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BENEFITS AND CHALLENGES OF ENTER- PRISE RESOURCE PLANNING IN PAKI- STANI SMES

Master's Thesis
In Information Systems Science

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Table of contents

1	INTRODUCTION	7
1.1	Motivation	7
1.2	Research question.....	9
1.3	Research approach.....	10
1.4	Structure of the thesis	11
2	ERP ADOPTION IN SMES	13
2.1	Enterprise Resource Planning software.....	13
2.2	Small and medium sized enterprise.....	13
2.3	Advantages of ERP adoption for SMEs.....	15
2.3.1	Operational benefits	16
2.3.2	Managerial benefits.....	17
2.3.3	Strategic benefits.....	18
2.3.4	IT infrastructure benefits.....	18
2.3.5	Organizational benefits	19
2.4	Challenges for ERP adoption for SMEs.....	19
2.4.1	Costs of adoption	19
2.4.2	Complex business process reengineering	20
2.4.3	Lack of user-friendliness.....	21
2.4.4	Cultural dimension.....	21
3	CURRENT STATUS OF SMES IN PAKISTAN	23
3.1	Type of ownership of SMEs.....	25
3.2	Major sectors of enterprise activity.....	26
3.3	Growth of Pakistani SME sector	27
3.3.1	Business Incubation Center.....	29
3.3.2	Financial support.....	30
3.3.3	Adoption of technological innovations.....	30
3.4	Use of IT in Pakistani SMEs	31
3.5	Digital divide and SMEs	31
3.5.1	Location of SME.....	32
3.5.2	Access to infrastructure.....	33
3.5.3	Caste system.....	34
3.5.4	Digital inequality	35

4	CHALLENGES OF ERP MARKET IN PAKISTAN.....	36
4.1	Lack of management commitment.....	37
4.2	Lack of skilled labor.....	38
4.3	Less emphasis on IT.....	39
4.4	Lack of benefit realization	39
4.5	Availability of software companies	40
5	METHODOLOGY	41
5.1	Qualitative research.....	41
5.2	Mode of analysis	41
5.3	Data collection	41
5.4	Profile of participating SMEs.....	44
5.5	Demographics of interviewees	45
5.6	Ethical issues in this research.....	45
6	RESULTS	47
6.1	Use of ERP in SMEs	47
6.2	Enablers of ERP	48
6.3	Inhibitors for adopting ERP	53
7	DISCUSSION.....	56
7.1	Operational benefits	56
7.2	Managerial benefits	57
7.3	Strategic benefits.....	58
7.4	IT benefits	58
7.5	Organizational benefits	59
7.6	Future potential	60
8	CONCLUSION	61
9	REFERENCES	62
10	APPENDIX	74

List of figures

Figure 1 Number of publications from 1976-2015 with query "ERP Pakistan" from Scopus (Date of extraction: 08. 02. 2016).....	8
Figure 2 Graphical representation of research area of this research	9
Figure 3 Structure of the thesis	12
Figure 4 Growth of Pakistani economy (Source: International Growth Center 2015)23	
Figure 5 Provincial distribution of establishments in Pakistan (Pakistan Economic Census 2005)	25
Figure 6 Types of enterprises in Pakistan (Economic Census 2005).....	26
Figure 7 GDP per capita of Pakistan (2006 - 2015 Source: Tradingeconomics.com)28	
Figure 8 Business support networks in Pakistan.....	29
Figure 9 Problems of doing business in Pakistan (World Bank 2014)	33
Figure 10 Interview process of this research.....	42
Figure 11 Data collection mediums and respective response rate	43

List of tables

Table 1 Different query results from Scopus (18. 02. 2016)	10
Table 2 Structure of interview guide (Myers 2013 p. 133).....	11
Table 3 SME in Europe (Source: Europa.eu Date of extraction: 26. 02. 2015).....	14
Table 4 SME in Pakistan (Source: SME Bank Pakistan).....	15
Table 5 ERP benefits framework (Shang & Seddon 2000)	16
Table 6 Cultural dimensions and ERP adoption (Hofstede 2001; Hall 1996)	22
Table 7 Provinces and number of establishments in Pakistan	24
Table 8 Major sectors of economy of Pakistan (Economic Census 2005)	27
Table 9 Growth rates of SME in Pakistan (Economic Census 2005)	28
Table 10 Some ERP vendors from Pakistan	37

Table 11 Profile of participating SMEs 44

Table 12 Demographics of interviewees..... 45

Table 13 ERP benefits findings derived from the respondents interviews 48

Table 14 Inhibitors of ERP derived from respondents interviews..... 55

1 INTRODUCTION

1.1 Motivation

ERP (Enterprise Resource Planning) is an “industry term for the broad set of activities supported by multi-module application software that helps a manufacturer or a service business manage the important parts of its business” (Huang and Palvia 2001). The aim of ERP software is to integrate whole organization’s data in one place and give a big picture, with the help of one single information system. The same software records all the business processes in one central database (Gala and Peng 2014). ERP has helped the organizations in achieving their desired strategic goals (Shin 2006), and efficiency and competitive advantage (Khattak et al. 2012; Ugrin 2009) over their competitors. Dynamism and the need for continuous improvement in business environment has affected large organizations as well as small and medium sized firms making them to rethink their business strategies, react quickly to the changing environment and compete effectively leading to adoption of latest technological innovations (Tarn et al. 2002). Now it has become an important part of any business, irrespective of its size, and in the absence of which the company wide integration is very difficult. Now “ERP serves many industries and numerous functional areas in an integrated fashion, attempting to automate operations from supply chain management, inventory control, manufacturing scheduling and production, sales support, customer relationship management, financial and cost accounting, human resources, and almost any other data-oriented management process” (Hitt et al. 2002).

There has been a lot of research on ERP in large organizations but there is little research focusing on small and medium sized enterprises (Haddara and Zach 2011). Mukawasi and Smeyour (2012) studied ERP adoption in SMEs. According to them, “SME ERP market is relatively new and the implementation of ERP systems by SMEs may pose new challenges and risks which need to be handled differently from other IT investments”. One of the reasons is that most of the large organizations worldwide have already adopted an ERP system but smaller organizations are now starting to follow their lead (Laukkanen, Sarpola, and Hallikainen 2005). According to researchers, this adoption of enterprise wide system “has mushroomed recently in small and medium sized enterprises” (Everdingen et al. 2000; Greenemeier 2001). Due to this fast growing adoption of ERP in SME “most ERP system suppliers have increased their focus on small or medium organizations” (Koch and Berniuder 2001).

Studying ERP in developing countries is important for ERP vendors in particular because of the following reasons.

- Researchers are of the view that “due to economic growth, developing countries in Asia and Latin America are becoming target of big ERP vendors” (Huan & Palvia 2001). There are large numbers of potential customers existing in these developing markets. These customers are owners and managers, eager to develop their companies and compete at global level but are unable to do this because of inability to adopt new technologies so cannot meet international standards (Akhtar et al 2014).
- There are few studies related to these organizations and ERP software vendors are not very well aware of their customer’s needs. Most of the studies deal with ERP adoption in developed countries.

These gaps in research call for more research on this topic, to elaborate and expand the study of adoption of ERP systems in SMEs of developing countries. With the help of this study, and other studies like this, the vendors will be able to better understand how to maximize the software penetration and customize services in order to increase the advantages obtained, and solve the problems faced by the SME in the adoption of ERP in Pakistan.

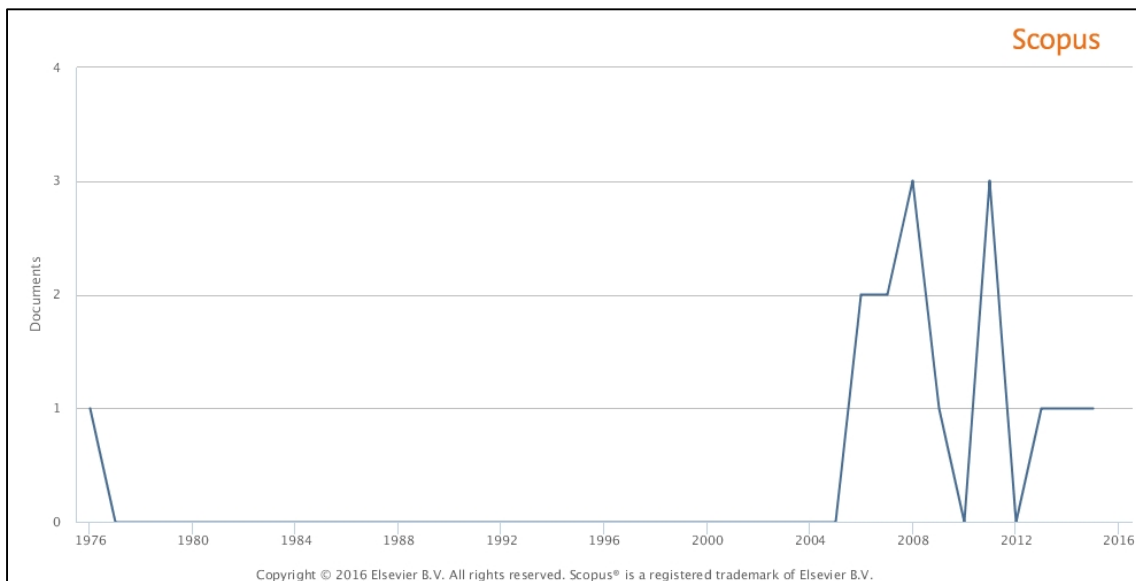


Figure 1 Number of publications from 1976-2015 with query "ERP Pakistan" from Scopus (Date of extraction: 08. 02. 2016)

Figure above shows number of publications which are focused on ERP in Pakistan. It can be seen that the numbers are very small and the literature needs to be extended in this area.

1.2 Research question

The question is that why the SMEs are not using so useful technologies while the large organizations are already getting the benefits after of its adoption. The advantages obtained by the organization are not thoroughly studied. Due to this lack of information, organizations are unaware of the potential of ERP systems and they are unable to get the competitive advantage with the help of ERP. So the research question for this research is:

- What are the benefits obtained from the implementation of ERP by SMEs in Pakistan?
- What are the problems faced by SMEs of Pakistan, for adopting ERP?

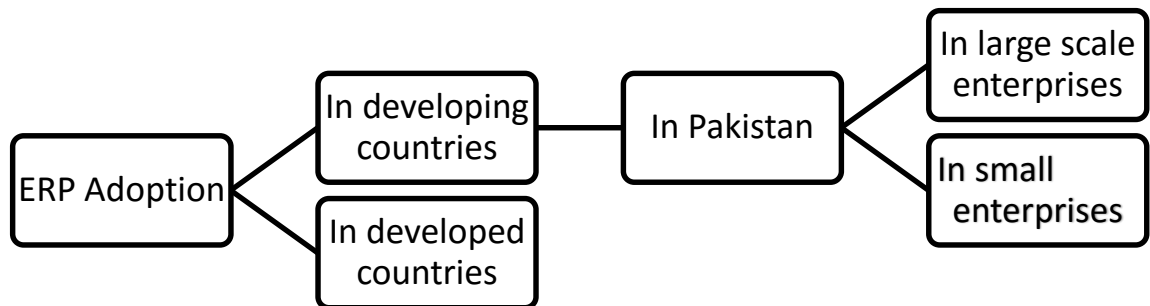


Figure 2 Graphical representation of research area of this research

The table below shows results of queries done on Scopus service. Results show that studies related to ERP in Pakistan are very limited.

Table 1 Different query results from Scopus (18. 02. 2016)

Query	Number of results
ERP SME	285
ERP developing countries	188
SAP Pakistan	42 (out of which only 8 were relevant)
ERP Pakistan	15

1.3 Research approach

The approach to answer the research questions for this study started with thorough and critical analysis of existing literature of ERP in SMEs so that a deep view of topic can be synthesized. Literature review is a useful way to understand what already has been done. It is needed to see what gaps exist in literature and further research can be based on this existing base of knowledge. It is a “systematic, explicit and reproducible method for identifying, evaluating and synthesizing existing body of completed and recorded work produced by researchers, scholars and practitioners” (Fink 2005). All possible advantages of ERP were studied from several academic peer-reviewed journal articles. Due to lack of research in Pakistani environment, research approached PhD thesis and other master's theses for this study. All journal articles and reference material was stored in PDF format for future use.

95 firms were contacted to for data collection of which 7 agreed to participate in this research. To answer research question, carefully designed interviews were conducted. Medium for communication was Skype and normal telephone calls. Interviews were recorded with permission of respondents, for further analysis. Audio of these interviews was then documented in a text file. In addition to these interviews, financial statements and website data were also collected. This data was analyzed and final results were presented.

Table 2 Structure of interview guide (Myers 2013 p. 133)

Component	Description
Preparation	Organize and prepare for the interview by gathering background information about the interviewee. Prepare interview questions.
Introduction	Introduce yourself, the purpose of interview. Build trust and rapport by explaining the importance of the research
Conversation	Questions should be short so that the interviewee gets the chance to speak. Use questions starting with “what”, “when”, “why”, “how”, “where”. New questions may emerge during the conversation
Conclusion	Thank the interviewee and ask if they have any question. Ask them if they can suggest anyone else that you can interview.

1.4 Structure of the thesis

First part of thesis introduces to research topic, why there is need for further research on this topic and research approach for studying this topic. Second chapter gives definitions of basic concepts of ERP and SMEs. This section produces basis for research and gives the detailed analysis of existing literature on advantages and challenges of ERP systems.

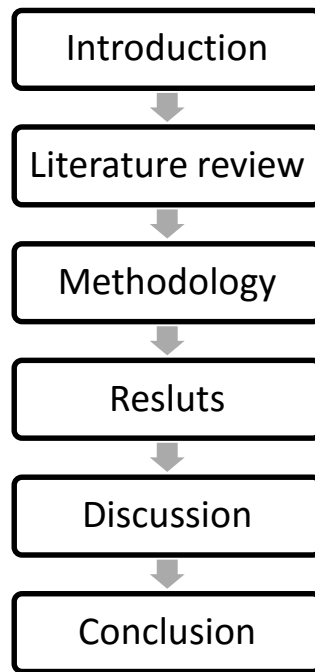


Figure 3 Structure of this thesis

In third chapter SMEs of Pakistan are discussed explaining structure of SME, past and future growth of SME sector and major divisions in which these SMEs are working. Fourth chapter explains current situation of ERP market in Pakistan, how SMEs are using IT and what are challenges faced by SME in Pakistan for adopting ERP. Fifth chapter deals with the methodology of the research. This chapter shows that why qualitative research was chosen for this research and the data collection. Results are presented in chapter 6. These results are discussed in seventh chapter. Finally limitations and recommendations and contribution to practice and literature are presented in conclusion chapter.

2 ERP ADOPTION IN SMES

2.1 Enterprise Resource Planning software

ERP adoption has attracted lot of research (for example Laukkanen et.al 2007; Raymond & St-Pierre 2004; Raymond & Uwizeyemungu 2007; Shahid & Manarvi 2014; Everdingen & Waarts 2003). One of the reasons is its advantages offered to the organization and second that the business of enterprise wide software is huge. The worldwide ERP software market grew 3.8% from \$ 24.4B in 2012 to \$ 25.4B in 2013 (Forbes.com, Date of extraction: 10.10.2015) and is expected to grow at 13.67% over the period 2016-2019 (PRNewswire.com Date of extraction: 08. 02. 2016). ERP suppliers are willing to know more and more about their products and customer needs. Current literature on ERP is very vast. Some researchers believe that ERP has been overly researched (Peng and Chao 2014). Pre-implementation, implementation, post-implementation, every stage of ERP adoption has been studied. Research starts as early as problems start to arise which cause the management of an organization to think about adopting ERP. The framework of TOE (technology, organization, and environment) is of high importance in this regard (Tornatzky & Fleisher 1990). Lots of studies have adopted this model and produced some excellent results for the practical purposes (for example Uwizeyemungu 2007). Then research also focuses on implementation of ERP (for example Ehie & Madsen 2005; Shaul & Tauber 2012; Dantes & Hasibuan 2012). The selection of ERP software (for example Bernroider, Koch, Stefan 2001; Kiel & Tiwana 2006), models of adoption (for example Venkatesh et.al 2003; Thong 1999), barriers for adoption (for example Mokaya 2012; Rajapakse, Seddon, Peter 2005; Shin 2006), critical success factors (for example Hasibuan & Dantes 2012; Dezdar & Sulaiman 2009; Khattak et al 2012) were studied to help organizations with ERP adoption. At the final steps of ERP implementation, ERP evaluation (such as Häkkinen & Hilmola 2008; Benlian & Hess 2011), its effects on organizational performance (for example Belghis & Bavarsad 2013; Lebre & Overe 1996; Mukwasi & Seymour 2012; Kelle & Akbulut 2004) and end users (such as Amoako-Gyampah & Salam 2004; Anjum 2011) have been focus areas of research.

2.2 Small and medium sized enterprise

Main factors determining whether a company is a SME or not are generally considered as: number of employees and either turnover or balance sheet total. According to Official Journal of European Union, an organization is a small and medium sized business if it

has less than 50 employees and turnover is less than or equal to €10m or the total of its balance sheet is not more than 10m euros.

Table 3 SME in Europe (Source: Europa.eu Date of extraction: 26. 02. 2015)

Company category	Employees	Turnover	or	Balance sheet total
Medium-sized	< 250	≤ € 50 m		≤ € 43 m
Small	< 50	≤ € 10 m		≤ € 10 m
Micro	< 10	≤ € 2 m		≤ € 2 m

There is no one definition of SME in Pakistan. As mentioned by the CEO of Small and Medium Enterprise Development Authority (SMEDA) “everyone – commercial banks, chambers of commerce and industry, trade associations and bodies, Security and Exchange Commission of Pakistan, the State Bank of Pakistan, provincial small industries corporations, etc. – defines SMEs in its own way in accordance with its own needs and convenience”. Further he complains that this absence of a uniform definition of SME is a “major problem encountered by the policy-makers while formulating support programs and policies for the development of SMEs as well as other stakeholders like commercial banks” (Source: Dawn.com Date of extraction: 25.10.2015).

According to State Bank of Pakistan (SBP) small enterprise (SE) “is a business entity which does not employ (including contract employees) more than 20 persons and annual sales turnover is up to Rs.75 million”. And medium enterprise (ME) “is a business entity, ideally not a public limited company which does not employ (including contract employees) less than 21 employees more than 50 employees in case of trading and more than 250 persons in case of manufacturing and service and annual sales turnover is over Rs.75 million and up to Rs.400 million”. Medium-sized enterprise is defined by SME Bank Ltd. Pakistan as: “Medium Enterprise (ME) is a business entity, ideally not a public limited company which does not employ (including contract employees) less than 21 employees more than 50 employees in case of trading and more than 250 persons in case of manufacturing and service and annual sales turnover is over Rs.75 million and up to Rs.400 million. Medium Enterprises can be extended finances over Rs.15 Million to Rs.100 Million”. These definitions provide a basic idea about the characteristics of an organization to be qualified as SME but this is not definite. According to SME Policy 2007, the changes in this definition of SME are possible as the government feels necessary.

Table 4 SME in Pakistan (Source: SME Bank Pakistan)

Company category	Employees	Turnover in PRs.
Medium-sized (trading)	21 → 50	75m → 400 million
Medium-sized (manufacturing)	21 → 250	75m → 400 million
Small	1 → 20	0 → 75 million

Pakistan's economy consists of large number of small and medium sized enterprises. There are about 3.2 million enterprises in Pakistan out of which about 90% are classified as SME (SMEDA.org Date of extraction: 19. 02. 2016).

2.3 Advantages of ERP adoption for SMEs

As the adoption of ERP became an important factor for large organizations, it brought new challenges and opportunities for small and medium sized enterprises (Shin 2006). Laukkanen et al. (2007) studied the relationship between the size of the organization and the objectives and constraints of ERP system adoption. They found that the size of the organization has noticeable effects when the organization decides to adopt ERP. The problems faced by large organizations (like organizational changes and objectives of the adoption) were different than that of the medium or small sized enterprises (like resource poverty, outside consultancy and training of the users). They finally concluded that "regarding ERP system adoption, small and medium-sized enterprises should not be considered as one homogenous group".

Researchers have been trying to find out what makes the organizations to invest in ERP systems. One of the reasons is to innovate. A study conducted by Lebre and Rovere (1996) found that the ERP helps the organizations to innovate new products. Esteves (2009) contributed to literature of ERP benefits by studying that the ERP helps managers to plan better. ERP adoption brings many benefits for the organization. "SME's that use ERP seem to be satisfied and acknowledge important benefits such as improved information and quality of work" (Equery, Fragnière 2008). In addition, organizations get economic benefits such as "cut costs, improve transactions and enlarge markets, foster productivity growth, and improve the skills of the workforce" (Poon et al. 2005).

Shang and Seddon (2000) have presented a comprehensive framework for analyzing the ERP benefits for SMEs. They have divided the advantages in 5 categories:

Table 5 ERP benefits framework (Shang & Seddon 2000)

Dimensions	Sub dimensions
Operational	Cost reduction, Cycle time reduction, Productivity improvement Quality improvement Customer services improvement Reduction in errors (like data, typographical) Improvement in speed of transactions
Managerial	Better resource management Improved decision making and planning Performance improvement
Strategic	Support business growth Support business alliance Build business innovations Build cost leadership Generate product differentiation (including customization) Build external linkages (customers and suppliers) Better information quality
IT infrastructure	Build business flexibility for current and future changes IT costs reduction Increased IT infrastructure capability
Organizational	Facilitate Business learning Empowerment Built common visions Harmonize interdepartmental functioning Business learning Employee involvement Mutual vision Better focus on core processes Satisfaction of employees

2.3.1 *Operational benefits*

Organizations can get operational benefits from the adoption of ERP. Bavarsad (2013) observed that the ERP software adoption has direct effect on the financial performance of the organization. ERP can be adopted to reduce costs (Love et al. 2005). The production is increased (Esteves 2009) and the inventory levels can be declined (Andrejs & Tambovcevs 2010; Kelle & Akbulut 2004) by the use of ERP system. Tommaso and Federici (2009) found that administrative costs are also reduced when the ERP is adopted by SME.

As the information of the whole organization is centralized in an ERP system (Esteves 2009), management of information is easy. Errors like data redundancy, typographical errors, and miscalculations can be handled better (Williams & Schubert 2010). The most important reason for adoption of ERP was considered to be the need for timely information by Spathis and Constantinides (2003). According to Williams and Schubert (2010), information can be speedily retrieved from main source, i.e. the information flow is better with ERP system. All the concerned persons get timely and accurate information. Transactions are conducted faster and more efficiently in the organization (Bavarsad 2013). ERP can also help to improve customer satisfaction (Williams & Schubert 2010).

2.3.2 Managerial benefits

“The future state of the environment cannot be predicted due to imperfect information” (Paul 2012). So information processing is necessary for managers to decide about strategic future plans of the organization. Decision making and planning is made easier with the help of ERP. “For managers who have struggled for a great expense and with great frustration, with incompatible information systems and inconsistency operating practices, the promise of an off-the-shelf solution to problem of business integration is enticing” (Davenport 1998). Spathis and Constantinides (2003) did a quantitative study to analyze the usefulness of ERP for management. The sample of the study consisted of 45 companies from Greece. They used questionnaires and interviews for the data collection. They used the factor analysis and Cronbach’s alpha for validity of their results. The study found that improved quality of reports - financial reports, was one of the highly perceived benefits by users. These reports provide management with healthy information to get clear picture of the happenings of the organization and decide about future vision. Studies also found that resources can be better managed and overall performance is improved (Karimi et al. 2007).

ERP can also help in inventory management. Inventory turns can be improved and management can better do stock allocation with the help of quick and accurate information. ERP system gives management with lots of options to deal with just-in-time replacement for better inventory control. Studies showed that production schedules can be prepared with more accuracy with the help of ERP, which is an attribute of improved supply chain management of the business (Davenport 1998). It is easier for managers to forecast the expected sales and allocate right amount of labor on right time at right place. In this way, the labor costs can be better managed.

2.3.3 *Strategic benefits*

Internationalization and globalization are the challenges faced by all organizations, irrespective of their size (Poba-Nazaou, Raymond & Fabi 2008). Love et al. (2005) illustrate that businesses can grow when they adopt ERP. New and innovative products can be produced with the help of ERP (Lebre & Rovere 1996).

In addition, ERP helps in better communications (Spathis & Constantinides 2003) and information quality of the organization (Shang & Seddon 2000). Dantes and Hasibuan (2011) surveyed 74 companies in Indonesia that had recently implemented or used ERP system to analyze benefits of ERP adoption. The information quality was concluded to be one of the important advantages.

Adoption of ERP also promotes cooperation and networking among businesses and with customers, suppliers and clients (Esteves 2009). Kelle and Akbulut (2004) are of the opinion that ERP helps the organization to achieve better cooperation with its suppliers. “By gaining access to the suppliers’ production and delivery schedules, buyers can improve their own production plans and delivery schedules. Correspondingly, suppliers can use the buyer’s real time store level data to plan their inventory and production schedules” (Kelle & Akbulut 2004). A study conducted in Swedish pharmaceutical industry found that ERP had helped the industry to gain goodwill (Agerstrand, Wester & Rudén 2009).

2.3.4 *IT infrastructure benefits*

ERP software provides standard application architecture. All modules are integrated with each other. This quality of the system provides following IT advantages (Shang and Seddon 2000):

- ERP system provides an infrastructure that could support business flexibility for future changes in the IT infrastructure of the organization.
- Costs of IT and marginal cost of business units’ IT are reduced.
- There is an increased capability for quick and economic implementation of new applications. For example new rules and regulations implemented by governmental and audit authorities can be applied more rapidly. When the organization decides to go online and start web services, it is much easier with help of ERP.

Organization becomes more adaptable to new technologies and it can adopt to other new technologies easily (Lebre & Rovere 1996; Esteves 2009). Database in ERP system is centralized. Spathis and Constantinides (2003) depicted that the database maintenance was also easy with adoption of ERP system.

2.3.5 Organizational benefits

Shang and Seddon (2002) define organizational benefits as benefits that “arise when the use of an enterprise system benefits an organization in terms of focus, cohesion, learning and execution of its chosen strategies”.

Loo et al. (2013) studied effects of ERP adoption on benefits obtained by organization. They selected two types of Dutch organizations for their study. One was the organization that had adopted ERP system and the other that did not do so. Over a period of three years 2007-2009, they surveyed both organizations to see whether the adoption of ERP system had helped the organization to achieve organizational benefits mentioned by Shang and Seddon (2002). They found that the organization that had adopted ERP, were able to achieve organizational benefits more as compared to organizations that did not adopt ERP.

2.4 Challenges for ERP adoption for SMEs

There has been a lot of debate among the researchers about challenges faced by SMEs for implementation of ERP system. “Enterprise system can deliver great rewards, but the risks they carry is equally great” (Davenport 1998). ERP projects need lots of money and large amounts of risks are involved. About 70% of ERP projects were judged to be unsuccessful by ERP implementation firms (Bitsini 2015). And it’s not about time and money; the researchers have noticed other challenges for ERP implementation. “Despite their acclaimed advantages, ERP system poses potentially heightened business, security and audit risks primarily due to automated inter-dependencies among business processes and integrated rational databases” (Hunton, Wright & Wright 2005).

2.4.1 Costs of adoption

Haridnarath, Dayerson, and Barnes (2008) discovered that major reason why organizations do not adopt ERP software is the cost. They studied 348 SME’s of South England and found that SME owners thought of ERP systems as “costly and complex and are wary of consultants and vendor organizations”. Implementation of ERP system requires a lot of money (Mokaya 2012) and “as the range of ERP implementation becomes broader, adopting an ERP system is much more costly” (Tarn et al 2002).

Typically costs occurred on ERP project can be classified as under:

- Software licensing
- Hardware

- Consulting
- Training and other internal staff costs

Software is itself expensive (Rajapakse & Seddon 2005) and then the consultancy firms charge a lot of consultation fee. Zhou et al. (2001 as seen by Shin 2006) analyzed that about 60% of total cost of ERP implementation was the fee for outside consultants. When Hewlett-Packard implemented enterprise resource planning software in its “states”, managers estimated that almost one billion dollars were spent on implementation before the project was complete (Davenport 1998). But on a smaller scale, study conducted by Laukkanen, Sarpola and Hallikainen (2007) synthesized that scarcity of resources was the major barrier for adoption of ERP for SME's.

Training of employees' is an extra expense for the firm. Shin (2006) was of the opinion that “easy to understand EA (enterprise application) is better than new complicated software”.

Now organizations are moving towards cloud ERP systems and it is the future of ERP (Chao & Peng 2014). This is an internet based SaaS application which is at very large scale manages whole organization and replaces traditional enterprise software. SaaS stands for Software as a Service. This means that instead of owning infrastructure (like computers, software etc.), a firm can buy the services from other vendor who owns the infrastructure. These services are provided by the vendor over network which is usually Internet. According to studies related to cloud ERP, this service is cheaper, flexible and easy to use than traditional ERP systems (Arnesen 2013).

2.4.2 *Complex business process reengineering*

The implementation of ERP involves all the departments and sub-departments as this system integrates the whole of the organization (Raymond & Uwizeyemungu 2007). Business process reengineering is “the redesign of processes, typically using information technology (IT), in order to gain significant improvements in key areas of performance such as service, quality, cost, and speed” (Altinkemer et al. 2011). ERP projects “bring complex and mangled change in both the organization and ERP system” (Kamhawi 2008). Ehie and Madsen's (2005) study shows that many of organizational processes are need to be reengineered. If an organization does not has any experience with business process reengineering; it might face very difficult problems during implementation. Holland and Kumar (1995) investigated that almost 60 % to 80% of organizations failed during the endeavor of business process reengineering. Hierarchical structure of organization should be restructured according to new ERP system. Human resource might be moved from one place to another. This problem is more visible in both large sized enterprises as well as SMEs (Laukkanen et.al 2007).

Davenport (1998) recommended a “federalist operating model”. He argues that this is the most difficult question for a management to decide that what changes should be made in organization and what needs to stay constant. He suggests that all managers need to come to table and ask questions regarding their information integration needs and concerns.

2.4.3 *Lack of user-friendliness*

ERP systems help organizations to achieve operational efficiency as well as helps management to plan about their future. But due to lack of awareness and vision, ERP is not used to its full extent. ERP is difficult software for employees to use as it is new and includes lots of options (Haridnarath, Dayerson & Barnes 2008). "Accountability, responsibility and communication have never been tested like this before" (Koch 2006). “Given the complexity of ERP systems and their conceptually different nature from most stand-alone legacy systems, it is not surprising that ERP users take some time to learn how to extract all potential benefits” (Peter et al. 2000). So employees need intensive training to be comfortable before they start using the software.

2.4.4 *Cultural dimension*

National culture has been found to have significant effect on adoption of ERP. Everdingen and Watts (2003) analyzed medium sized enterprises and their adoption pattern from cultural point of view. They based their studies on the national cultural classifications presented by Hofstede (2001) and Hall (1976). According to them, medium sized enterprises are more influenced by their culture than large multinational organizations. They devise that “higher levels of the uncertainty avoidance, masculinity and power distance dimensions in a country negatively influenced ERP adoption, while higher levels of long-term orientation have a significant positively influence”. Similarly explaining the Hall’s classifications, they claim that the low versus high context cultures, and monochronic and poly-chronic cultures “have a significant impact on the country adoption rates.”

Table 6 Cultural dimensions and ERP adoption (Hofstede 2001; Hall 1996)

Hofstede cultural classifications (2001)	Effect on adoption rate
Power Distance Index (PDI)	Higher PDI score means lesser chances of adoption
Uncertainty Avoidance Index (UAI)	Higher UAI score means lesser chances of adoption
Individualism Index (IDV)	Higher IDA score means higher chances of adoption
Masculinity Index (MAS)	Higher MAS score means higher chances of adoption
Long-term Orientation (LTO)	Higher LTO score means higher chances of adoption
Hall's cultural classifications (1976)	
Low-/high-context cultures	Low context culture means lesser chances of adoption
Mono-chronic/poly-chronic cultures	Mono-chromatic culture means lesser chances of adoption

3 CURRENT STATUS OF SMES IN PAKISTAN

Pakistan is a developing country with a potential to grow in future. Pakistan “is the best, undiscovered investment opportunity in emerging or frontier markets” mentioned by economist Charlie Robertson at Renaissance Capital Ltd (2015). Pakistan’s biggest stock exchange, Karachi Stock Exchange (KSE) 100 index has shown excellent growth in last 12 months and become one of the world’s top 10 best stock indexes in 2014-2015 (Bloomberg.Com Date of extraction: 21. 02. 2016). But over longer period of time, Pakistani economy has not seen extraordinary growth. GDP for last 6 decades has been 4.47 which is much less when compared with the other south Asian economies. For example China has shown a staggering growth of 9.1% in a period of 4 decades from 1970 to 2009 and especially the manufacturing sector has shown grown with 15% annual growth. This high growth rate causes the salaries of employees to increase. Currently China’s wage rate is over \$1 / hour and it is increasing. This increase in wages has inclined the investors to look for still cheaper labor. Pakistan has millions of unskilled, uneducated and jobless work force, so in Pakistani manufacturing sector, wages are still very low (Tribune.com.pk Date of extraction: 26. 10. 2015). Changing buying behaviors and growth of IT business are contributing to the overall progress of the country.

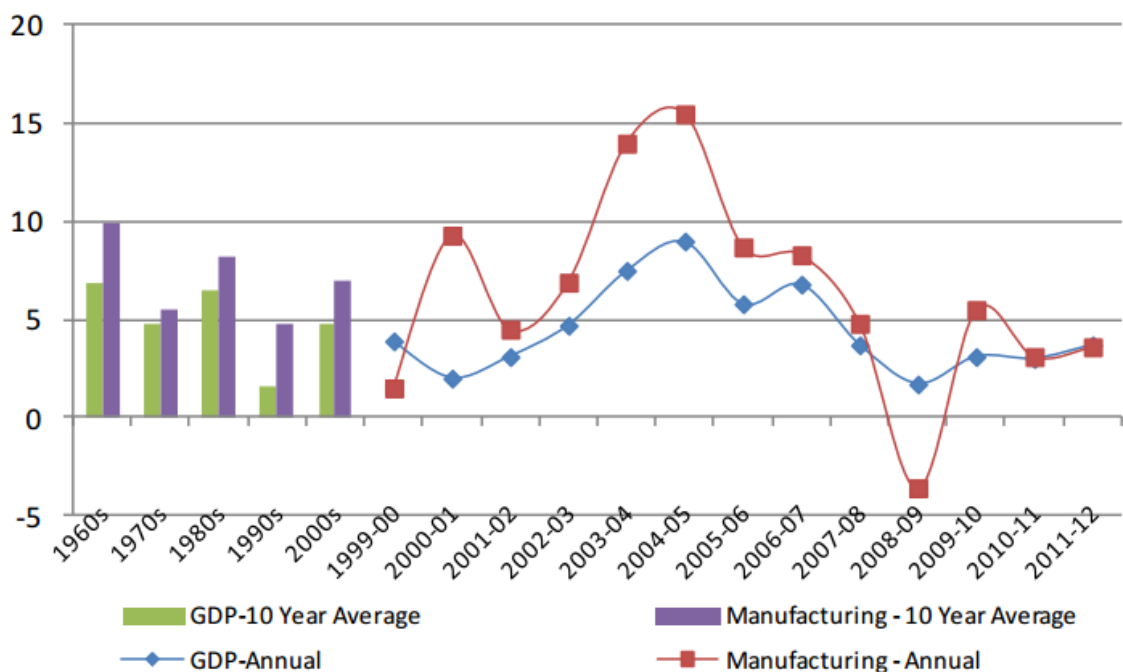


Figure 4 Growth of Pakistani economy (Source: International Growth Center 2015)

SMEs of Pakistan, like SMEs of other countries, play an important role in overall economy of the country. SME sector in Pakistan is considered very important and researchers called it “cradle of SMEs” (Dasayanaka 2011). According to latest economic

census conducted in Pakistan, SMEs are contributing about \$86bn to total GDP of the country (Pakistan Economic Census 2005). Number of small and medium sized enterprises is 3.2 million that constitute over 90% of overall enterprises in Pakistan. All of these SMEs have less than 99 employees (SMEDA 2005-2006).

In Pakistan, there is a very distinct disparity among different areas of the country. There are four provinces and a capital city, Islamabad, in Pakistan:

Table 7 Provinces and number of establishments in Pakistan

Province	Provincial capital city	Area	Population	No. of establishments – values in '000
Punjab	Lahore	205,344 km ² (79,284 sq. mi)	10.1 million *	3590
Sindh	Karachi	140,914 km ² (54,407 sq. mi)	4.2 million **	1825
Khyber Pakhtunkhwa	Peshawar	74,521 km ² (28,773 sq. mi)	2.8 million ***	673
Baluchistan	Quetta	347,190 km ² (134,050 sq. mi)	1.3 million ***	212
Islamabad (capital city)	-	906.00 km ² (349.81 sq. mi)	2.2 million ***	117

Punjab is the biggest province according to number of establishments. About 56% of all of the establishments exist in Punjab and it also employ 56% of total labor force. From which, most of the enterprises exists in the cities of Lahore (774), Faisalabad (418) and Gujranwala (440) where the total is 3590 establishments in Punjab. Smallest number of businesses is in Baluchistan where few industries of mining and construction are providing job opportunities.

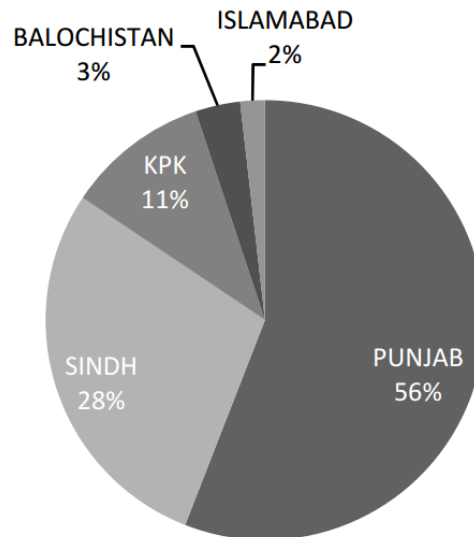


Figure 5 Provincial distribution of establishments in Pakistan (Pakistan Economic Census 2005)

3.1 Type of ownership of SMEs

There are five types of ownerships exist in Pakistan:

- Sole proprietorship
- Partnership
- Unregistered partnership
- Company
- Non-profit organization

Sole proprietorships are business entities that are owned by one person. According to most recent economic census conducted by Pakistani government, Economic Census 2005, most of the SMEs in Pakistan are owned by a single person. This sole proprietorship consists of 96.66% of total business establishments.

In partnerships, two or more individuals own the firm. Partnership business is not required to be registered. Contribution of partnerships in total SME is very small compared with sole proprietorships. 2.10% establishments are partnership businesses. Private companies are needed to be registered by law and owned by many individuals. Their number is almost negligible 0.08%, of all establishments.

This is a distinct feature. The reason behind large number of sole proprietorships businesses, is the legal requirements that are imposed on other forms of business types. The legal process for registration is very difficult and the concessions given to SMEs are not

enough to encourage them to go for registration. Even if a SME is of partnership type, it still prefers to stay unregistered to avoid lengthy and difficult registration process.

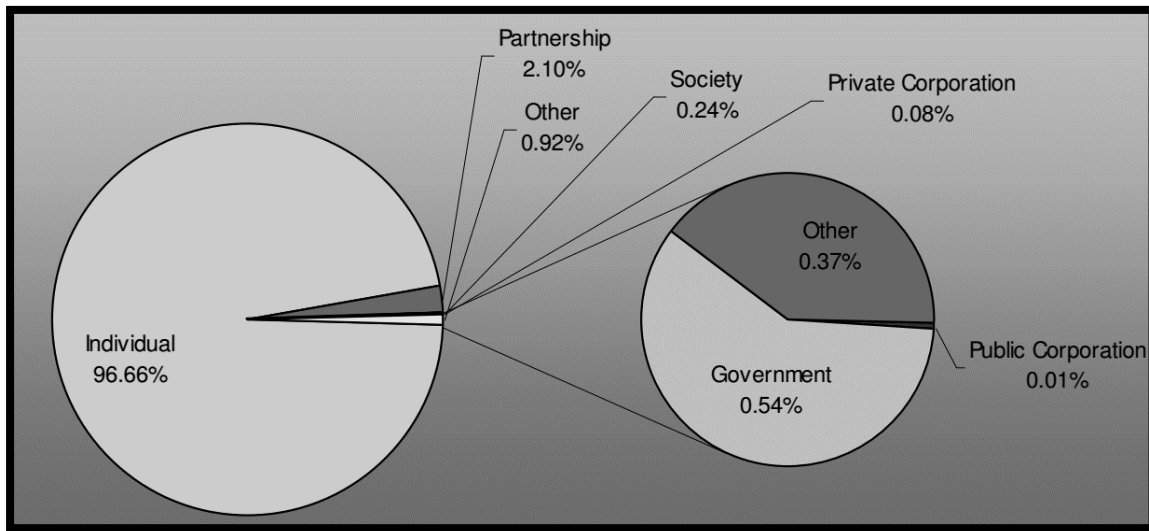


Figure 6 Types of enterprises in Pakistan (Economic Census 2005)

Most of SMEs are very small in size, which are called the “micro-enterprises”. This very small size leaves less margin for growth. These micro-enterprises are usually households and exist in rural areas. The business type is still sole proprietorship and number of employees reaches from 1 to 9 personnel.

3.2 Major sectors of enterprise activity

In Pakistan, major active sector is whole sale & retail trade and restaurants & hotels after agriculture. This sector constitutes over 50% of all enterprises in Pakistan.

Table 8 Major sectors of economy of Pakistan (Economic Census 2005)

Sector	No. of establishments	Percentage
Agriculture, Forestry, Hunting Mining & Fishing	46378	1.57%
Mining & Quarrying	713	0.02%
Manufacturing	583329	19.72%
Electricity, Gas & Water	124	0.00%
Construction	1410	0.05%
Wholesale & Retail Trade and Restaurants & Hotels	1566722	52.96%
Transport, Storage & Communication	51564	1.74%
Financing, Insurance, Real-Estate & Business Service	48440	1.64%
Community, Social & Personal Services.	659641	22.3%

Among these sectors, households have major share in agriculture, forestry, hunting mining & fishing. Other sectors require huge investments in starting a business that is why only established businesses are involved in these sectors. As production and sale of electricity in Pakistan is only allowed to WAPDA, 100% is owned by government of Pakistan. In addition construction and automotive industries have very low participation from households.

3.3 Growth of Pakistani SME sector

Most of SMEs have been using old and obsolete technologies to produce their products which resulted in low quality and less amount of production (SME Policy 2007). But due to increasing demands from exporters and implementation of ISO 9000 standard, SMEs of Pakistan needed to implement new production methods and adopt latest technological innovations (Aftab & Rahim 1986). Effect of this adoption is clearly visible in engineering industry. This industry has adopted new technologies and is getting benefits with increased sales and exports.

Gourmet Bakers and Sweets is a good example of potential of growth of SME in Pakistan. It is a big baker and confectioner chain mainly concentrated in Lahore district. It started as a small shop in Lahore with the idea of providing hygienic food at affordable price. With passage of time, Gourmet came up with new business ideas. Technology helped in implementation of these new ideas. Now Gourmet has a centralized database. Each transaction happening at an outlet is automatically stored in a centralized database.

Gourmet also has an automatic inventory order system. When quantity of an item decreases below a specific level (Economic Order Quantity, EOQ), an order is placed at head office for more inventory automatically. Now this business offers its products in 9 different categories like milk, Mithai (sweets), jam & ketchup, juices, ice cream, candies, breads, magazines for women, Nimko (mix of pulses) and mineral water. Currently it has 500-1000 employees working in 95 locations across the country. Due its adoption of new technology, it has shown fast growth in recent years.

Population of Pakistan is increasing rapidly and now it occupies the 6th position in the world's most populous countries. As GDP per capita of Pakistani nationals is increasing every year, reaching record level of 818.87 US\$ in 2014, rate of urbanization is also increasing which is 38% for 2015 (World Bank). This indicates that in coming years, demand is going to increase creating new possibilities for growth of businesses.



Figure 7 GDP per capita of Pakistan (2006 - 2015 Source: Tradingeconomics.com)

Increasing growth rates in past decades show that the prospects for bright future of small and medium size enterprises is to become a reality. This growth has been consistent and shows that it will continue in future.

Table 9 Growth rates of SME in Pakistan (Economic Census 2005)

Year	Growth rate
1989-1990	4.89
1999-2000	5.03
2000-2001	5.18
2001-2003	5.28
2003-2004	5.30

Even SME sector has played a vital role in growth of the country, there were no serious initiatives taken for support of these enterprises. As awareness is increasing, SMEs are now considered as tools for national benefits providing employment, reducing poverty, improve living standard and economic growth. Government of Pakistan has taken several

steps for growth of SME sector. An organization named “Small and Medium Enterprise Development Authority” (SMEDA) has been established. Primary objective of SMEDA is to establish policies and help improve infrastructure with other facilities to support SME's growth in Pakistan.

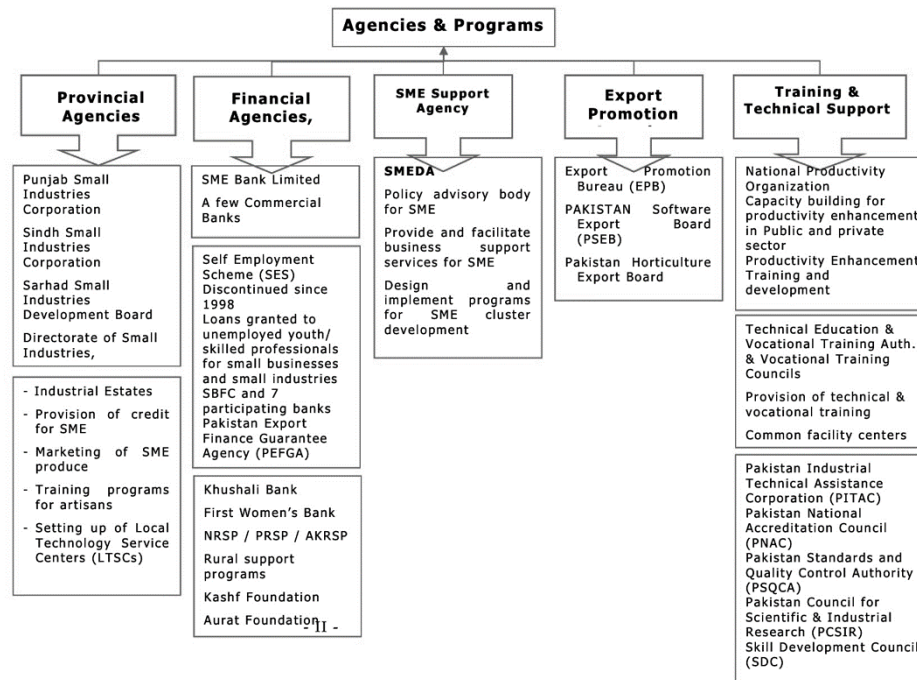


Figure 8 Business support networks in Pakistan

3.3.1 Business Incubation Center

Idea for establishment of business incubation center is to provide useful and timely information to entrepreneurs about threats and opportunities existing in the environment and help in matters inside their organizations. These business incubation centers provides services like:

- Helping in adoption of new technology innovations
- Providing help in business planning
- Helping in financial matters
- Support in marketing strategies etc.

In this regards, Higher Education Commission is also helping this sector. There are six technology business incubation centers (TBIC) established across the country. Main objective of these TBIC is to help commercialize the new technological innovations in the businesses to strengthen local industry (HEC.gov.pk Date of extraction: 22. 10. 2015)

3.3.2 *Financial support*

Because most of SMEs work in an informal status, obtaining loan is not easy for these as banks need collateral security and other formalities are needed to be fulfilled before they sanction loan. To overcome this problem, Credit Guarantee Scheme (CGS) has been introduced. Several banks, for example SME Bank, Khushali Bank, The First Micro Finance Bank, have started special services to fulfill financial needs of SMEs. These financial institutions provide discounted loans for SMEs.

Sales tax concession has also been given to SME sector. According to Sales Tax Act 1990, SME that has turnover up to PRs. 5 million, are exempted from sales tax for their local supplies. However SME is supposed to maintain books of accounts like cash book, ledger, and sales and purchase vouchers.

3.3.3 *Adoption of technological innovations*

New incentives for SMEs have been given to adopt latest technological innovations. In this regard, establishment of Technology Innovation Centers is a major step. Among its services for SME, facility services, technology upgradation, R&D and design are highly important. It also helps SMEs to protect their intellectual property rights.

One of innovation centers is Microsoft Innovation Center which is a cooperation of Microsoft and Government of Punjab. It is situated in Lahore and opened its gate in November 2012 for research and development of information technology for growth of industry in Pakistan (MSDN.com Date of extraction 22.10.2015). This innovation center offers following programs:

- Skills development – includes courses for IT professionals
- Partnership accelerator – connects organizations in IT ecosystems
- Innovation accelerator – prototypes, entrepreneurs and students joining etc.

Cloud based services are cheap and effective solution for SMEs (Coy et al. 2014). Cloud computing services have been started by Punjab government. “The motive behind this initiative was to strengthen SMEs so that they could manage their own IT infrastructure over cloud with a very low cost. This can bring revolutionary change which could eventually reduce their IT cost and minimize the man power” (PITB.gov.pk Date of extraction: 22.10.2015).

3.4 Use of IT in Pakistani SMEs

According to Gallup, 40% of SMEs have access to computers (2004). Most of these are using computers for word processing and spreadsheets for their daily operations. As the country liaison manager of SAP Pakistan, Hasan Jamal, noted “many SMEs are using a computer just to run the company's operational activities of everyday life, whereas the SME business people can use IT to forecast and even encourage the growth of their businesses forward” (www.flare.pk). Various SMEs have implemented various advanced manufacturing systems (Marri & Irani 2007).

Ahmad and Umar (2010) did a research on degree of satisfaction of IT in Pakistani SMEs. They studied 90 SMEs from three big cities (Islamabad, Rawalpindi and Wah Cantt.). They found that most of the SMEs have been using computers for an average of 5 years. They mention that “there is some degree of dissatisfaction in use of both computer software and hardware, this dissatisfaction is more marked in area of computer software”. Shahid & Manarvi (2014) are of the view that “IT adoption is the need of the SME”. So the current use of IT in SMEs is not very well comprehended but studies show that these are willing to accept new technologies for the effective and efficient use of their resources.

3.5 Digital divide and SMEs

Along with prosperous future indicators “there are also some hidden and apparent obstacles in path of growth of small and medium enterprises in Pakistan. The most important are political instability, law and order situation, financial constraints, energy crisis, taxation problems, labor issues, regulatory reforms, lack of coordination and regular information exchange mechanism among institutions, etc.” (Subhan et al. 2014). Even all SEMs in Pakistan are facing problems of lack of ICT faculties; some SMEs are more digitally deprived than others.

Penetration of ICT services go hand in hand with adoption of ERP. As the technology becomes more frequently used in businesses, chances of ERP adoption also increase, so in this section, where we study digital divide, ERP is considered as a general ICT service and its adoption as the adoption of ICT services.

The term “digital divide” has been widely used in discussions all around the globe for topics related to developing countries, since mid-90s. Digital divide is defined as “the gap between individuals, households, businesses and geographic areas at different socio-economic levels with regard both to their opportunities to access information and communication technologies (ICTs) and to their use of the Internet for a wide variety of activities”

(OECD). Digital divide is a division between have's and have-not on the basis of information and communication technologies. "A significant digital divide exists between richer and poorer countries in the use of IT and the availability of complementary assets such as telecommunications networks and skilled IT professionals" (Shih et al 2008). Because of this problem, SMEs are unable to reach the level of development and success which other SMEs of developed countries enjoy.

In developing countries, SMEs have small budgets. Bolt (2009) explains that there are two types of ICT. One is Old ICT and other is New ICT. New ICT (like computers, mobile phones and internet) obsoletes much faster than the Old ICT (like TV and radio). An SME in developing country cannot afford to buy new computer systems or software maintenance expenditures every year or internet providers are not willing to update their servers that often. This causes the SMEs of poor countries to lag behind the SMEs of developed countries.

Network Readiness Index is a "conceptual framework to evaluate the impact of information and communication technologies at a global level and to benchmark the ICT and the usage of their economies" (World Economic Forum). This NRI is a good measure to see how well ICT is penetrated in a country. Higher values mean that ICT is well penetrated in nation and people are more capable and ready to get maximum benefits from technological innovations while smaller values show vice versa. Developed countries like, Finland and Norway, are at top of the list and Pakistan, being a developing economy, at 105th position of total 144 countries. This shows that usage and impact of ICT in Pakistani economy is very low.

As observed by Laukkanen et al. (2007) that all SMEs do not possess same characteristics, similarly all SMEs of Pakistan are not homogenous either (Nausheen 2007). There exists a digital divide among these SMEs.

3.5.1 Location of SME

One of the most important reasons for divide is the geographical location of the SME. SMEs that are located in big cities have good access to ICT services generally and ERP suppliers specifically. Most of the famous ERP vendors (such as SAP, Oracle, and Microsoft etc.) and ERP consultancy firms (for example Sidat Hayder, Systems Limited Pakistan and Mazars Pakistan) have their offices only in the big cities like Karachi, Lahore and Islamabad only. Whereas the SMEs of rural areas have very limited options of ERP vendors to choose from, if any.

In Pakistan, local suppliers are also playing their role even these are limited in numbers and small in size for example, cloud based ERP service provider BizzTrax, NetHawk, SolutionDots, Hisaab.pk, Generrixsol, Wizmen with others are trying to fill this gap.

3.5.2 Access to infrastructure

There are differences among SMEs as all do not have equal access to infrastructure for example availability of electricity, condition of roads, telephone lines etc. Some have better access to infrastructure than others.

Developing countries are facing severe electricity shortages. India, Pakistan, Indonesia and all other developing countries have the same problem. According to World Bank, the biggest problem faced by the businesses in Pakistan is to get electricity (World Bank 2014).

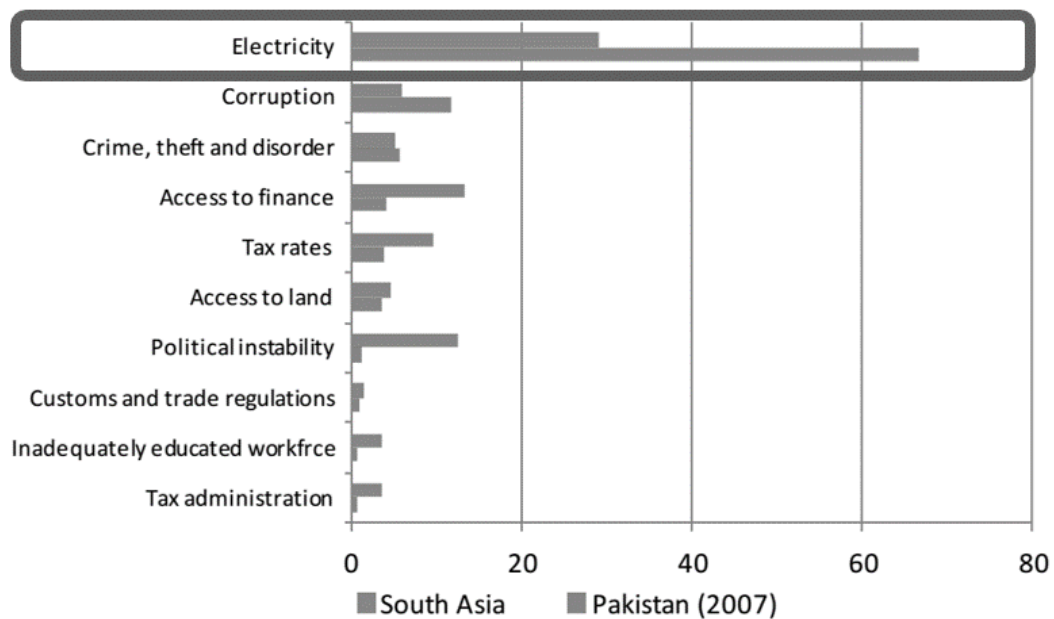


Figure 9 Problems of doing business in Pakistan (World Bank 2014)

In Pakistan, electricity shortfall had reached to 5500MW in June this year and households were deprived of electricity for up to 18 hours in a day (DunyaNews.tv Date of extraction: 09.08.2015). In absence of steady supply of electricity, “sustainable development and competitive edge may be hard to come by in a world of fierce competition” (Agbeja & Salawau 2007).

One other fact here is that the corruption is at second position. In fact, this electricity short fall is itself a result of corruption. As the WAPDA has monopoly, there is no competition in the market. All projects for electricity production are decided by government of Pakistan. There have been lot many scandals where politicians gave contracts for electricity production or its distribution on their personal preferences or other money related scandals. One of examples is famous Rental Power case in which minister of power and water got loan for power plants but it was never used for those plants. Similarly inability

of engineers was also most visible when they had ordered machinery with wrong specifications resulting in loss of millions of rupees to the country.

3.5.3 Caste system

Noticeable differences were found in access to ICT based on caste of person in Pakistan (Abdullah 2015). Helmerson (2010) is of the view that to study growth in this region, study of culture was of high importance. Caste system in sub-continent started in early 15th century BC when Aryan came here from Central Asia. Four basic castes were found in the Hindu religion (Farooqi 1999):

- Brahmins: most people from this caste were priests and teachers
- Ksatriyas: belonged to warriors and rulers
- Vaisays: included farmers, merchants and artisans
- Sudras: lower labor and mostly indigenous people

These castes were hierarchically divided. These castes are also known as “varnas” which are based on color of the skin of a person. Kameswari et.al (2011) named these castes as “sociocultural context”. These castes are also visible in current Pakistan.

“In Pakistan the caste system is known as zaat/biradari. Zaat (meaning person or personal) is the jati and biradari (meaning brotherhood) is the collection of related jatis (Ian 1996). Zaat shapes people’s everyday lives. The occupation one is likely to have, the place where one is likely to stay, and the people one is likely to associate with are greatly influenced by the zaat one is born in (Andrew 1999). Biradari has a bearing on more macro issues like electoral politics (Manan 2008).” Abdullah (2015)

Abdullah (2015) classified the castes into two basic types currently existing in subcontinent. First is the “new castes” such as Rajput, Jutt, Arain, Gujar and Tarkhan which were basically converts from Hindus. The second is “old castes” such as Sayyed, Pathan and Baloch which moved to subcontinent from Arabia, Turkey, Iran and Afghanistan. The “new castes” were basically converts from Hindu religion whereas “old castes” were the people who came to region as Muslims. People who belong to “old castes” are also called “Ashraf”. This is plural form of an Arabic word “Sharif” which means “respectable person”. Study summarized that the new castes did not had as much access to ICT as compared to the old castes. It implies to the adoption of ERP context as the SMEs that are owned by these old castes have more chances to adopt ICT technological innovations in general than the new castes.

3.5.4 *Digital inequality*

The digital divide in SME's is not only about access to ICT services but also includes the “second level digital divide” or “digital inequality” (DiMaggio et al. 2004). The second-level digital divide also took attention of many researchers (Min 2010; Zeng 2011; Ritzhaupt et al. 2013). Second level divide or digital inequality means that there is availability of ICT technologies to certain demographically associated organization but usage of this technology is limited.

This second level digital divide is specifically visible due to lack of skills to use IT in developing economies. In Pakistan, where SMEs that have access to ICT technological innovation but managers don't use the technology to full extent or they are not willing to use that technological innovations to get maximum benefit (Shahid & Manarvi 2013).

4 CHALLENGES OF ERP MARKET IN PAKISTAN

The penetration of ERP systems in developing countries is very shallow. In spite of its claimed benefits, adoption is very slow. Only 7% of total ERP market exists in whole of Asia (Rajapakse & Seddon 2005). ERP adoption is a complete full fledged IT project. Its implementation requires large amount of commitment and resources of organization. In large organizations, abundance of resources and knowledge makes it easy to adopt ERP. In small and medium sized enterprises, limited availability of resources and lack of skill and knowledge are big constraints. That's why, adoption of ERP in a SME is different than a large organization (Laukkanen et al. 2005).

Large organizations in Pakistan, that have adopted ERP system, are most of government departments such as implementation of Oracle in Sui Southern Gas Company (Oracle.com Date of extraction: 13.10.2015), SAP in National Bank of Pakistan (SAP Pakistan) or subsidiaries of multinational corporations (MNCs). For example implementation of Microsoft Dynamics AX in American firm Pepsi Cola Inc., which had sufficient money to buy software and enough time to make necessary changes to organizational processes.

For SMEs, adoption of ERP in Pakistan is still in early stages. Sidat Hyder Management Consulting is one of most renowned ERP vendors in Pakistan. They have successfully implemented ERP solutions for many large organizations. According to them, it is true that ERP has been implemented by large companies, but "incremental improvement in information technology and drastic reduction in prices of computers has made it possible even for small-to-medium size organizations to implement ERP solutions". (Source: SidatHyder.com.pk Date of extraction: 13.10.2015). Similar studies are conducted in other developing countries like South Africa (for example Mukwasi & Seyumour 2012), Iran (for example Bavarsad 2013), Jordan (for example Bitsini 2015), and India (Karimi et al. 2007) to mention some.

Table 10 Some ERP vendors from Pakistan

Traditional ERP vendors	Cloud based ERP vendors
Mazars Pakistan	Hisaab.com
Systems Limited (Microsoft & Oracle)	BizzTrax
Sidat Hyder	Generixsol
Efro Tech	Wizmen
Mantaq System (Microsoft)	Rivet solution
Inbox (Oracle)	Mazars Pakistan
KalSoft	SAP Business Once Cloud

4.1 Lack of management commitment

R. Khan et al. (2009) observed that “transformational leadership had a significant and positive effect on organizational innovation”. Poor management is a “serious impediment for developing countries” which stops them from adopting new technologies.

Most of SME's in Pakistan are sole proprietorships. So managers are usually owners of SMEs. They make decisions on their own of business affairs. Alam and Dubey (2014) did a study on manufacturing textile / garments firms in Pakistan to know if the innovations of managers had any impact on adoption of new innovations. They say that “the owners/manager's general innovativeness and product-strategy innovativeness have direct and positive relationship... with the adoption of product innovations”. But usually management of small and medium sized enterprise in developing countries is not aware of future challenges. They do not have clear vision for their organization. Ghani (2006) studied adoption of ERP in SME's of Pakistan. He says that management does not have ambitious future plans for their organization. They are uncertain about happenings in environment and inside their organization. Managers are not optimistic about future. They see sales falling down in future. Neither have they had sufficient knowledge nor do they have skills to process information necessary for predicting future (Steven et al. 2007). Koh and Simpson (2010) also found that management lacks expertise and knowledge so they hesitate to adopt ERP systems. This lack of vision and unawareness makes adoption of ERP difficult.

4.2 Lack of skilled labor

Most of ERP systems are designed in US and European countries in foreign languages and not in Urdu, which is their graphical use interface (GUI) is in English or some other language (like German or Finnish) for example (Rajapakse & Seddon 2005). With high literacy rates, people in developed countries are educated and skilled enough to handle these complex systems, so it makes easier for companies to adopt ERP. While on the other hand, in Pakistan low literacy rate comes out to be a big hurdle in low adoption of ERP software. According to Pakistan Economic Survey (2014-2015), literacy rate is getting worse and it has fallen 2% in year 2013-2014 (Tirbune.com.pk Date of extraction: 17.09.2015). Lower literacy means that people are not able to handle latest technological innovations, are not equipped with sufficient knowledge and skills, especially IT skills. That is why, about 40 percent of the SME's manager / owners in Pakistan are of the opinion that there is "lack of skilled workforce" (Majid et al. 2012).

There are very few training institutions for workforce of SME. These intuitions are:

- Pakistan Institute of Management Sciences (PIMS)
- Technical Training and Vocational Authority (TEVTA)
- Provincial Vocational Training Councils
- Skill Development Council etc.

In addition, manager also does not consider training of employees as an important factor (Steven et al. 2007, Abbas 2013). Inspiring work done by Abbas (2013) mentions that employees are neither well informed nor trained when firm adopts any new technological innovation. This makes it even difficult for employees to use new technology causing them to feel disappointed and with low morale (Marri, Gunasenkarana & Sohag 2007).

It is difficult for a SME to access skilled labor pool. Jääskeläinen and Savolainen (2003) studied human development / good citizenship from network competency perspective. Competency corresponds to sum of knowledge and skill, where as "network competency can be associated with all kinds of activities taking place in electronic networks, ranging from tele-voting and online shopping to designing one's own home pages". This lack of network competency has been considered one of the big hurdles for growth in developing countries. Without network competency, a citizen can neither participate in the society nor can get personal autonomy. Pakistan is at 146th position in HDI list according to the UNDP (Source: UNDP.org Date of extraction: 11.10.2015). This shows why it is difficult for the SME in Pakistan to find skilled labor force.

4.3 Less emphasis on IT

Small and medium sized enterprise does not give proper attention to IT (Ghani 2006). They have limited amount of funds for which they have several uses. In process of budgeting, IT gets less attention. Funds located for IT are not sufficient for adoption of new technological innovations.

About 70% of SME's have 15-20 years old machinery (A. Majid et al. 2012). This also refers to the unskilled and vision less management. Steven (2007) did a research on 265 SME's of Pakistan. He found that a large percentage (42%) of managers / owners of SME's considered IS as "not important" for success of their business. Although decision to invest in IT has proved to be fruitful. Study on 650 SME's from 10 districts (total of 72) in Pakistan showed that management that used computers for collection of information had shown good overall health of SME (Khurram et al. 2007). Another study found that "the SME's where the Internet adoption rate is more frequent are better placed in the market in terms of market share, external linkages and market reputes as compared to those where Internet usage in term of business activities is lesser" (Akhtar et al. 2014).

In Pakistan, IT is considered as a luxury than a necessity. The same was observed by Kamhawi (2008) in Bahrain. He mentioned that management did not give higher place to IT on their priority list. They considered other activities to be much more important than enhancing their IT capabilities.

4.4 Lack of benefit realization

As ERP project is resource intensive projects, there needs to be justification for getting funds for it (Altinkemer et al. 2011). Research shows that benefits obtained by adopting ERP are spread all over organization. It organizes, regulates, controls and develops business processes of whole organization. It is very difficult to calculate benefits which could be associated only with ERP adoption (Staehr et.al 2012). One of the reasons is that the ERP controls the whole organization and all of its processes. As efficiency of these processes depends on lot of factors, the measurement of benefits obtained by ERP is not an easy task.

Altinkemer et al. (2011) found that when organizations go for large scale changes in business processes, benefits for these changes are not visible at start of these projects. They discovered that benefits start to appear as organization starts using it, with passage of time. While on the other hand, Arsalan (2006) advocated that management of SMEs in Pakistan, is not able to do future planning very well. It means that when ERP projects are implemented, benefits do not show up at the same time. They appear after it becomes of

daily routine but due to lack of vision of the management, it is unable to realize the benefits which might have been obtained after implementation of ERP system.

Studies that focused on ERP benefits (such as Shin 2006 in Korea, Kamhawi 2008 & Anaya & Olson 2013) in SMEs of other developing countries are of high importance in this regard. These studies help SMEs to understand the potential benefits of ERP systems.

4.5 Availability of software companies

As in developing countries, people do not have high incomes and businesses do not possess large amounts of capital funds, demand for expensive IT products is much less than that in developed countries. Sales of ERP in developing countries make about 10% to 15% of the global sales of ERP systems (Hawari & Heeks 2010). Due to this reason, SMEs in developing countries are left with fewer options to choose from. Caldeira and Ward (2002) found that this is particularly difficult for SMEs to find good IT service because these are usually situated in less accessible areas or far from major city centers.

The study conducted by Wang et.al (2006) found that ability of consultants was of high importance for successful implementation of ERP systems. Similarly in Pakistan, possibility of finding qualified IT experts is limited. This was also seen in Ireland in late 90's. Employment was reaching to its full due to influx of multinational firms. There was a huge demand for professionals with IT skills at all levels of IT departments. But there was lack of talented young professionals, especially with IT skills (Butler, 2002).

5 METHODOLOGY

Methodology tells us about the way the researcher will go and study the phenomenon of interest. According to Silverman (2005), in social science research, research methodologies can be divided in two categories: quantitative and qualitative. In quantitative research, hypothesis is tested with the help of large amounts of data while qualitative research is used for analyzing an idea or concept in detail.

5.1 Qualitative research

Qualitative research is most appropriate selection for this research because it “helps researchers understand people and the social and cultural contexts within which they live” (Myers 1997). And the topic of benefits obtained by ERP adoption involves human experiences, cultural dimensions of the contextual environment, includes users and the use of technology and problems faced. In addition, there is limited amount of data and purpose of the research is to dig deep and get insights into the reality (Trochim 2001). These all factors call for the qualitative research.

5.2 Mode of analysis

The data analysis is better termed as mode of analysis for qualitative research as data collected is most of the times non-numerical in qualitative research (Myers 1997). Mode of analysis used for this research is content analysis. In this content analysis, Shang & Seddon (2000) framework was used to guide the analysis. Results were counted based on the themes mentioned in that framework.

5.3 Data collection

A total of 94 SMEs were contacted for data collection out of which 7 offered answered to the questionnaire. These SMEs belonged to different sectors of the economy. SMEs were interviewed through Skype and through regular phone calls. Phone calls were recorded with permission of the respondent using Audacity (freeware). Phone calls, which were in Urdu language, were then translated into English language. For transcribing interviews, online software Transcribe (URL: <https://transcribe.wreally.com/>) was used. A document containing the transcript of these calls was stored with help of Microsoft Word 2013.

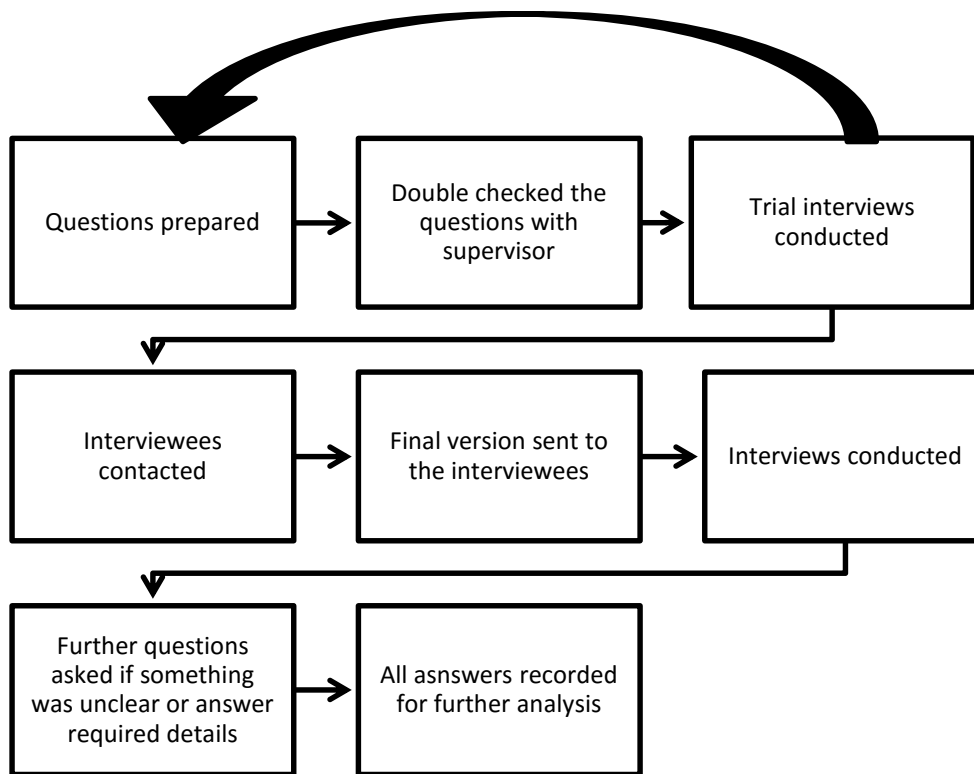


Figure 10 Interview process of this research

Email was found to be most inappropriate tool for data collection. 55 firms were contacted over a period of two months. Two responses were received but the firms were not willing to participate. So the participation rate from emails was 0%. 20 SMEs were contacted via normal telephone calls, Voice over Internet Protocol (VoIP) and Skype. Out of these, 15 (75%) firms refused to participate; participation via telephones was hence 25%. LinkedIn Premium was also used for data collection. 19 SMEs managers were contacted via InMail from which 2 accepted the request to participate. Telephone calls were then scheduled to conduct interview.

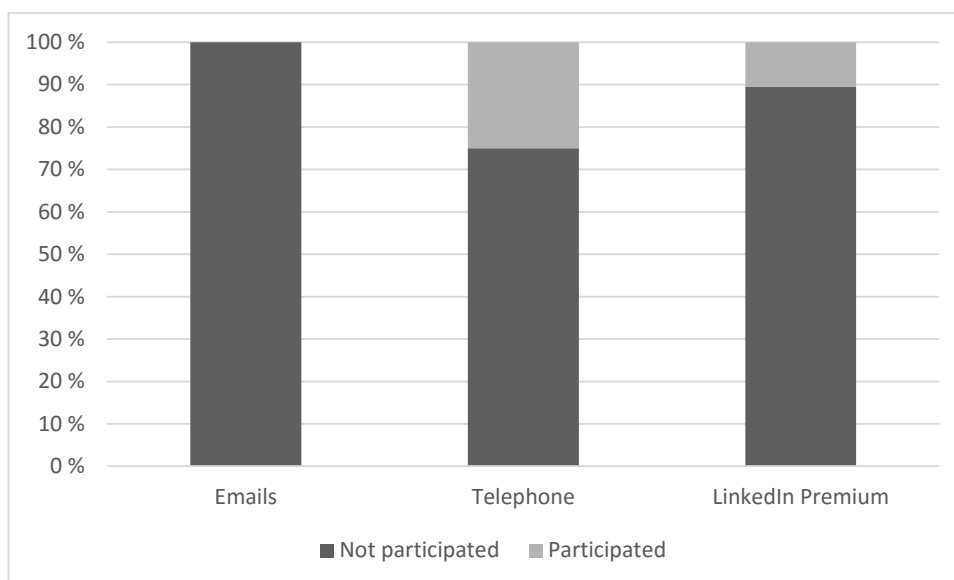


Figure 11 Data collection mediums and respective response rate

From above chart, it is clear that most effective medium for data collection from a geographically distant area, is to use direct telephone service which had highest response rate. It was most expensive method and sometimes caused disconnections during call since international call rates are very high and telecommunication system is not yet highly developed in case of Pakistan.

When emails and LinkedIn are compared, LinkedIn had produced higher participation rate where in both cases text messages were sent. One reason for this is that managers and staff members were contacted directly via their LinkedIn profiles while on the other hand, emails were sent to email addresses mentioned on website of SME. InMail provided more options to personalize messages according to recipient's interest as for example, profile of manager provides more information about his expertise and experience, project he / she has been working on, employer history etc. This personalization of the message gets more attention of receiver than an email which is directed to a customer care service representative at first and then to the manager. From researcher's point of view, this is of high importance as it provides better understanding of medium of communication and it's effective. It can save a lot of time of the researcher during the process of data collection.

One other major factor in data collection was that most of the managers were very much occupied in their daily tasks and it was very difficult to get time from them for the interview. But once they agreed to participate, they gave proper attention and provided very useful and detailed information. When asked to share their annual sales and other sensitive information, they were reluctant and most of them refused to answer.

5.4 Profile of participating SMEs

Demographics of the participating SMEs show us the background information for research results. One can better understand results by knowing the demographics. Organizations for this research belonged to different sectors of the economy of Pakistan. Most of SMEs in Pakistan are owned by a single person and it is showed in this research also where 5 of the interviewed 7 SMEs are sole proprietorships. Export activity of the SME was also asked. Almost half of the SMEs interviewed were involved in selling good to foreign markets.

Annual revenue was most unanswered question, over half of the participants refused to answer. Some told that they needed permission from board of directors to give this information as this was very sensitive. This is different from other countries like Finland where it is public information. The reason for this is that the law of Pakistan does not require unregistered SMEs to disclose their sales to general public. In addition, SMEs are afraid of disclosing their sales because they fear that the competitors will know their sales. And then there is religious aspect also. In Urdu language it is called “nazar lagna” which means “evil eye”. Some people believe that if they have achieved success and if they brag about it or tell others about it, they will face downfall again.

All of the managers were of the opinion that they adopt technology soon after it has been in market that is they belong to the early adopters group.

Table 11 Profile of participating SMEs

Firm	Business sector	Ownership type	Number of employees	Technology adoption	Exports	Revenue
RF1	Retail and whole sale	Subsidiary	120	Early adopter	No	175m
RF2	Construction	Sole proprietorship	No answer	Early adopter	Yes	No answer
RF3	Manufacturing	Sole proprietorship	350	Early adopter	No	No answer
RF4	Retail & Whole sale	Sole proprietorship	No answer	Early adopter	No	No answer
RF5	Construction	Sole proprietorship	60	Early adopter	No	161m
RF6	Retail & Whole sale	Sole proprietorship	5	Early adopter	Yes	No answer
RF7	Manufacturing	Subsidiary	150	Early adopter	Yes	No answer

5.5 Demographics of interviewees

Respondents were interviewed irrespective of their gender. Bigger part of the respondents was male (6 out of 7) as observed by other studies (Shahid & Manarvi 2014) that male participation in enterprises is higher than females. Interviews were conducted to get insights into the perceptions of all types of managers about their ERP software. So there was one of each account manager, IT manager, Inventory control manager, Assistant IT manager and two finance managers.

Table 12 Demographics of interviewees

Interviewee	Designation	Gender
RF1	IT manager	F
RF2	Assistant IT manager	M
RF3	Assistant IT manager	M
RF4	Accounts manager	M
RF5	Finance manager	M
RF6	Inventory control manager	M
RF7	IT manager	M

5.6 Ethical issues in this research

Researchers say that ethical issues are always to be considered while doing the research, especially in case of qualitative research. “All researchers should be honest about their data, their findings, and their research methods” (Myers 2013 p.50). This research followed the guidelines mentioned by the researchers.

In qualitative research, researcher has to interview respondents and so being in direct contact with human beings, researcher should take great care of its behavior. There is a possibility that researcher might, unintentionally, hurt any respondent. So during conducting the interviews, this was kept in mind that interviewee does not say anything unpleasant which might be painful or hurting for respondent. Free will of respondent was confirmed at first. Respondents were informed that the call will be recorded for further analysis, in case telephone calls were used. It was possible for interviewee to stop the interview at any time without explaining any reason. Respondents were informed about their right to skip any question which they are not willing to answers.

The privacy and anonymity of respondents was also considered. To maintain the privacy, firm names have been called with arbitrary names and actual names have not been used. Similarly, respondents are also called with arbitrary names.

6 RESULTS

6.1 Use of ERP in SMEs

Use of ERP has been shown to increase in recent years. The statements below show that now managers are aware of the need of ERP and its qualities. They are willing to adopt ERP and consider it as an essential part of the SME.

“ERP products offer benefits; it can update the entire company into one business process of any type of company. No doubt that without ERP, I feel, no company can run in this era, efficiently and effectively especially SME.” (RF7)

“Testimonials show that ERP is the best”. (RF2)

Data analysis reveals that the implementation of ERP in SMEs had been quite recent. 5 of SMEs had implemented ERP in last 1-3 years. One SME had been using SAP for 5 years. This was also mentioned by one of the respondents:

“Four to five years ago, there were three to four vendors here in Pakistan. Now more companies are involved in ERP systems and lot of the products are there in the market like open source ERP are also available, like Pioneer systems, and other ERP”. (RF7)

“As 5-10 years back SAP had more failures in Pakistan as compared to today. Today they have more success factors in Pakistan. If they have the success rate higher, they (other SMEs) will definitely go to invest more money (in ERP systems).” (RF2)

SAP has been the most famous ERP software among the SMEs investigated in this study. 4 of 7 SMEs interviewed implemented SAP. Other ERP software of Microsoft Dynamics and PeopleSoft are also implemented. One pharmacy had implemented in-house ERP.

“We have implemented SAP or we could have implemented Microsoft Dynamics easily with one forth cost of that. We have spent in hardware as well as in software during implementation. We have Linux based OS because of security. We had to implement different sorts of firewalls and security settings because of SAP”. (RF2)

And when asked about the reason for this i.e. for choosing the expensive SAP rather than Microsoft Dynamics:

“Yes it is expensive but as I told you earlier that people inclusive of FBR, our Federal Board of Revenue officially ... People have reliance on SAP because people know that you cannot hide anything and you cannot do ‘hanky phanky’ that is why we are getting more benefits from this (SAP) than that (Microsoft Dynamics)”.(RF2)

Several modules had been implemented by SMEs Financial module, Sales & Distribution (SD), Product Planning (PP), Material Management (MM), Human Capital Management (HCM), Supply Chain Management (SCM), Inventory management, Payroll management, Quality Management (QM), Plant Maintenance (PM). Among these modules, Inventory management module had been adopted by all SMEs. Second most adopted module was Finance. Least adopted module was the Quality Management.

6.2 Enablers of ERP

From respondents’ point of view, adoption of ERP is getting deeper and deeper with the passage of time and in future it will be more penetrated.

“I think the future is bright... People are going and looking for alternative systems and more and more vendors are involving in this business. I think in the coming years it will be very bright future of ERP in Pakistan” (IT Manager).

SMEs have been getting advantages from implementation of ERP. Benefits mentioned by SMEs have been classified under five main categories. These categories have been mentioned by Shang & Seddon (2000) and are used here for data analysis.

Table 13 ERP benefits findings derived from the respondents interviews

Benefits dimension	Fre- quency	Quotations from respondents
Operational benefits		
Cost reduction	6	<p>“Expenses are much lower after ERP. Its advantages are much higher.”(RF5)</p> <p>“And as far as experts say, if you have implemented ERP within few years, you are better in many ways and in some years you will get ROI 100%.” (RF2)</p>
Cycle time reduction	3	<p>“ERP helps in the entire process of order placement, GRIN processing, lot and expiry management, inventory transfers and ROP/ROQ management, return to vendor etc.” (RF1)</p> <p>“Yes, off course. It is very good to manage inventory”. (RF4)</p>
Productivity improvement	3	<p>”We have optimized the entire process of production (with).” (RF7)</p> <p>“... greatly helps with inventory and supply chain management.”(RF1)</p>
Customer services improvement	1	<p>“PS (ERP) helps in both aspects of it. As we have recently piloted the dynamic inventory modules for reordering and stock maintenance that use weighted average of last few month’s consumption to adjust the inventory levels hence the seasonal effect and baseline consumption both are addressed. Our fill rate increased from 93% to 96%.” (RF1)</p>
Reduction in errors (like data, typographical)	1	<p>"Before its (ERP) implementation, the costing was done on excel sheets and data was collected manually from each department ... causing delays and sometimes errors in costing." (RF7)</p>
Improvement in speed of transactions	2	<p>"...after implementation of SAP all the expenses like raw materials, sugar cutting expenses, labor expenses all expenses we can see in real time." (RF7)</p>
Reduction in corruption	2	<p>"Employees cannot do cheating- attendance register works with finger prints and is linked with payroll. So employees cannot mark wrong entry or exit times." (RF5)</p>
Managerial benefits		

Better resource management	6	<p>“Inventory is big problem. We have managed with PP and PM.”(RF7)</p> <p>“FICO is very important, each and every document goes to finance and basically our payment and invoicing, both depend on FICO and all taxes.” (RF2)</p> <p>“Most important thing in pharmacy from software is that the medicines which are under control category, meaning narcotics category, for which you have to maintain all the records, it (ERP) is very effective at that time. Otherwise we have to maintain every record. It means that we store all the details about the prescription like doctor name, patient name, patient address and other things which are secret, you can maintain these also in ERP” (RF4).</p>
Improved decision making and planning	3	<p>”... you get very good reporting that you can do future planning.” (RF4)</p> <p>“Yes definitely, because we have planning tool in ERP. We can plan 6 months, a year, two years, easily we plan and prepare our budget. We can do the forecasting, which is mostly unavailable or if available it is not as advanced as in SAP... That is very good idea to do the long term planning, what the challenges outside your company are and how ERP is helping.” (RF2)</p>
Performance improvement	3	<p>”Production planning was very weak before implementation of ERP system.” (RF7)</p>
Reports and financial statements	4	<p>“We are able to make our financial reports in given time, and reports are generated very quickly very fast, people are going to rely on these.” (RF2)</p> <p>“... and also at the end of month, we just execute few steps to actualize the costing and management can now get product costing in second and third period of each month of month costing”. (RF7)</p>
Strategic benefits		

Support business growth	1	"We are working on project on the work flows, we are starting ourselves working on PM, QM". (RF2)
Generate product differentiation (including customization)	1	"We can now change the construction project according to the customer's demands easily."(RF5)
Build external linkages (customers & suppliers)	2	"Yes, communication with our suppliers regarding their payments is now very good, every supplier has individual account, and rest liaison is with procurement department." (RF4)
Better information quality	2	"Your material rejection and your loss cannot be reported in terms of cost if you don't have ERP." (RF3) "It helps us a lot because it give us a clarity through all the management, where stock is, where finances are." (RF2)
IT benefits		
Build business flexibility for current and future changes	3	"We are exploring the vendor managed inventory (VMI) option and Barcode traceability of received lot and expiry dates on the medications." (RF1) "We are looking forward on that, once SAP is there we have our 15-20 years plan to go with SAP." (RF2) "... about a year ago we have implemented, so we might need new software after 2 or 3 years as there are dynamic changes always happenings.". (RF4)
Increased IT infrastructure	1	"I have implemented three ERP implementations in the same company, two are basically tier 3, and those are in-house tailored made ERP and which I implemented. I transform this company to first time that ERP based software which is Oracle based." (RF2)
Organizational benefits		
Built common visions	1	"Yeah, like I told you, there are some changes, there are some scenarios we have not basically imagined that those will also become reality, but once they came into our scenario then we have to do little bit processes. We have to lot of changes in management in our company. Lots of different people have different role." (RF2)

Harmonize interdepartmental functioning	3	"We basically neutralize all clashes, all interdepartmental issues (among line managers)." (RF2)
Business learning	2	"When you do the manual ordering you do not have any idea, the history is unknown and you are just guessing, but with this (ERP) you can just set the 3 months or 6 months and you can see the history and can make better ordering." (RF4)
Better focus on core processes	2	"Fill rates and inventory turnover rates are most important factors when pharmacies are compared, if this is not proper that would have a direct impact on prescription fill rate and inventory holding cost etc. respectively." (RF1) "Our production is most crucial if there is no production, there is no sale, and there is no procurement." (RF2)
Satisfaction of employees	2	"Our users are too sharp, too maintained. They know the learning." (RF2)

It is visible from the table that two most important categories for managers are operational benefits and managerial benefits. All respondents mentioned some sort of operational advantage in their answers. Second comes managerial benefits continuing with strategic benefits at third. Least advantages mentioned by managers are related to IT.

In operational benefits category, cost has been most important. All of respondents mentioned that costs had been reduced after implementation of ERP. After that, cycle time reduction, productivity improvement and reduced corruption are also mentioned. One of the IT managers mentioned integration of finger scanner for attendance system with the ERP system. Reason was that people had been using paper based attendance for their own benefit and marking wrong timing on paper based attendance register.

After operational, managerial benefits category found attention of respondents. One of the major factor here is reports creation. 4 of 7 respondents mentioned that they get clear and fast reports which lead to improved decision making and planning. All SMEs saw better resource management.

Strategic benefits mentioned by Shang & Seddon (2000), all have not been observed by many respondents. Only 4 main factors have got the attention of respondents. From these, support for business innovation, support for business alliance, build cost leadership were not mentioned by any of the respondents.

Respondents were of the view that they get IT benefits from adoption of ERP as they found it easy to implement future technologies and integration with existing IT infrastructure. This ability of ERP to integrate with other technologies also helps business to grow flexibility. No one said that they had reduced IT costs after implementation of ERP.

Finally among organizational benefits, inter-departmental harmony had been of high importance. Factors here are more equally distributed as compared to operational benefits.

6.3 Inhibitors for adopting ERP

These inhibitors discourage SMEs for adopting ERP and hurdle for benefit realization of ERP implementation. Data demonstrates that large part of the respondents were of the opinion that major problem with their ERP had been lack of user friendliness. This lack of user-friendliness means that ERP software was not customized according to the business needs.

“Many options of PS are not at all user friendly – e.g. it takes 5-6 steps to perform before you take out a single print of your inventory transfer report. That can be simplified for more agility and efficiency in the process”. (RF1)

One interesting finding is also that only two respondents mentioned that lack of infrastructure was a problem when they mentioned quality of education and transportation in Pakistan.

“...because in Pakistan we don't have much quality in education institutions which could provide good quality education or training sufficient for this”. (RF7)

Consultants' quality has also been one of the important factors. This is clear from data that SME is not satisfied with quality of ERP consultants. Along with this, availability of ERP software companies was not considered as a problem.

“We have choices (of ERP vendors) but I don't think so that in Pakistan we have such quality of ERP vendors and ERP consultant.”(RF7)

“Some consultants are more on technical side but they cannot teach. You can take two consultants that are teaching and training – one do the training on one module and other person will do the technical settings on the same module. So this is basically the responsibility of the project managers and technical persons”. (RF2)

Lack of management commitment is also clearly visible but it was observed that managers had ideas about need for ERP. From the respondents' point of view, implementation project of ERP, needed financial and human resources along with time from both SME and consultants. This resource intensive activity inhibited SME to implement needed ERP modules.

“PM and QM (modules) have not been taken by us, because we didn't have had time and people were very busy”. (RF6)

And this leads to next finding that SMEs had no plans to implement any further ERP software in near future except two which mentioned that they are planning to enhance their ERP with the help of barcode readers for traceability of item and addition of PM and QM modules for plant maintenance and quality management.

When asked about the reason why they have adopted SAP, one of the managers said that they have implemented SAP because:

“Fortune 500 companies use SAP.” (RF2)

It is not a logical reason for adoption of SAP, or ERP in general. Each firm has its own limitations and requirements. Comparing a SME in Pakistan working in a limited geographical area with multinationals of top Fortune 500 companies, is not a very logical answer. It means that managers are trying to say that they are not to be held accountable if ERP did not work well for their business. This kind of attitude is not good for business as it diverts the focus of ERP implementation to outside instead of their own business requirements.

Table 14 Inhibitors of ERP derived from respondents interviews

Dimension	Frequency	Quotations
Lack of skilled workers and poor training	2	"... they have to offer lots of free training sort of training or very cheap based training so people will train themselves". (RF2)
Lack of benefit realization	2	"We are using older software, it is sufficient for us." (RF6)
Lack of user-friendliness (customization)	5	"...business requirements are not fulfilled. If there will be a hole in the business process (after ERP implementation) then company don't get the benefits more according to their need... more customization will be involved if gaps will be there." (RF7)
Fear of failure	1	"It's a fear, people don't want to spend money because of fear." (RF2)
Consultants abilities	2	"One of challenges in Pakistan, the consultants of SAP or ERP consultants are not skilled, lack of knowledge, and other things." (RF7)
Expensive	3	"I observed that ERP is too expensive especially SAP is too expensive and in Pakistan most of the industries cannot afford these high valued products. This is bigger challenge. Most of the companies who want to switch to ERP systems, they cannot afford due to the high costs. So I think the main mega challenge, the number one challenge is the cost factor." (RF7)
Infrastructure	2	"From my point of view, poor transportation is a big challenge." (RF3)

7 DISCUSSION

In this section, results obtained to answer the research question, are discussed from different perspectives. This section details the reasons why SME mentioned the benefits what they mentioned, obtained from ERP. After this, inhibitors are discussed leading to possibilities to improve.

7.1 Operational benefits

Operational benefits are obtained in day-to-day operations of business. This category of benefits involves reduction of costs, reduced cycle time, reduction in errors, and productivity improvement among others.

Results from this study show that, for Pakistani SMEs, operational benefits have been the most important part of benefits mentioned by six respondents. Interviewed companies belonged to different sectors of economy but still all of them had implemented inventory management modules. This is one of the reasons that why responses were more inclined towards daily operations of businesses.

Among these operational benefits, costs related benefits have highest number of responses. These are basically inventory related as inventory was better managed by SMEs with the help of ERP. Current levels of inventory were automatically checked against a desired level. Orders for new inventory were sent automatically to head office. It resulted in faster purchase orders and better management of inventory for head office. It reduced costs of inventory holding, warehouse costs, labor hours and other inventory related costs. As inventory was better managed, SMEs were able to conduct transactions faster, orders were filled rapid and customers got their items quickly.

Cost related and quick information access are easily recognizable due to their easy visibility. This shows that managers at Pakistani SMEs are more focused on quick results. They want to see output of their investments immediately. This finding is visible in other studies also, like Everdingen et al. (2003). In cultures that have low long term orientation (LTO) scores, adoption of technology is slower than the cultures with high LTO scores. In Pakistan, people have low LTO sores as they are more concerned about their current and short term situations and have low tendency to plan things for long term future. This is the reason why managers are short sighted.

Another interesting finding in these operational benefits is reduction of corruption with help of ERP implementation. Although it looks like a small step to use finger print scanner for attendance system and its integration with payroll system, but this is a very important benefit considering that Pakistan is facing worst corruption all over the world. In 2015, Pakistan had 117th position of 168 nations in the world ranking for Corruption Perception

Index (Transparency International Pakistan). Corruption and bribery are well known problems of Pakistan. Similar study by Wadho (2015) also showed that corruption in Pakistan is affecting the country badly. So adoption of ERP was a good choice to solve this problem or reduce its effects.

ERP also helped in removing deficiencies in their financial statements producing clear and reliable information about their business operations. There was a change in law in 2008 in Pakistan. According to this amendment, registered SMEs were required to implement new Internal Financial Reporting Standards (IFRS) of accounting for maintaining the records and publishing the financial statements. It was made possible by adoption of ERP software. As a result of this adoption, subscription and fee expenses were seen to rise by 30-70% but firms were able to implement required IFRS successfully.

7.2 Managerial benefits

Benefits mentioned in the framework of Shang and Seddon (2000), have been seen in Pakistani SME business environment also. Management has to make decisions based on the information they collect from their operations and environment. This information is of high importance for management. ERP systems have helped SMEs management to get accurate and updated information.

Respondents of this study seemed to have been satisfied with implementation of ERP for managerial purposes. Decision making had got lot better with timely and accurate information. They were able to better plan their future. As per respondents, highly appreciated factor here was the availability of updated information. Earlier, information was being collected manually and was analyzed using Microsoft Excel and other software. Normal time for this collection of information took weeks to months.

Implementation of ERP had helped these businesses to get updated information and a lot of time had been saved. This finding is also consistent with the findings of Everdingen et al. (2003). Cultures with low uncertainty avoidance index (UAI) try their best to avoid uncertainty with their efforts. That is why, Pakistani SMEs showed great amount of interest in getting reliable information with implementation of ERP.

As see in other studies, for manufacturing concerns, product costing was one of the important benefits. Similarly, managers at Pakistani SMEs were of the view that ERP had helped them a lot, to better calculate their expenses, quantity of production was better predicted and quality of products had also improved.

Preparation of financial statements is also an important managerial function. Profit and loss account statement, balance sheet, cash flow statements are needed to be prepared and audited by registered SME. An unregistered SME is not required to publish this but a registered SME is bound to prepare these statements. ERP had been mentioned as a good

tool for preparing these statements. Tax authorities usually do an extensive investigation into financial statements presented by the business entity. Respondents mentioned that ERP was also beneficial for tax officials as the tax authorities of Federal Board of Revenue (FBR) were more confident about accuracy of information when ERP was implemented in the business. It means that, FBR is usually doubtful about information accuracy provided by the business entity due to possibility of fraud and corruption done by SMEs. Tax authorities have also been found as participant in these frauds (Wadho 2015). This also tells that corruption is a big problem in the country and role of ERP is yet to be seen in this regard.

7.3 Strategic benefits

These benefits are related to strategies made by management for future. It is the management, who decides the direction of business. They set goals and do strategic planning to achieve these goals. These strategic benefits include support for business growth, support for business alliance, build business innovation, build cost leadership, and generate product differentiation among others.

An interesting finding here is that SMEs did not mention any support for business innovation as a result of ERP implementation. It is an important factor related to ERP system implementation. ERP is a tool to help businesses to develop new products and offer new services as seen by researchers. But this has not been mentioned by any of the managers from Pakistani SMEs.

Research showed that businesses had obtained strategic benefits after ERP implementation. External linkages got stronger as relations with the suppliers and customers had improved. Information quality had been improved for better decision making.

7.4 IT benefits

Information technology benefits are obtained as an output of ERP implementation. Benefits such as IT costs reduction, increased IT infrastructure flexibility and ease of making changes in the future are part of this category.

IT costs were increasing as seen from financial statements of SMEs. None of the respondents mentioned having IT cost related benefits. One possible reason is that, in Pakistan, usually there is no IT department at all. As the firm goes for implementation of ERP, it has to setup a specialized department which requires time and effort from top level management, firm has to hire new people with IT skills and capabilities and make

additions to its IT infrastructure. This department then manages this implementation. So that is why, respondents did not mention any IT cost reduction as result of ERP implementation.

Among these IT benefits, ability to adjust their IT in future was mentioned by respondents. SMEs which were planning to implement more technologies or more modules of ERP, mentioned that their current ERP had the ability to accommodate upcoming new technologies. Managers mentioned that their businesses change rapidly and modifications and customizations in IT are also needed more frequently. This is an important benefit that was achieved after implementation of ERP as new technologies emerge more often and businesses face new challenges.

7.5 Organizational benefits

Implementation of ERP effects whole of organization. This helps the organization to build common visions, harmonize interdepartmental functioning, business learning, and satisfaction of employees with others.

Organizational benefits mentioned by respondents were more focused on resolution of inter-departmental clashes. It is an important factor as smooth functioning of all departments is of high importance for overall business functioning. Managers mentioned that they usually go to steering committee if there are problems among the departments. ERP had helped them to solve inter-departmental issues more effectively and efficiently.

Employees were also seen to have been more satisfied, more involved in business, and motivated towards their tasks. This is a contradictory finding. Earlier study (Abbas 2013) conducted on ERP adoption in SMEs of Pakistan, mentioned that Pakistani managers did not consider employees when they implement ERP. Author claimed that managers just put ERP on employees as a compulsion and employees have to learn and use ERP to save their jobs. But this study found that managers were well aware of skills and needs of their employees as they put forward a strong desire for ERP vendors to offer better customized software and more intensive training sessions for their employees.

Competitive advantage has not been mentioned by any of the respondents whereas study done by Khattak et al. (2012) showed that ERP adoption resulted in competitive advantage for Pakistani organization. The reason behind that is the study by Khattak et al. was conducted in 2012. Since then, more and more organizations have been adopting ERP which was also mentioned by respondents. So this is why, no SME was of the view that ERP adoption gave them competitive advantage over their competitors.

7.6 Future potential

Although ERP had brought several benefits for the SME but there were also some possibilities of improvements mentioned by the respondents which could help them to better utilize their ERP and better penetration of this technological innovation.

Lack of user-friendliness was the biggest problem which to surface after interviews for Pakistani SMEs. Users were unable to do simple tasks quickly which resulted in frustration for users. Software needs to be customized according to specific business needs. Possible reason for this might be cultural differences. As seen by other studies (for example Rajapakse and Seddon 2005) which showed that ERP does not suite Asian market as roots of ERP software are in western countries. The western culture is very different from eastern culture in case of adoption of technologies as shown by Syed and Malik (2014) where they discuss the technology adoption differences in Pakistan and USA. Due to this reason, it might have been difficult for ERP vendors to customize their products for Pakistani market. Role of ERP vendors is of critical importance here. Good business analysis capabilities, experience and qualification of ERP consultant among other success factors, ensures that product suits the requirements of that specific business entity.

Another interesting finding was that ERP failed to handle information accurately. One of the basic ideas behind adopting an ERP system is that it gives updated and accurate information. It was very strange to see that the inventory management module of ERP software was unable to provide accurate and real time information about the inventory. Reason behind that was found to be a problem during integration of two modules of the system. Both modules were using same information but one module did not update information in other module. This is an important finding for ERP vendors as well as for businesses planning to expand their ERP software.

Earlier research showed that cost of ERP was an important inhibitor for its adoption but costs of ERP, from Pakistani SMEs managers, were not considered to be high when they were asked to compare these costs with benefits achieved. Majority of managers were of the view that benefits of ERP are much higher than its costs. This finding gives us a new perspective of perception of ERP costs for Pakistani SMEs.

Due to unsuccessful stories of ERP implementations, this study found that Pakistani SMEs also had fear of failing before going to adopt ERP. Risks associated with ERP implementation are high. This is one of the reasons for lack of adoption of ERP by SMEs in Pakistan.

8 CONCLUSION

ERP implementation offer benefits for SMEs in Pakistan. These benefits are in operations, management, IT and also organizational. Shang & Seddon (2000) framework is a comprehensive tools for ERP benefit analysis. But as the technology penetration is getting deeper, some of benefits like competitive advantage are not relevant. More and more firms are adopting ERP systems and its ability to offer competitive advantage to the firm are much less. Research showed that managers at Pakistani SMEs have problems with training of their employees after ERP adoption. So ERP vendors in Pakistan, should offer cheaper and more intensive training options to make adoption smoother and easier for their less resourced customers. Pakistan does not has sufficient number of ERP consultants and currently existing ERP consultants does not fulfill the expectation of their customers. So they must improve their qualifications, sharpen their skills, take more interest in the specific needs of the business, be a part of the business and build confidence with their partners even before they actually start implementing the ERP.

This study was related to adoption of ERP in SMEs of Pakistan. Its application on adoption of other technological innovations might be helpful as a general guideline but a great care must be taken before applying these factors. In addition, this research was specifically targeted at small and medium sized businesses. Factors mentioned here might not be as applicable to studies that involve large scale businesses.

Technology is now going cloud based also in Pakistan. So further research can be done on cloud based ERP software; its benefits and challenges.

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10 APPENDIX

General information about the SME:

Firm name:	
Address:	
Products / services offered:	
Business type:	
Total revenue in 2014:	
No. of suppliers:	
No. of employees:	
Exports:	

ERP interview questions:

<p>Enterprise resource planning software integrates whole of the organization with one software. Do you have such pharmacy-wide software (ERP software) in use?</p>	
<p>What are the 1-2 most important business processes?</p> <p>How ERP helped in these processes?</p> <p>What problems you have with ERP with these processes?</p>	
<p>What are the most important current challenges / problems faced now a days with ERP?</p>	
<p>Please describe the costs related to implementing and running the ERP system?</p> <p>How do you see these costs in relation to the business benefits you get from ERP?</p>	
<p>How could you get more benefits from your ERP in day-to-day business?</p> <p>What are your future plans regarding ERP system?</p>	
<p>What are the biggest challenges outside your company (business environment)?</p> <p>How does ERP enable/inhibit overcoming these challenges?</p>	
<p>Do you get competitive advantage over your competitors after its implementation?</p> <p>If yes, how?</p>	