 1993), (Zhang, Lee, Huang, Zhang, & Huang, 2005) and (Fiona Fui-Hoon Nah, 2003).
Business process reengineering (BPR) and	(F.F.Nah, Lau, & Kuang, 2001), (Al-Mashari, Al-Mudimigh, & Zairi, 2003), (Koch, Slater, & Baatz, 1999), (Bingi, Sharma, &

minimum customization	Godla, 1999), (T.R.Bhatti, 2005), (Rao, 2000), (Wei & Wang, 2004) and (Shehab, Sharp, Supramaniam, & Spedding, 2004).

Strategic goals and vision is important in the implementation of ERP system. For the implementation of ERP system, the top management must take into consideration that how to meet the customer and employee needs and how to establish good relation with suppliers. The firm must also describe the reason of implementing such a system (Umble, Haft, & Umble, 2003). The organization of apparent objectives is critical for implementing ERP system ((Duplaga & Astani, 2003); (F.F.Nah, Lau, & Kuang, 2001). This factor is important for the successful implementation of ERP system ((Jarvenpaa & Ives, 1991); (F.F.Nah, Lau, & Kuang, 2001)).

Better management, loyalty and involvement of top management are needed for the success of ERP system implementation. Commitment and guidance from top management has played a vital role in reengineering different processes (Umble, Haft, & Umble, 2003). This commitment should be throughout the implementation process and should be on regular basis in the form of meetings ((Bingi, Sharma, & Godla, 1999); (Holland & Light, 1999). Top management also motivates the staff to show their creativity (Al-Mashari, Al-Mudimigh, & Zairi, 2003). The role of senior executives in this change process is very important (Bingi, Sharma, & Godla, 1999). Enough funding and provision of resources is directly related with the successful implementation of ERP system, and this provision of finances and all required resources is the liability of top management (Dixit & Prakash, 2011). Top management support is considered an important in the successful implementation of ERP system (Dezdar & Ainin, 2011).Top management support is helpful in handling challenges in the implementation of information technology. Also the proficient and capable project manager plays an important role in the success of ERP system implementation ((Dezdar & Ainin, 2011); (Upadhay, Jhanyan, & Dan, 2011)). Top management commitment has a definite relation with the successful ERP system implementation. Implementation of ERP is very expensive, so it is the responsibility of top management to select some suitable vendor (Dixit & Prakash, 2011).Commitment from top executive is very important in the ERP system implementation ((Holland & Light, 1999); (T.R.Bhatti, 2005)). (Ngai, Law, & F.K.Wat, 2008) stated that commitment of seniors is an important success factor in implementing ERP system and this aspect is independent in all over the world. Therefore, we can say commitment from senior administration is a key catalyst in the implementation of ERP system ((T.R.Bhatti, 2005); (Bajwa, Gracey, & Mooney, 2004)).

The whole firm must actively participate in project management for the success of ERP system implementation. In it there is a thorough description of goals and which goals we have attained. The project plan should be attainable (Umble, Haft, & Umble, 2003).

The growing complexity of the ERP implementation can be managed effectively through the knowledge, skills, tools and techniques of Project management principles (Sundar & Saravanan, 2014). According to (Fiona Fui-Hoon Nah, 2003) regular reports and project updates can help management monitor the progress of the implementation effort.

Excellent training and H.R department plays an important role in project management (F.F.Nah, Lau, & Kuang, 2001).Successful project management means that ERP system is working as it was planned (Umble, Haft, & Umble, 2003). Also the project will not be complex and the implementation will be as agenda (Umble, Haft, & Umble, 2003). Finally, thorough ERP system plan and unambiguous objectives are important in project management for successful ERP system ((Annamalai & Ramayah, 2012); (Dezdar & Ainin, 2011)). To manage a project efficiently is a CSF in ERP implementation ((Umble, Haft, & Umble, 2003); (Nah & Deldado, 2006)). (Bingi, Sharma, & Godla, 1999) stated that the main causes of ERP system failure are improper assistance and supervision from top management.

Organizational change management: The structure and procedures of every firm are very different from the structure and data of ERP system. Every ERP system uses its personal common sense on the firm's traditions and strategy. So, there is a transformation process whenever a company implements ERP system (Umble, Haft, & Umble, 2003). The implementation of an ERP system can cause major changes in the company culture (F.F.Nah, Lau, & Kuang, 2001).There must be training of the people to face any sudden change so that there will be no opposition. For this purpose there should be considerable flexibility in any firm's traditions. Also there should be participation of end users in the planning and implementation of ERP system and it is possible after appropriate training of staff (F.F.Nah, Lau, & Kuang, 2001). To handle any conflict is a very challenging for any firm and to satisfy all the people inside the company that new procedures and methods are better and beneficial. This confliction is because there is a change in their job nature with the implementation of such software (Hong & Kim, 2002). The firm must be aware of the probable results of any change process. Resistance to change has a significant influence on the successful implementation of ERP systems (Duplaga & Astani, 2003); (Hong & Kim, 2002)). The big challenge in the successful implementation of ERP is confrontation to change (Duplaga & Astani, 2003). This resistance is because there is an ambiguity about the success of a new system (Hong & Kim, 2002).

A great implementation team: Superior people in terms of their history achievements, status and caliber are included in ERP system team and they must be responsible (Bingi, Sharma, & Godla, 1999). Senior executives must make sure that project team is consisting of competent workforce (Bajwa, Gracey, & Mooney, 2004). Communication of top management with team member should be on regular basis and there must be a concept of empowerment (Umble, Haft, & Umble, 2003).

The selection of team members increases the chances of success in implementing ERP system ((F.F.Nah, Lau, & Kuang, 2001); (Umble, Haft, & Umble, 2003)). There should be a correct combination of team members from different departments in an organization (F.F.Nah, Lau, & Kuang, 2001). There should be diversity in the selection of ERP team members. It should

included consultants and internal staff. There should be reward for team members on the successful implementation of ERP (F.F.Nah, Lau, & Kuang, 2001). Chances of successful implementation increases provided there is an appropriate combination of IT personnel, consultants and senior executives (Amini & Sadat, 2013). Implementation team include different key people such as functional & IT personnel, upper management, IT consultants, management consultants and ERP & hardware vendor ((Kumar, Maheshwari, & Kumar, 2003).

Accurate data entry is very important in the successful implementation of ERP system. If anyone puts the incorrect data, it will have a harmful consequence on the entire organization. All the team members must be aware about consequences of incorrect data entry before the implementation of ERP system (Umble, Haft, & Umble, 2003). When the new system is implemented, the whole workforce should be persuaded on its use and the previous system should be deleted. If there are both new and old systems in an organization, there is a possibility that few staff members persist on previous system (Dixit & Prakash, 2011).

Extensive education and training: Another important CSF in the successful implementation of ERP system is to provide proper guidance and instructions to the workforce. The guidance and education provided to the staff is an important CSF (Bajwa, Gracey, & Mooney, 2004). The services of consultant may also be taken to accomplish training session. If there is an insufficient training, it may lead to the stoppage of system (Gupta, 2000). An organization can gain the advantages of a new system if proper education and guidance is provided to the workforce prior to implementation of ERP system. The purpose of this guidance and training is to enhance the satisfaction of personnel with ERP system (T.R.Bhatti, 2005). Also the instructions given to clients and suppliers have a significant role in the successful implementation of ERP software (Amini & Sadat, 2013). To get training, team members sent to professionals having vast experience. After getting training, they arrive in organization to train the other end users (Nah & Deldado, 2006). There is a strong association between change management and training and support. Because of training and guidance, workforce has come to know that how their every act has an impact on the overall organization (T.R.Bhatti, 2005) .

Focused performance measures: There are performance measures to appraise the benefits of latest ERP system. These measures point out whether the system is going successful or not. These measures specify that delivery is on time, time period between customer order and shipment to customer and vendor routine. The performance of a new system should be evaluated continuously (Umble, Haft, & Umble, 2003).

Top executives and the staff members think that benefits of new system will appear as soon as the new system is implemented. But there may be reduction in yield or outcome at beginning because the system is very complicated. With the passage of time, as awareness with the system increases the ERP benefits will also increases (Oden, Langenwalter, & Lucier, 1993).

Business process reengineering (BPR) and minimum customization: There are two ways of ERP implementation in any organization.

1. Implementation of ERP system package in its original form with little or no modification.
2. Modification of system from a standardized form to fit the existing business processes (Holland & Light, 1999).

The redesigning of existing processes with least modification of ERP system is an important CSF in the implementation of ERP system (F.F.Nah, Lau, & Kuang, 2001). This modification has an impact on each module because they are highly integrated (Koch, Slater, & Baatz, 1999). This BPR should be on regular basis, so to gain competitiveness (Al-Mashari, Al-Mudimigh, & Zairi, 2003). There is instability in ERP system, if there is more modification. To avoid this, the organization ought to redesign their course of action without modification of software (T.R.Bhatti, 2005) because the ERP packages are made according to the most excellent ways of doing business (Bingi, Sharma, & Godla, 1999). If ERP system is implemented without customization, we can say it is in vanilla form (Rao, 2000). And if the system is implemented in vanilla form, there is reduction in the implementation time and cost (Bingi, Sharma, & Godla, 1999).

It is practiced in many organizations that implementation of ERP system is very complex and the ultimate results are indecisive even with heavy investment (Mabert, Soni, & Venkataramanan, 2001). After implementing ERP system, the outcome may be failure of a system; therefore, many organizations may discard the accomplishment of such system (Soh, Kien, & Yap, 2000).

Culture has a major influence in the implementation of ERP system because some factors may have a definite value in one culture but not in other culture (Dezdar & Ainin, 2011). As the ERP systems are created by the companies in the developed countries therefore it may not be suitable for the developing countries. There may be a failure of system because of more problems in developing countries (Al-Mashari, Al-Mudimigh, & Zairi, 2003). (Ross & Vitale, 2000) mentions cultural change as a big challenge in the implementation of ERP system.

The causes of the system failure are not only technical problems but also the different issues such as conflicts, lack of end users' readiness, traditions, senior's commitment and loyalty etc, ((Helo, 2008); (Kumar, Maheshwari, & Kumar, 2003)). Absence of suitable custom and in-house readiness are the causes of failure of ERP implementation (Gargeya & Bradey, 2005).

Data analysis and findings

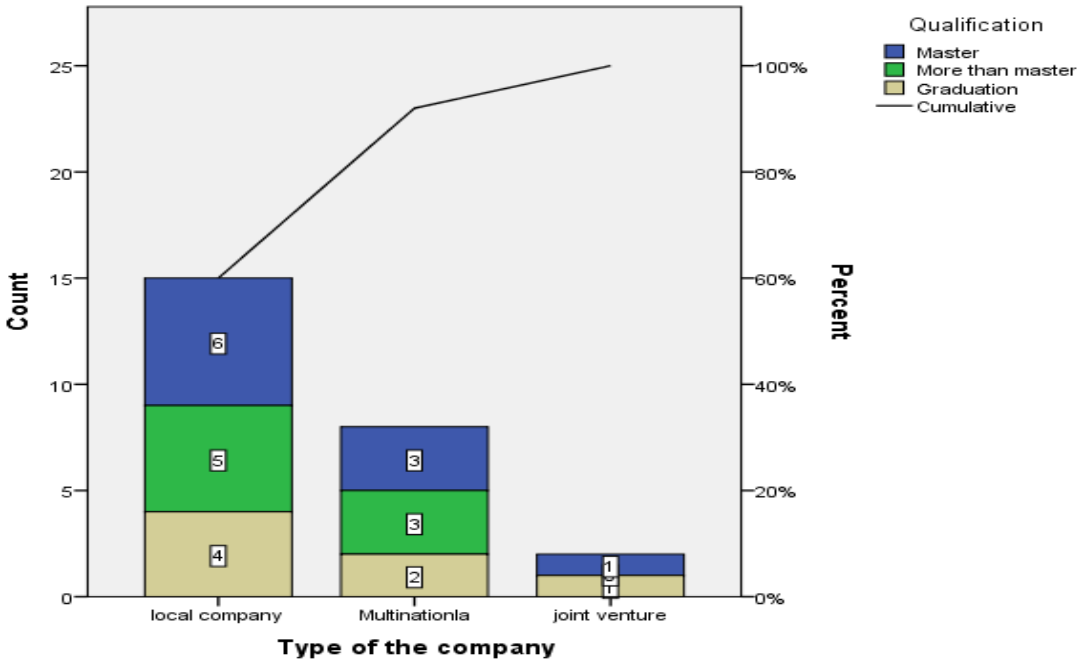
This part deals with the analysis of questionnaire, which was distributed among the correspondents. Data extracted from the questionnaires were statistically analyzed by using SPSS software. Section 4.1 is about the respondents who participated in the survey. Section 4.2 is about the critical success factors of ERP system.

Respondent's qualification and numbers

According to the figure given below, it is concluded that out of 25 respondents, 15 respondents belongs to local company, 8 respondents belong to multinational companies and 2 belong to joint

venture companies. Ten respondents have a qualification of masters, eight respondents have a qualification more than master, and seven respondents are graduates.

Figure 1: Sample Profile



Critical success factors of ERP system

According to the instrument, the strongly agree item is the one having a value of 1 and the strongly disagree is the one having a value of 5. The mean values are calculated for the critical success factors based on the responses of the instrument These factors are then sorted based on the mean value calculation through SPSS.

Table 2

Mean of critical success factors of ERP system

CRITICAL SUCCESS FACTORS	N	Mean
Top management support	25	1.1200
Strong MIS department	25	1.6800
Quality of ERP team	25	1.6000
Functional support	25	1.5200

Good implementation partner	25	1.5200
Strong and meaningful training programs	25	1.5200
Good planning for the ERP project	25	1.6800
Overall support for the ERP in the organization	25	1.6800
Efficient change management	25	1.8000
Great ERP software selected	25	1.8400
User's involvement and participation	25	1.5600
A good understanding of the concept of ERP	25	1.8400
A good IT infrastructure in place already	25	1.8000

According to the survey being conducted, respondents have a mutual consensus that by implementing ERP system, the most critical success factor is top management support (1.12) and least critical success factor is that "Team members have good understanding of the concept of ERP (1.84). The factors are then prioritized based on the smallest mean value. The factor with the minimal Mean value is given more priority in the prioritization.

Table 3
Prioritization of critical success factors of ERP system

CRITICAL SUCCESS FACTORS	**Prioritization**	**Mean**
Top management support	1	1.1200
Functional support	2	1.5200
Good implementation partner	2	1.5200
Strong and meaningful training programs	2	1.5200
User's involvement and participation	3	1.5600
Quality of ERP team	4	1.6000
Strong MIS department	5	1.6800
Good planning for the ERP project	5	1.6800
Overall support for the ERP in the organization	5	1.6800
Efficient change management	6	1.8000
A good IT infrastructure in place already	6	1.8000

Great ERP software selected	7	1.8400
A good understanding of the concept of ERP	7	1.8400

The respondents of this survey believed that one of the most important factors, which can contribute in successful implementation of ERP system, is top management support and the least important success factor is "A good understanding of the concept of ERP."

Results and discussion

The study revealed various critical success factors for the implementation of ERP systems. These factors are identified based on the findings in the quantitative methods and also supported by the qualitative approach.

Top Management Commitment

Top management commitment is one of the most important and critical success factors in the implementation of ERP system ((Harrison, 2004); (Dixit & Prakash, 2011)). The findings of this study indicate that the respondents perceive that the most important factor for an organization to implement successful ERP system is top management support as without the guidance and commitment of top management, ERP system can never provide satisfactory results, as shown by both, the literature and data analysis of this study. Absence of proper support from top management causes the cost overrun than expected and delay in implementation. Participation from top management by taking dedicated interest in all activities and to resolve different challenges and problems plays an important role in the successful implementation of ERP system in an organization.

Similar results are reported by many earlier studies. For example, (Umble, Haft, & Umble, 2003) conducted research in USA and the findings of their study supports that there must be strong commitment and participation from top management for the successful implementation of ERP system. (T.R.Bhatti, 2005) investigate the critical success factors in the implementation of ERP system in different organizations in Australia. The findings of his study also complement the results of the current study. For example, he shows that the commitment from top management is a well-known, recognized and fundamental aspect in the successful implementation of ERP system. Similarly, the results of (Dezdar & Ainin, 2011) also complement the findings of the current study.

In the study all of the respondents unanimously emphasized on management commitment as one of the most vital success factors in ERP implementation. Any project within the organization can only be successful provided management is committed to initiate and support the project. These findings support prior study conducted by (Al-Mashari, Al-Mudimigh, & Zairi, 2003) as

according to them top management support and commitment does not end with initiation but must extend to the full implementation of an ERP system. All the respondents highlighted the importance of the top management commitment. It is a general understanding that in case of absence of management commitment the project or program cannot exist in the context of organization. The continuation of this commitment is the key to success of ERP implementation as these projects are long term projects with broader scope. The management commitments motivates the teams to achieve success. Other researchers have also emphasized on the criticality of management commitment. The finding is also supported by the recommendation of (Ijaz, Malik, Lodhi, Habiba, & Irfan, 2014) Top and middle management should involve in each phase of ERP implementation. (Umble, Haft, & Umble, 2003) recommends executive management committee that also supports the finding of the study. According to them the committee should be committed to enterprise integration, understanding ERP, fully support the costs, demand payback, and champion the project. It is also observed that more the management understands the technical aspects of the project there is more chance of success.

Organizational Change Management

There is variety of challenges that makes the change management one of the most complex factor to manage for successful implementation of ERP. Within an organization there are variety of people with diverse expert areas, multiple cultures, different age groups, and difference of skills. These attributes adds complexity to the ERP project since different users have different understandings and perceptions.

Change management is one of the most context sensitive critical success factors. This factor demands lot more emphasis in the context of Pakistan. The literacy rate and social behaviors pose more challenge to the success of ERP implementation. This supports the study of (Richards & Media, 2008) mentions that organizations with less technical support staff for the new system or with technology wise unaware business user face a greater barrier to acceptance of the system. The change management should effectively identify the change in the activity of the users. . According to (Koh, 2007) there should be extra training and on-site support for staff as well as managers during the cycle of ERP implementation.

Excellent Project Management

The study reveals that effective project management is also a critical success factors. The project management practices need to be followed in order to achieve good results of the ERP implementation project. There are various important activities project managers perform from initiation to closure of the project. The project constraints like scope, time and cost are considered during the project plan. The selection of project manager impacts the rate of success of the project. If there is lacking in the project management the project will be at stake.

This finding is in line with the study conducted by (Remus, 2006) that identifies project management as most important critical success factor in the implementation phase of the project. (Helo, 2008) also identifies that the major problems of ERP implementation are not technologically related issues but mostly about organization and human related issues like resistance to change, project mismanagement, top management commitment, etc

There are several project management activities that are addressed by the project manager. These activities span over the complete project. It is very important that project management approach is chalked out in the initial phases. The project management activities include variety of activities during the different phase of ERP implementation projects.

Effective Trainings

During the ERP project the awareness programs have to be launched within the organization about the ERP implementation. This enables the users to get the know-how of the tool. Usually class room pilot projects are planned and carried out to get the initial feedback of users on the tool. The feedbacks are incorporated within the tool to overcome the gaps identified during the trainings and other analysis sessions. User trainings are conducted at different stages. These trainings serve the purpose of awareness sessions as well as the acceptance of the process implementation. The more the mind-set needs to be changed, the more training will be helpful. The training programs should be conducted on regular basis. Train the trainer concept is applied within the trainings where the people are selected and trained as trainers. The benefit of these trainer training programs is to have people who can mentor others to perform their tasks using ERP system.

The finding is also supported by the study conducted by (Ijaz, Malik, Lodhi, Habiba, & Irfan, 2014) in which they suggest that Continuous training may solve many problems even in the post-implementation of ERP system. (Woo, 2007) Suggests that trainings are important to gain user acceptance and training can help employees and other users adjust to the change.

Great Implementation Team

ERP implementation is a project that is carried out within the organization. Such projects are complex in nature and have associated constraints like time, scope and quality. This complex nature demands high skills of the implementation team Since the projects are critical for the organizations and lot of risk is associated if the implementation team do not have knowledge and expertise. Based on the expertise requirement, organizations specially the public sector of Pakistan outsource the implementation project to the consulting organizations. This supports the research work by (Shehab, Sharp, Supramaniam, & Spedding, 2004).

This urges the need of criteria for vendor evaluation and selection. Not only the profile of the consulting organization is important but the proposed team structure needs to be evaluated critically by the implementing organizations. The consultants play role of key driver of the success of ERP implementation. In the research it was identified that the organization with the loose control over the consultant's team and their frequent changes faced lot of problem to complete project in timely manner. The implementing organization should be very vigilant at the time of selection of vendors and the team assigned for the project. (Zhang, Lee, Huang, Zhang,

& Huang, 2005) also highlights the importance for the vendor's staffs to be knowledgeable in both business processes and ERP system functions.

This supports the study of (Richards & Media, 2008) that emphasize the need to perform interviews of the staff proposed for the project by the implementing organization. They also suggested that detail contract should be drafted specifying the assignments and handle the staff change mechanisms.

Strategic goals and sharing of strategic goals

It is identified that strategic goals and sharing of these strategic goals is a critical success factor. This factor falls in the less important factor. However it is still a vital factor and it is suggested that the management commitment and strategic goals should be established as these are transformed into the projects within the organizational context. ERP implementation is a project of the larger context therefore it is pivotal that the associated strategic goals should be defined and shared within the organization. This will make them realize that they need to put effort in order to make the implementation successful.

The reason of deciding to opt the ERP, the outcome expected out of the project, the role and responsibility of the departments across different locations, associated risks, threats and opportunities should be broadcasted to the business users at all levels. Sharing of objectives sets the platform for all the users to align their understandings, to get ready for synchronized effort to meet the targets, initiate the necessary work at quite an initial stage. The communication from top management shows the commitment and inculcates the pro-activeness within the organization.

Successful implementation of ERP is intricately tied to top management setting the strategic direction of the implementation process. (Ike C. Ehie, 2005).

Quality of Data

Quality of Data is also rated as less important critical success factor. ERP is a complex project in which lot of consideration has to be given on the existing situation whether the company has no automated system or a legacy system. In all the cases lot of challenges pose risk on the success of the project. In case of no automated system, the automated processes and controls should be defined and implemented. Even in the case of existing implementation of legacy system a lot of care has to be given specially the transformation of data from existing to the new system.

Companies that already have implemented legacy systems need to focus on the transformation from legacy to the ERP systems. Challenges need to be addressed by such companies that are related to shifting from existing system to the new system. The reports are based on the quality of data. The historical data reports are also required by the organization therefore the old data either existing in legacy or in papers should be transformed into ERP. If the existing data is not accurate then accuracy of the reports is not expected.

If the data is not accurate or depict the actual picture, this will impact the decision making. (Zhang, Lee, Huang, Zhang, & Huang, 2005) emphasizes on the possibility of impact of data inaccuracy from in one module to another as the modules are integrated with each other. The technical teams and the consultants have good understanding of the criticality of this factor.

BPR and Minimum Customization

The current study also identifies selection of ERP tool as critical success factor. This finding is supported by the study carried out by (Wei & Wang, 2004) in which they propose a framework for the selection of ERP system. (Shehab, Sharp, Supramaniam, & Spedding, 2004) recommends the selection involve the criteria to go beyond technical issues such as proven experience of the supplier in the desired industry, along with support infrastructure

If lot of customization is required it means organization has selected wrong tool or try to add in the functionality which was not part of the of-the-shelf product. Generally the organization may opt for the Vanilla implementation or Customized implementation. Organization should avoid extensive customizations within the ERP off the shelf products. These customizations will bring hindrance to the future upgrade of the ERP implementation. If the tool is not evaluated against the business requirement gaps will be identified at the later stage of the project which will demand customizations to meet the requirements. It is revealed in the study that extensive nature of customization will bring more complexity for the future upgrades and also the complexity of managing the deployments.

Performance Measures

The study identifies performance measures is less important critical success factor. The measures to identify the benefits should also be in place. Since ERP projects are complex ones and organizations take time to fully adopt the system. In the start the benefits cannot be realized. However with the passage of time the benefits may be realized and users will feel more satisfaction in using the ERP implementation.

In the study it is revealed that the companies start realizing the benefits of ERP implementation with the passage of time. The user satisfaction is one of the important dimensions of the benefits. The users get more used to the usage of application with the passage of time and then they start realizing the benefits in terms of efficiency in process execution. Different levels of management get their required information from the transactional data through reporting that helps them a lot in decision making and act according to the need through fact based decision making. The operational management is convenient to have better controls in place to execute these processes. Operational teams understand the importance of in place, synchronized, standardized, and controlled process execution that makes their jobs satisfactory.

The study supports the findings of (Zhang, Lee, Huang, Zhang, & Huang, 2005) that Identifies different factors to measure the success and impact. According to them organizational impact includes operating cost, overall productivity gains, customer service level, and the realization of specific ERP implementation objectives. The study also supports the study by (Fiona Fui-Hoon Nah, 2003) which states that management requires on the effect of the ERP system on business performance, for which reports must be designed

Conclusion

The purpose of the study is to understand the importance of implementing ERP systems in Pakistan based organizations. The study identifies the key factors required for successful implementation of ERP system. These include top management support, functional support, good implementation partner, strong and meaningful training programs, user's involvement and participation, quality of ERP team, Strong MIS department, Good planning for the ERP project, overall support for the ERP in the organization, efficient change management, good IT infrastructure, great ERP software selected, and good understanding of the concept of ERP.

After prioritization of the mean, it is identified that the most important factor for an organization to implement successful ERP system is top management support as without the guidance and commitment of top management, ERP system can never provide satisfactory results. The second factor that is important is functional support, which can be a hurdle in a way of implementation if not available. A good implementation partner is identified as the third most important factor.

The findings of this study may be helpful for the professionals and researches that either plan to implement ERP or to conduct research.

References

[1] Wei, C. C., & Wang, M. J. (2004). A comprehensive framework for selecting an ERP system. *International Journal of Project Management*, 161–169.

[2] Al-Mashari, M., Al-Mudimigh, A., & Zairi, M. (2003). Enterprise resource planning: A taxonomy of critical factors. *European Journal of Operational Research, 146*, 352–364.

[3] Amini, M., & Sadat, N. S. (2013). Review Paper: Critical Success Factors for ERP Implementation. *Jounral of Information Technologyy & Information Systems, 5*, 1-23.

[4] Annamalai, C., & Ramayah, T. (2012). Does an implementation stage act as a moderator in enterprise resource planning (ERP) projects in India? An empirical study. *Asian Journal of Research in Banking and Finance*, 200 - 227.

[5] Bajwa, D. S., Gracey, J. E., & Mooney, T. (2004). An integrative framework for the assimilation of enterprise resource planning systems: phases, antecedents, and outcomes. *Journal of Computer Information Systems*, 44.

[6] Bingi, P., Sharma, M. K., & Godla, J. K. (1999). Critical Issues Affecting an ERP implementation. *IS Management, 16*, 7 - 14.

[7] Bryman, A. (2008). *Social Research Methods.* New York: Oxford University Press Inc.

[8] Dezdar, S., & Ainin, S. (2011). Critical success factors for ERP implementation: insights from a Middle-Eastern country. *Middle-East Journal of Scientific Research,, 2*, 798-808.

[9] Dixit, A. K., & Prakash, O. (2011). A study of issues affecting ERP implementation in SMEs. *International Refereed Research Journal, 2*, 77-85.

[10] Duplaga, E. A., & Astani, M. (2003). Implementing ERP in Manufacturing. *Information Systems Management, 20*, 68 - 75.

[11] F.F.Nah, Lau, j., & Kuang, J. (2001). Critical factors for successful implementation of enterprise systems. *Business Process Management Journal, 7*, 285 - 296.

[12] Fiona Fui-Hoon Nah, K. M.-S. (2003). ERP Implementation: Chief Information Officers'Perceptions of Critical Success Factors. *International Journal of Human-Computer Interaction*, 5 - 22.

[13] Gargeya, V. B., & Bradey, C. (2005). Success and failure factors of adopting SAP in ERP system implementation. *Business process management journal, 11*, 501 - 516.

[14] Gupta, A. (2000). Enterprise resource planning: the emerging organizational value system. *Industrial Management & Data Systems, 100*, 114-118.

[15] Harrison, L. J. (2004). Motivations for enterprise resource planning (ERP) system implementation in public versus private sector organizations. Univserity of Central Florida Orlando, Florida.

[16] Helo, P. (2008). Expectation and reality in ERP. *Industrial Management & Data Systems*, 1045 - 1059.

[17] Holland, C. P., & Light, B. (1999). A critical success factor model for ERP implementation. *IEEE sftware, 16*, 30-36.

[18] Hong, K., & Kim, Y. (2002). The critical success factors for ERP implementation: an organizational fit perspective. *Information & Management, 40*, 25 - 40.

[19] Ijaz, A., Malik, R. K., Lodhi, R., Habiba, U., & Irfan, S. M. (2014). A Qualitative Study of the Critical Success Factors of ERP System -. *International Conference on Industrial Engineering and Operations Management.*

[20] Ike C. Ehie, M. M. (2005). Identifying critical issues in enterprise resource planning (ERP) implementation. *Industry@ Direct, (Computers in Science), 56*, 545–557.

[21] Jarvenpaa, S. L., & Ives, B. (1991). Executive involvement and participation in the management of information technology. *MIS Quarterly*, 205 - 227.

[22] Kale, P., Banwait, S., & Laroiya, S. (2010). Performance evaluation of ERP implementation in Indian SMEs. *Journal of Manufacturing Technology Management, 21*, 758-780.

[23] Khaparde, V. M. (2012, Dec). Barriers of ERP while implementing ERP: a Literature REview. *IOSR Journal of Mechanical and Civil Engineering (IOSR-JMCE), 3*(6), 49-91.

[24] Koch, C., Slater, D., & Baatz, E. (1999). The ABCs of ERP. *CIO magazine*, 22.

[25] Koh, T. C. (2007). Critical elements for a successful enterprise resource planning implementation in small-and medium-sized enterprises. *International Journal of Production Research*.

[26] Kumar, V., Maheshwari, B., & Kumar, U. (2003). An investigation of critical management issues in ERP implementation: emperical evidence from Canadian organizations. *Technovation, 23*, 793 - 807.

[27] Mabert, V. A., Soni, A., & Venkataramanan, M. (2001). Enterprise resource planning: common myths versus evolving reality. *Business Horizons, 44*, 69-76.

[28] Nah, F., & Deldado, S. (2006). Critical success factors for enterprise resource planning implementation and upgrade. *Journal of Computer Information Systems*, 47.

[29] Neuman, W. L. (2006). *Social research methods: Qualitative and Quantitative Approaches.* (Sixth Edition ed.). Pearson International Edition.

[30] Ngai, E., Law, C. C., & F.K.Wat. (2008). Examining the critical success factors in the adoption of enterprise resource planning. *Computers in Industry, 59*, 548-564.

[31] Oden, H. W., Langenwalter, G. A., & Lucier, R. (1993). *Handbook of material & capacity requirements planning.* New York: McGraw-Hill.

[32] Rao, S. S. (2000). Enterprise Resource Planning: business needs and technologies. *Industrial Management and Data Systems, 100*, 81-88.

[33] Remus, U. (2006). Critical Success Factors of Implementing Enterprise Portals. *Proceedings of the 39th Hawaii International Conference on System Sciences.*

[34] Richards, J., & Media, D. (2008). *Enterprise Resource Planning Systems* (6th ed.).

[35] Ross, J., & Vitale, M. R. (2000). The ERP revolution: surviving vs. thriving. *Information Systems Frontiers, 2*, 233-241.

[36] Shehab, E. M., Sharp, M. W., Supramaniam, L., & Spedding, T. A. (2004). Enterprise resource planning: An integrative review. *Business Process Management Journal*, 359 - 386.

[37] Soh, C., Kien, S. S., & Yap, J. T. (2000). Enterprise resource planning: cultural fits and misfits: is ERP a universal solution? *Communications of the ACM, 43*, 47-51.

[38] Sundar, C., & Saravanan, R. (2014). ANALYSIS OF ERP IMPLEMENTATIONS. *IMPACT: International Journal of Research in Business Management, 2*, 65-72.

[39] T.R.Bhatti. (2005). critical success factors for the implementation of enterprise resource planning(ERP): empirical validation. *The second International Conference on Innovation in Information Technology (IIT'05).*

[40] Umble, E. J., Haft, R. R., & Umble, M. M. (2003). Enterprise resource planning: Implementation procedures. *European Journal of Operational Research, 146*, 241–257.

[41] Upadhay, P., Jhanyan, S., & Dan, P. (2011). Factors influencing ERP implementation in Indian manufacturing organisations: A study of micro, small and medium-scale enterprises. *Journal of Enterprise Information Management, 24*, 130 - 145.

[42] Woo, H. S. (2007). Critical success factors for implementing ERP: the case of a Chinese electronics. *Journal of Manufacturing Technology Management*, 431 - 442.

[43] Zhang, Z., Lee, M. K., Huang, P., Zhang, L., & Huang, X. (2005). A framework of ERP systems implementation success in China: An empirical study. *Int. J. Production Economics*, 6–80.