SCHOOL OF GRADUATE STUDIES

MASTER OF ARTS DEGREE PROGRAM IN PROJECT MANAGEMENT

ERP PROJECT IMPLEMENTATION IN ETHIO TELECOM: AN INQUIRY INTO THE PERFORMANCE, CHALLENGES AND PROSPECTS

A Project Thesis Submitted to the Department of Project Management as a Partial Fulfillment of the Requirements for the Award of Master of Arts in Project Management

BY

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APPROVED BY BOARD OF EXAMINERS

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Internal Examiner	Signature

JUNE, 2021

ADDIS ABABA, ETHIOPIA

DECLARATION

I, Frehiwot Kefyalew, the under signed, declare that this thesis entitled *"*ERP Project Implementation in ethio telecom: An Inquiry into the Performance, Challenges and Prospects*"* is my original work. I have undertaken the research work independently with the guidance and support of the research supervisor. This study has not been submitted for any degree or diploma program in this or any other institutions and that all sources of materials used for the thesis has been duly acknowledged.

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This is to certify that the thesis entitled: ERP Project Implementation in ethio telecom: An Inquiry into the Performance, Challenges and Prospects submitted in partial fulfillment of the requirements for the degree of Masters of project management of the Postgraduate Studies, St. Mary;s University and is a record of original research carried out by Frehiwot Kefyalew SGS/0216/2012A, under my supervision, and no part of the thesis has been submitted for any other degree or diploma. The assistance and help received during the course of this investigation have been duly acknowledged. Therefore, I recommend it to be accepted as fulfilling the thesis requirements.

Name of the advisor	Signature	Date

LETTER OF CERTIFICATION

This is to certify that the thesis prepared by Frehiwot Kefyalew, entitled *"*ERP Project Implementation in ethio telecom: An Inquiry into the Performance, Challenges and Prospects*"* and submitted in partial fulfillment of the requirements for the Degree of Masters of Arts in Project Management complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

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ABBREVIATIONS

ERP	Enterprise resource planning
BPR	Business process reengineering
PCMM	People capability maturity model
eTOM	Enhanced telecom operating map
PRO	Project Rollout

ABSTRACT

The purpose of the study was to assess the implementation of Enterprise resources planning (ERP) and evaluate the overall the performance, challenges and prospect of implementing Enterprise Recourses planning (ERP) in ethio telecom. In addition, challenges encountered during ERP implementation and to suggest practical recommendations which can help to have effective implementation of ERP. To address the objectives, descriptive research design was used in order to elaborate the existing phenomenon as it exists. The source data were both primary and secondary source of data and also a mixed research method (i. e. an approach of both quantitative and qualitative data collection methods) were used to collect data from management, administrators, supervisor and specialist. The data gathered through questionnaire were analyzed using frequency and percentage value of the respondents using SPSS. The reliability of the data was analyzed by using cornabach's alpha. Furthermore, the participants were selected using simple random sampling method, 104 participants were selected from the total population of 140. The participant includes the department of ERP section, PRO, supply chain, human resource and managements. Consequently, results show that the deployed ERP system is not properly implemented and practiced on the basis of the selected effectiveness variables; it is observed that the ERP system is not effective across the divisions the system is implemented. In addition, problems which hinder the practice of the system were identified. As a result, lack of appropriate training for all system users was identified as the most serious problem while proper support from the integrators side. Hence, the researcher has recommended that the company should re-consider its system with regard to the support of top management in assisting successful implementation of ERP in ethio telecom. Moreover, user interface of the system should easily be understandable; there should be mechanism so that users can work on the system without any challenge. Finally, the company should give emphasis for the reporting formats so that any decision maker or external stakeholder can the reporting formats should be easily understandable.

CHAPTER ONE

INTRODUCTION

1.1. Background Of the Study

The unprecedented growth of Information and Communication Technologies (ICT) driven by computer hardware and software systems has influenced all facets of computing applications across organizations. In a highly competitive global business environment, firms seek to improve or maintain their competitiveness by using information systems to improve customer service, shorten cycle times, and reduce cost. On top of what has been mentioned above; the complex nature of some functional units requires more and more inter-functional data flow for decision making, timely and efficient procurement of product parts, management of inventory, accounting, human resources and distribution of goods and services. In this context, management of organizations needs efficient information systems to improve competitiveness by cost reduction and better logistics management. As one part of information system tool, Enterprise Resource Planning (ERP) as a business management system comprises integrated sets of comprehensive software, which can be used, when successfully implemented, to manage and integrate all the business functions within an organization. It is generally a misleading perception that implementing an ERP system will improve organizations' functionalities overnight. The high expectation of achieving all-round cost savings and service improvements is very much dependent on how good the chosen ERP system fits to the organizational functionalities and how well the tailoring and configuration process of the system matched with the business culture, strategy and structure of the organization. Overall an ERP system is expected to improve both backbone and front-end functions simultaneously (Liaquat Hossain *et al.*, 2002:18).

The implementation of an ERP system in an organization is a very complex project. The implementation of such systems is difficult and involves a high cost, as well as considerable time and resources. Organizations contemplating such a project must be aware of the necessary commitments. The most important thing is that the

implementation of ERP projects is a major event in the life of an organization. An ERP system is expected to change a lot of business, processes, and activities within the organization and often initiated with much expectation about the benefits and the transformation that the project would bring to the organization (Ibrahim, 2010). As technical knowledge is required, strategic, organizational and people-related factors are significant in the success of an ERP project. Strong top management commitment is a most important issue in successful ERP implementation, as it involves of a lot of changes in the organization. Also, effective communications, effective project management, training and implementation team are essential throughout an ERP project in order to bind the various activities together (Ibrahim, 2010).

As clearly explained above regarding the topic different authors by different country (specially developed countries) and sector context tried to assess the problem they observe and filled the gap (practical and academic). But, a country like Ethiopia the implementation the ERP system is a recent phenomenon. Thanks to globalization many multinational companies start to invest in the third world country for their own advantage and countries also start to get benefit from their involvement. When they came, they don ‘t only brings the business idea and finance only rather they bring their rich experience in the area including internal processes. Currently, for any company to be successful, being meticulously strategic in automating the major work processes is highly imperative; one of the characteristics of being strategic is using the best automation tool on its inside operation. Actually, there is no single globally agreed best tool which can incorporate on all organizations – it’s about how the tools are being implemented by their users!

In addition to the tools being used, the most important success-factor for any big company in implementing ERP system is mainly depend on how well the company’s requirement has been defined; if the requirements are not properly defined and organized, it might be the root cause for the failures of the tool. Ethio-telecom has an ambition of being a world class company & in order to be a world class company, it decided to use a more sophisticated automation tool so that its internal work process is shifted from

routine tasks to strategic ones. Mainly the benefit which is expected from ERP system is realized only when it is implemented considering all the pre and post implementation activities. Otherwise, the system could be a curse to and drag the whole enterprise into spiraling inefficiency. Planning for ERP systems and their implementations requires an integrated approach to meet the requirements of various functional areas. In general; independent of the size of the company, an Enterprise Resource Planning system can either boost or doom a company, if implemented successfully or unsuccessfully respectively.

So, the motive of this research is to fill the above-mentioned gap for both academicians and practitioners. Since telecom companies are highly dependent on technologies the company (ethio-telecom) is not new to implement new technology-based system. But regarding ERP system, it is new phenomena. So, the researcher ‘s interest and motive is to assess the practices and challenges of implementing the system, to show the potential benefits and challenges and finally to recommend possible solution(s). This research adopts a case study approach to investigate the practice and challenges of ERP- Oracle System in Ethio Telecom focusing mainly on automating the major support activities of the company like project roll out, human resources, and supply chain management.

1.2. Statement Of the Problem

Today, many public and private organizations worldwide are implementing ERP systems in place of the functional legacy systems that aren’t anymore well-compatible with modern business environment. ERP system is a modular integrated business software system that facilitates an organization to use its resources efficiently and effectively. The integration brought by ERP enables organizations to respond to competitive forces and market opportunities, to improve product portfolio, to reduce carrying costs and to maintain supply chain relations strictly. Enterprise resource planning (ERP) system has been one of the most popular business management systems, providing benefits of real-time capabilities and seamless communication for business in large organizations (Mishra *et al*. 2011).

However, not all ERP implementations have been successful. Since ERP implementation affects entire organizations such as process, people, and culture, there are a number of challenges that companies may encounter in implementing ERP systems (Ibrahim, 2010). Ibrahim (2010) noted that ERP systems offer benefits in terms of strategic, operational, managerial, organizational and technical related issues. ERP can also aid to reduce overtime, improve return on investment and improved decision making due to availability of timely and appropriate information. Moreover, ERP systems assist to reduce the requirements of employees and help organizations reduce data transfer time (Gupta *et al*., 2004). The success of an ERP implementation depends on how quick the benefits can be reaped from it.

Despite the significant benefits that ERP software packages provide in managing and integrating cross-functional business processes there are several difficulties and barriers that relate to such an implementation. The major challenge is to integrate existing legacy systems and other applications with the ERP system to provide a common interface. Moreover, ERP systems are complex and implementing one of them can be a challenging, time consuming and expensive project for ever organization (Davenport, 1998). Addressing the difficulties of ERP implementation helps to plan better and facilitate a more successful ERP implementation (Ibrahim, 2010). Regarding the challenges of ERP, as different scholars have categorized them above, some are internal company problems (weaknesses of inside stakeholders) & some are External problems. Among the internal problems, lack of skill of users, change resistance, lack of commitment of top management/implementers & the implementation process itself are among the major ones. On the other hand, the module nature and standardization issue are mentioned as external challenge Shiri (2012).

Ethio telecom is investing huge amount of money in expanding telecom services. To realize its growth and transformation plan regarding telecom services depends on this sole telecom services provider in Ethiopia. The corporation envisions being world class telecommunication service provider. As it goes in its mission statement, ethio telecom

has a mission to connect every Ethiopian through information communication technology, provide telecommunication services and products that enhance the development of the nation and build reputable known its customer's consideration. However, it was very challenging to continue with the existing management style and technology as a result of the dynamic environment of the sector. Implementation of ERP system in ethio telecom is not about replicating other company's product rather it's about customizing & applying the tool in line with the nature (demographics and law) of the country, structure of the company, policies and procedures and internal processes.

Therefore, the common challenges faced taken in to account, it is deemed important to assess and evaluate the overall ERP implementation process in ethio telecom.

1.3. Research Questions

Having the above stated research problem in mind, this study was conducted to answer the following research questions:

- ✓ What is the nature of the whole process of the ERP system implementation in ethio telecom?
- ✓ To what extent the ERP project implementation become how was it measured?
- ✓ What were the challenges faced during the implementation of ERP project?
- ✓ What is the future prospect and benefits expecting from ERP implementation?
- ✓ What are ERP system implementation constraints in ethio telecom?

1.4. Objective Of the Study

1.4.1. General objectives

The general objective of this study is to assess and evaluate the overall the performance, challenges and prospect of implementing Enterprise Resource Planning (ERP) in ethio-telecom and to recommend possible solutions for the gap.

1.4.2. Specific objectives

- To assess the overall ERP system implementation process in the ethio telecom;
- To identify ERP system implementation challenges peculiar to ethio telecom other than the common ones due to the very nature of the company.

1.5. Significance Of the Study

Implementing an ERP system is a major project requiring a significant level of resources, commitment and changes throughout the organization. Due to the increase in globalization and competition, it is evident that information is a key factor on the success of any company. As ERP is an integral system that encompasses different activities and used by various functions, its successful implementation provides a great opportunity for organizations to enhance their services and being customer focused. It is intended that the findings provide insight (both employer and employee) about the systems functionality with respect to support activities and the company successfully implementation and integration of such a system, highlighting the processes used, the obstacles faced and how they can be solved, as well as the gains achieved. This study is dedicated to identify ERP implementation an inquiry of performance, challenge and prospect in ethio telecom. This research could also be used as a reference for further researches in the area and explore major issues related with the system deployment for designing significant milestones as a base and make it available for academic reference.

1.6. Scope Of the Study

The researcher is intended to study "ERP project implantation in ethio telecom: an inquiry into the performance, challenges and prospect". The study focuses on evaluating how ethio telecom implemented ERP system and sees if there are any post implementation challenges. Furthermore, the study has been delimited to the assessment of Enterprise Resource Planning system deployment in ethio telecom, its effectiveness in terms of creating automated work environment, challenges and problems which impede the implementation effectiveness; and look in to the perception of management and non-

management groups of employees from Human resources, ERP section, Project team & Supply chain.

1.7. Limitation of Study

Questionnaires were not replied on time because some of the employees were out of their principal work place for field works in relation to the on-going telecom expansion project. As a result, the response rate is to some extent negatively affected.

Some of the employees were not volunteers to fill the questionnaire because they are busy of their daily routine. Moreover, some of them seem bored of feeling lots of questionnaire from different researchers every year.

1.8. Organization of the Study

The research report comprises five chapters; the first chapter contains introduction of the study which consists of background of the study, statement of the problem, research questions, and objectives of the study, significance of the study, limitation of the study, scope of the study and organization of the paper. The next chapter which is chapter two contains assessment of different literatures both on the area which discusses various theories and concepts on Enterprise Resources Planning system and related empirical reviews in relation to the company's actual situation. In the third chapter the research methodology and design has been detailed and the sample size and was also determined. In the fourth chapter, data presentation, discussion and analysis were done. The last chapter provides conclusions and recommendations on the basis of the analysis made in the preceding chapter.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter presents the review of related literatures and imperial facts. It includes the conceptual understanding of what ERP mean, and the benefits to be obtained through ERP implementation, the historical background of the system, the conceptual understanding of ERP system, common ERP platforms, and ERP implementation success will be indicating under literature review part. On the other hand, the reason behind ethio telecom goes for ERP implementation has been assessed under the Imperial review part.

2.1. Conceptual and Operational Definition

O'Leary (2000: 37) defined Enterprise Resource Planning (ERP) as a computer-based system designed to place company's major activity areas: planning, production and customer service under an umbrella. ERP system is a software package of different modules such as fixed assets management, controlling, financial accounting, manufacturing, human resources, planning and development and so forth. Each module is business process specific. Generally, companies choose one ready-made package available for their industry but it is also common to select the modules that best meet their needs. Enterprise resources' planning is full-fledged software that is used to in different organization regardless of the size of the business. Hence this system can be applied in small, medium and large-scale business organizations for a better management of the operational activities. Such software can deliver consistent data across all business functions in real time. Real time refers to data and processes that are always current.

Enterprise resource planning systems encompassing modules supporting functional areas such as planning, manufacturing, sales, marketing, distribution, accounting, financial, human resource management, project management, inventory management, service and maintenance, transportation and e-business or I-procurement. The architecture of the software facilitates transparent integration of modules, providing flow of information between all functions within the enterprise in a consistently visible manner. Apart from

the ideas mentioned above the major characteristics of ERP systems are: a packaged software system designed for the client environment, the integration between the modules and across entire organization, access to data in real time, data storing and retrieving processes in an enterprise-wide database, and management and analysis functionalities. Moreover, ERP systems are expected to have additional characteristics such as support for multiple currencies and languages (but not Amharic), which is critical for multinational companies, and support for specific industries.

Hence; companies who are implementing the ERP system are benefiting from the single integrated system by transforming or reengineering their mostly legacy information system. And it is also defined as a method for the effective planning and controlling of all the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company. ERP systems are configurable information systems packages that integrate information and information-based processes within and across functional areas in an organization (Henry S., 2002).

Enterprise Resource Planning (ERP) systems provide integration and optimization of various business processes, which can lead to improved planning and decision quality, and a smoother coordination between business units, resulting in higher efficiency and a quicker response time to customer demands and inquiries. It is also a software solution that integrates business functions and data into a single system to be shared within a company. In the past two decades, companies around the world have implemented ERP Systems. ERP systems are software packages that enable companies to integrate their business processes and all the information relevant to their organization. With ERP systems, firms are able to manage all their resources (i.e. physical or intangible assets, finances, human resources, production, etc.) more effectively. The ERP system not only aids in standardizing business processes across an enterprise but also helps management increase their visibility of the business by providing real-time financial and production information. (Seddon, Shanks & Sylvia 2013).

An ERP system is a packaged business software system that allows a company to automate and integrate the majority of its business processes, and share common data and

practices across the entire Enterprise. ERP also accesses information in a real-time environment. Many companies use ERP software to integrate the enterprise-wide information and process for example their financial, human resources, manufacturing, logistics, sales and marketing functions. ERP is designed mainly to provide a total, integrated company's resource to manage the business process efficiently and effectively (Seddon, Shanks &Sylvia 2013).

2.1.1. ERP overview

Enterprise resource planning (ERP) is an industry term for the broad set of activities that helps an organization manages its business. An important goal of ERP is to facilitate the flow of information so business decisions can be data driven. ERP software suites are built to collect and organize data from various levels of an organization to provide management with insight into key performance indicators. An Enterprise resource Planning (ERP) system is packaged business software that integrates organizational processes and functions into a unified system. In traditional IT systems, each of the system components are found separated as applications by their own with one database system for each of them. However, ERP system integrates all of the components through one central database which is common for all the modules.

2.2. Theoretical Review of ERP

2.2.1. The meaning of ERP

O'Leary (2000: 37); defined Enterprise Resource Planning (ERP) as a computer-based system designed to place companies' major activity areas: planning, production and customer service under an umbrella. ERP system is a software package of different modules such as fixed assets management, controlling, financial accounting, manufacturing, human resources, planning and development and so forth. Each module is business process specific. Generally, companies choose one ready-made package available for their industry but it is also common to select the modules that best meet their needs. Enterprise resources' planning is full-fledged software that is used to in different organization regardless of the size of the business. Hence this system can be

applied in small, medium and large-scale business organizations for a better management of the operational activities. Such software can deliver consistent data across all business functions in real time. Real time refers to data and processes that are always current.

According to Fiona (2002:1), Enterprise Resource Planning (ERP) refers to large commercial software packages that promise a seamless integration of information flow throughout an organization by combining various sources of information into single software application and a single database. Enterprise resource planning systems encompassing modules supporting functional areas such as planning, manufacturing, sales, marketing, distribution, accounting, financial, human resource management, project management, inventory management, service and maintenance, transportation and e-business or I-procurement. The architecture of the software facilitates transparent integration of modules, providing flow of information between all functions within the enterprise in a consistently visible manner.

Apart from the ideas mentioned above the major characteristics of ERP systems are: a packaged software system designed for the client environment, the integration between the modules and across entire organization, access to data in real time, data storing and retrieving processes in an enterprise-wide database, and management and analysis functionalities. Moreover, ERP systems are expected to have additional characteristics such as support for multiple currencies and languages (but not Amharic), which is critical for multinational companies, and support for specific industries. Hence; companies who are implementing the ERP system are benefiting from the single integrated system by transforming or reengineering their mostly legacy information system. And it is also defined as a method for the effective planning and controlling of all the resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service company. ERP systems are configurable information systems packages that integrate information and information-based processes within and across functional areas in an organization (Henry S., 2002).

2.2.2. Benefits of ERP

What are some of the perceived benefits that lead corporations to commit to the implementation of ERP in their organizations? As indicated by Olliver and Romm (2002), “in common with other types of investment activity the adoption of an ERP system is a purposive intervention by an organization for bringing about a new state of affairs that is judged to be superior to the current state”. Botta-Genoulaz, Millet, and Garbot (2005), indicate that two distinct streams are observed from the literature. The first one focuses on the fundamental corporate capabilities driving ERP as a strategic concept, and the second, on the details associated with implementing an information system and their relative successes and costs. Problems of sociological and cultural factors influencing the implementation success as well as the implementation steps have been addressed earlier in literature.

As indicated by Chen (2001), “planning for ERP adoption generally occurs when an organization realizes that current business processes and procedures are incompetent for their current and or future strategic needs”. As the result of various external and internal forces, ethio telecom operating environment is changing and their working systems are becoming “incompetent”. They are not able to maximize their efficiency and therefore, profit. Any tools that would enable these organizations to reverse this trend must be considered. In order to promote the use of ERP by ethio telecom, a more comprehensive look of the potential benefits that could be achieved must be completed. Ross, (1999:11) articulated that that as a business and strategic perspective implementing ERP is seen as way to improve corporation’s effectiveness and efficiency, reduce their operating, personnel, inventory and IT costs, and improve their productivity, business growth, production scheduling, delivery time, customer service, and overall quality. Additionally, data visibility and timely information is important to make better business decisions. It is clear that ERP system investments have been categorized as strategic in nature. Literature review identifies the common goal to be an increase in company sales, reduction in production cost, reduction of lead times, and improvements in customer relationships.

In general ERP systems enhance inter-organization communication and collaboration between different functions and locations for the integrated decision-making process. Standardization of the processes across the unit's works in favor of collaboration as it reduces the number of conflicts between the processes. The single database system encourages communication across locations and functional units through sharing the information. With ERP systems companies are using the same database, which can be accessed on-line, in real-time and simultaneously by many users. Since, virtually all users have access to the same information it improves companies planning and control practices.

And some of the benefits that could be realized in ethio telecom environment as a result of ERP implementation could be as follows: -

- ✓ Improved responsibilities in relation to customers
- ✓ Stronger supply chain partnerships
- ✓ Enhanced organizational flexibility
- ✓ Improved decision-making capabilities
- ✓ A Reduction in project completion time and cost
- ✓ Opportunity for the enterprise to re-engineer and upgrade its business process

2.2.3. Evolution of ERP

For the last couple of years, the business environment is becoming increasingly complex in terms of operational and functional work units and these units are requiring more and more inter-functional dataflow for decision making, timely and efficient procurement of product parts, management of inventory, accounting, human resources and distribution of goods and services. In this context management of organizations need efficient information systems to improve competitiveness, and it is obvious that the capability of providing the right information at the right time brings tremendous rewards to organizations in a global competitive world of complex business practices.

As indicated by Fiona (2002:35), ERP Systems are now ubiquitous in large businesses and the current move by vendors is to re-package them for small to medium enterprises (SMEs). This migration as many consequences that have to be addressed through understanding the history and evolution of ERP systems and their current architectures. The advantages and disadvantages of the ERP systems will impact their penetration in this new market. The market position and general strategy of the major systems providers in preparation for this push are described. The growth and success of ERP adoption and development in the new millennium will depend on the legacy ERP system's capability of extending to Customer Relationship Management (CRM), Supply Chain Management (SCM) and other extended modules, and integration with the Internet-enabled applications.

Starting in the late 1980s and the beginning of the 1990s new software systems known in the industry as Enterprise Resource Planning (ERP) systems have surfaced in the market targeting mainly large complex business organizations. These complex, expensive, powerful, proprietary systems are off-the-shelf solutions requiring consultants to tailor and implement them based on the company's requirements. In many cases they force companies to reengineer their business processes to accommodate the logic of the software modules for streamlining data flow throughout the organization. These software solutions, unlike the old traditional in house designed company-specific systems, are integrated multi-module commercial packages suitable for tailoring and adding "add-ons" as and when required. (Ibid, 2002:39)

As explained by Mohammad A. (2002:4), the evolution of ERP systems closely followed the spectacular developments in the field of computer hardware and software systems. During the 1960s most organizations designed, developed and implemented centralized computing systems mostly automating their inventory control systems using inventory control packages (IC). These were legacy systems based on programming languages such as COBOL, ALGOL and FORTRAN. Material Requirements Planning (MRP) systems were developed in the 1970s which involved mainly planning the product or parts

requirements according to the master production schedule. Following this route new software systems called Manufacturing Resources Planning (MRP II) were introduced in the 1980s with an emphasis on optimizing manufacturing processes by synchronizing the materials with production requirements. MRP II included areas such as shop floor and distribution management, Project management, Finance, Human Resource and Engineering. ERP systems first appeared in the late 1980s and the beginning of 1990s with the power of enterprise-wide inter-functional coordination and integration. Based on the technological foundations of MRP and MRP II, ERP systems integrate business processes including manufacturing, distribution, accounting, financial, human resource management, project management, inventory management, service and maintenance, transportation providing accessibility, visibility and consistency across the enterprise.

During the 1990s ERP vendors added more modules and functions as "add-ons" to the core modules giving birth to the "extended ERPs". These ERP extensions include advanced planning and scheduling (APS), e-business solutions such as customer relationship management (CRM) and supply chain management (SCM). (Ibid, 2002:6)

2.2.4. ERP implementation success

On one hand, ERP systems promise to improve organization's key performance indicators such as proficiency, efficiency, profitability, customer satisfaction and other measures of value. On the other hand, ERP systems are highly complex information systems and the implementation of these systems is a difficult and costly process placing tremendous demands on corporate time and resources. Business Process Reengineering (BPR) is often a major component in ERP installations and this requires companies to change the way business has been done, which, in accordance, affects the employees work lives and can create a resistance. By the same token a transformational process held in ethio telecom is a major spring board for the establishment of Enterprise resources planning across the organization.

2.2.4.1. ERP implementation challenges

A typical implementation of ERP project is costly, time-consuming and complex undertaking. In fact, many companies have described their ERP implementation being a nightmare. Chen (2001); explained based on a recent study indicated that 40 % of all the ERP installations manage only partial implementation and 20 % totally fail and the remaining 20% has been fully successful. Depending on how someone is defining failure, the percentage can be even higher.

Hence; depending on the degree of failure according to our existing practical situations here are the major ERP challenge areas: -

- ✓ **Complexity**

The complexity of the system implementation arises from the fact that companies have to integrate ERP software with hardware, operating systems, and database management systems and so on. Further, it initiates the changes throughout the entire organization. As ERP software comes in a ready-made package companies are required to adjust their businesses to fit the system requirements. The reasons being that even with the today's art of technology ERP systems do not fit all the requirements of a company. Moreover, changes in one component might cause the collapse of the whole system, which is designed as an integration of separate modules.

- ✓ **Costs and Benefits**

The total implementation costs of ERP include software, hardware, consulting and internal personnel costs, which usually sum to 2-3 % percent of the company's revenues (Chen, 2001). The huge investment has to be weighed against the future economic and strategic benefits that the system should eventually provide. However, the benefits might be difficult to quantify. Non-financial benefits such as improved customer response, strengthened supplier relationships through information sharing and real-time access to operating and financial data can be vital for the growth of many companies but are hard to convert to monetary profits in the cash flow statements. Moreover, it might take years

for the companies to take the advantage of the all-capabilities ERP systems provide. In addition to what has been mentioned above Markus M. (2000), explain that success depends from the point of view from which you measure it. It can be viewed from many dimensions: in technical terms, in economic, financial or strategic business terms, in terms of smooth running of business operations, from the point of view of managers and employees or from the point of view of customers, suppliers and investors.

- ✓ **Time**

On time and within the budget is another success criterion, which in practice is no easy to achieve. Meeting deadlines is a primary concern of the ERP project management as any delay costs the company additional money. The amount of time needed for project is often underestimated. In length, the whole implementation process can take up from three to five years. Chen (2001); explained that, considering today's business dynamics companies cannot afford spending too much time on the technology implementation in spite of all the benefits as competitors might have enough time to overtake them. Moreover, lengthy implementations can increase the risk of project failure; reduce the management and staff commitment, decline productivity and delivery performance and cause the loss of the customers.

- ✓ **Training**

Welti N. (1999); indicated that training and change management are matters that affect all the phases of the ERP implementation project. Not surprisingly, there are many challenges related to training as each user group has different needs, preferences and learning potential. For instance, the steering committee members need to have a good project overview and general idea about the functionality of the system. Project leaders instead require in-depth knowledge about system's functionality and project management. Users have to learn only those functions that are related to their tasks in addition to the understanding the new processes and procedures.

Moreover O'Leary D. E. (2000); also explained that training is expensive and underestimating the needs and the requirements are the reasons for exceeding the budget. Skilled employees tend to switch their jobs and training of new employees will remain a continuous effort. However, the importance of training cannot be neglected and it is not something that should be conducted only before or after the implementation but rather it has to be present in each part of the ERP life cycle. Moreover, ERP training has been identified as a critical requirement in ERP implementation and this has led to creation of an entire industry providing ERP training.

2.2.4.2. ERP as a change process

The implementation of ERP system has a major impact on the company and its employees. The sources and types of resistance to change are many. In general, after the implementation of the ERP system the performance of the company gets worse before it gets better in the stabilization process. It is hard for the people to change from the old way of doing things, which they were good at into new ways.

As stated by Mital A. (1997); "The aim of implementing a computer integrated software system is not to limit the human influence on the project even though it is argued that humans cause the major problems but to increase the efficiency and effectiveness of an enterprise through the integration and exploitation of available technology. It is natural, that this requires changes in management thinking and organizational structure".

Change Perceived as Negative

The people, who perceive change as negative, wish to hold on to the old way of doing things. Employees can claim to be computer illiterate, say that they did an excellent job before ERP system, and feel uncomfortable to trust the computers, be afraid of failure and have a common belief that their jobs are threatened by the new automated system (Ross, 1999: 51). Determining who resisting changes are may help to understand the employees' resistance to the ERP system. Management might resist the process changes ERP requires. They are ready to change their technological platform but not the

organizational processes. However; implementing ERP means changing your business processes to fit the company's defined business requirements not another thing around. Middle level managers feel uncomfortable with the change because their job postings can be eliminated as decisions making is pushed down to operational level (ibid, 1999: 63).

In order for the ERP implementation to be successful, top management must analyze these sources of resistance and develop a strategy to overcome them. Building a user acceptance, the new system and new way of doing things is a major challenge for the companies. A commonly used strategy to increase user acceptance is training the users through in-house programs and courses. ERP skills are in shortage as there are a small number of people who have a good understanding of business and ERP systems. Organizations have to conduct training for project teams, implementers and users. Some organizations develop key users that accordingly assist other users and so forth.

Change Perceived as Positive

As per Welti N. (1999); there are people who are looking forward to the new system. They perceive change as positive. The wider use of data throughout the company, access to the data across different departments and locations, easier contacts with colleagues, task enhancement possibilities and fast access to customer data increases the individual's insight into company's operations and brings in satisfaction based on new opportunities the system offers.

2.3 Empirical Review

2.3.1 Core ERP components

ERP system is commonly viewed as a back-office support system. But practically it is also affront office system. Components or modules of ERP system are divided in to two as core ERP components and extended ERP components. Core ERP components are the traditional components which are included in most ERP systems and they primarily focus on internal (back-office) operations (Aladawani, A.M, 2001). Extended ERP component are extra components that meet the organizational needs not covered by the core

components and primarily focus on external (front-office) operations. Core ERP components are accounting and finance (FI), human capital management (HCM) and logistics (LOG) which contains production and materials management. Extended components are modules such as business intelligence, customer relationship management and portal. These core and extended ERP modules are themselves comprised of different sub-modules. Finance core module includes general ledger, receivables, payables, asset management and related sub-modules. Payroll, personnel planning and time management are some of the sub modules in human resources core module while materials management and production planning are sub-modules of logistics core component (Ibid). Some of the ERP main modules are explained as here below.

- **Financial accounting - FI**

This module collects all the data relevant to financial accounting into an integrated General Ledger. It provides comprehensive and consolidated financial reports and integrates the different sources of financial data including Accounts Payable, Accounts Receivable, Asset Management and Treasury. It also provides up-to-date or real time information for enterprise-wide control and planning. The FI module is for external reporting purposes and it is compatible with the international accounting standards Poston R., Grabski S. (2001).

- **Controlling – CO**

CO module includes a variety of planning and controlling tools for enterprises following a uniform system of reporting. It provides comprehensive reports to support most common cost accounting issues. Controlling module is usually for internal reporting purposes Poston R., Grabski S. (2001).

- **Human capital management – HCM**

HCM is the other common ERP module. ERP HCM module is used as the core employee record with details of personnel actions, benefits administration and payroll, position management and compliance with government regulations. HCM consists of three sub modules namely Organizational Management (OM), Time Management (TM) and Payroll (PY) Poston R., Grabski S. (2001).

- **Materials management – MM**

MM module supports the procurement or purchasing process to optimize the logistics chain within the enterprise. MM enables automated supplier evaluation and can lower procurement and warehousing costs with accurate inventory and warehouse management. It also integrates invoice verification. Tools for inventory control and purchasing information help to identify trends and plan accordingly Poston R., Grabski S. (2001).

- **Production planning – PP**

This is a module which supports production planning, manufacturing processes, and analysis production control. PP covers the production process from the creation of master data to production planning, material requirement planning and capacity planning up to the production control and costing Poston R., Grabski S. (2001).

- **Project system – PS**

Project system module coordinates and controls all phases of a project with direct cooperation with Purchasing and Controlling, from quotation to design and approval, to resource management and cost settlement Poston R., Grabski S. (2001).

The core and sub-modules of ERP system are summarized as in table 2.4.1.1below. In traditional IT systems, each of the system components are found separated as applications by their own with one database system for each of them. However, ERP system integrates all of the components through one central database which is common for all the modules.

Table 2.1 the core and sub-modules of ERP system

ERP system ERP Main Modules	Sub-Modules
Financials	GL - General Ledger AP - Accounts Payable AR - Accounts Receivable AM - Asset Management Cash Management Banking Profitability Analysis Budgeting and controlling
Human Resources	PY – Payroll OM - Organizational Management Personal planning TM - Time management Travel expenses Training
Logistics & Operations	MM - Materials Management PP - Production planning Materials planning (MRP) Inventory management Quality management PS - Project System management Shipping
Sales & Marketing	Order management Sales management Sales planning

Unlike the traditional function-oriented departmental systems, ERP systems are enterprise wide and oriented towards processes instead of being function-oriented. Corporate computing with ERP systems allows companies to implement a single integrated system by replacing and re-engineering their mostly incompatible old traditional information systems. ERP systems are based on a relational database. Using a relational database and appropriate process design allows companies to capture data once

and then make that data available for use throughout the firm; by all appropriate users. ERP system mostly runs on a three-tiered client/server system with three layers of logic.

- **The presentation layers**

This is a graphical user interface (GUI) or a web browser which allows users the ability to access and analyze information and system functions (Rashid *et al*., 2002).

- **The Application layers**

It consists of business rules, functions, logic, and programs where business processes and end users interact with the system (Rashid *et al*., 2002).

- **The Database layers**

This is the management of the organization's operational or transactional data. This is usually built up on industry standard relational database systems like Oracle or SQL server. There are three types of data in ERP systems namely master data, transaction data and configuration data.

- Master data is data in database tables which are used as references for day to day business transactions.
- Transaction data is data which contains the day to day business activities.
- Configuration data is data in tables which contain the settings and configurations of the system to suit and fit to the business logic of the company.

ERP system is used not only as operational or transactional system, but also as controlling and executive decision support system. According to Chung, the data and information in ERP systems is divided into three layers as operational system (transactional data entry layer), tactical system (controlling layer) and strategic or Executive Information Systems (EIS) layer as in.

2.3.2 Pros and cons of ERP systems

There are different initiatives and reasons for acquiring ERP systems. ERP systems have the advantage of seamless integration between all parts and processes of a company, and this in turn gives the possibility of proper control. They are used to control and reduce data redundancy and accuracy. Redundant tasks will be removed and the efficiency of the company increases. The other advantage of ERP systems is that easier and timely reports functionality. Users can get self-services of data needs and access. They can run their own reports and have better access to their data and the ability to manipulate and report on this data.

The advantages of ERP systems are summarized as here below.

- Integrate financial information of different sources such as revenues, sales and cost.
- Standardize Human Resources information for simple tracking of employee's time and benefits data.
- Standardize and speed up operating processes
- Reduce inventory and lower costs
- Integrated, on-line, secure, self-service processes for business
- Eliminate costly mainframe / fragmented technologies
- Empower and enable employees, partners, customers and suppliers as clearly demonstrated in figure

In general, compared to the traditional functional IT systems, ERP systems provide different benefits to a company and these benefits can be viewed in different dimensions as operational, managerial, strategic, IT infrastructure and organizational as in table2.4.2.

Table 2.2: ERP System benefits in different dimensions

Dimensions	Benefits
Operational	Productivity improvement Cost reduction Quality improvement Customer satisfaction
Managerial	Decision making Resource management Performance management
Strategic	Business growth Business cooperation Business leadership
IT Infrastructure	Business change flexibility IT co

On the other hand, ERP systems have some drawbacks and limitations. These systems are usually complex. Regardless of their long-term benefits and reduced maintenance costs, initial one-time implementation is expensive. And even if data accuracy and integration is achieved by ERP systems, it is hard to correct or amend data once it is maintained in the system as it will affect many modules and processes. While ERP systems have more efficient methods, freedom and self-creativity practice with the system is minimal (Ibid). Limitations of ERP systems are discussed and summarized below.

• Cost and length of implementation

Even if ERP systems can save costs in long term, initial implementation is too expensive. This cost depends on the scope and number of ERP modules which are selected and installed, size of the company, use of consultants, software license and hardware and length of the implementation time. As ERP systems are integrative and complex, it takes long time to implement these systems. ERP implementation costs millions of dollars and takes 1-3 years of time (Whyte & Fortune, 2002).

• Business process re-engineering and customization

ERP systems are developed based on industry best practices. If these best-practice solutions in the ERP system do not match the business processes, then organizations are required to reengineer their business processes to fit these best practices. However, changing all processes may lead to a loss of competitive advantage. Strategic processes which give competitive advantage to a company should not be changed. In this case, the ERP system must be customized and configured properly to fit the business processes (Whyte & Fortune, 2002). Configuration refers to setting and filling of parameters and tables in the system whereas customization is changing the code of the system. On the other hand, customization of the ERP software is limited and major change is not allowed. In addition, customization has problems related to upgrading. When the ERP software is upgraded by the vendor, all customizations may have to be re-checked. So, there should be clear and prior decision about the processes to be preserved and those to be re-engineered (Whyte & Fortune, 2002). User interface and usage ERP systems can be difficult to use. They are too restrictive and rigid (highly controlling) and do not allow much flexibility in implementation and usage. Moreover, users may have to go through many screens in order to maintain a single data set. This is because screens are developed based on the program flow and logic. It is when they are used more and more that ERP systems are appreciated by users (Whyte & Fortune, 2002).

• Interoperability and interface

The system can suffer from the weakest-link problem. Inefficiency in one department or at one of the partners may affect other participants. So, the integrated links need high accuracy in other applications to work effectively. There are frequent compatibility problems with the various legacy systems of the partners (Whyte & Fortune, 2002).

• **Responsiveness**

ERP systems have low response time to user actions and information requests. Due to the complexity and user interface screens, ERP systems usually take long time to respond to data entry and report generation processes (Whyte & Fortune, 2002).

2.3.3 ERP technology selection challenges

ERP technology selection is a crucial and paramount consideration for enterprise level decision makers in organizations aspiring to sustain staying competitive since, it is a serious investment decision. As investment in ERP systems implementations projects in organizations are strategic and highly risky because of the complexity involved, high implementation cost and change management issues it is crucial to select ERP software that fits with organizational goals and objectives for successful implementation S. Ranjan *et al* (2012).

Radut and Codreanu (2012) argued that the most important part of adopting an ERP system is the selection part and the selection process should be specific to organization as it takes into account the requirements of the organization and should be an analytical method based on criteria. The most important of which are functionality, technology and expertise, flexibility and application scalability, costs, implementation and ease of use. Their offering is a simple sequential qualitative model with selection criteria/characteristics composed of six attributes, namely functionality, reliability, efficiency, usability, maintainability, and portability. Johansson *et al*. (2011) studied relationship between factors influencing selection of implementation approach and companies' ability to stay within budget when implementing ERPs. The main findings are that:

1. The number of implemented modules influences selection of an implementation approach
2. Companies with information strategies are more likely to stay within budget regarding ERP systems implementation.

Garg and Khurana (2013) presented the ERP product selection criteria for Indian SMEs. The finding of this research will help the marketing and sales team of ERP product companies to improve upon the key points and also enable end users to make informed decisions in selecting the ERP package for the organization. Ratkevicius *et al*. (2012) presented analysis of different classifications of the fundamental criteria for the ERP system selection process, and defines two main groups – software-related, and implementation-related. The significance of ERP system functionality as the principal software-related ERP selection criterion is emphasized. Eleven other criteria were defined as important to consider, such as the total costs of the ERP implementation project, vendor reputation, ERP reliability, ease of integration with other systems, technology advance, scalability, upgrading ability, customization/parameterization possibilities; ease of use; flexibility and modularity. The importance of all-round knowledge for a successful ERP implementation is emphasized, including ERP software functionality, project and change management, business processes, organization of training etc. All these areas are closely connected with implementation-related ERP selection factors: organizational fit, end-user readiness, training, system support quality.

Table 2.3 Top ten risk factors of ERP risk

Priority	Name
1	Lack of senior manager commitment
2	Ineffective communications with users
3	Insufficient training of end-users
4	Failure to get user support
5	Lack of effective project management methodology
6	Attempts to build bridges to legacy applications
7	Conflicts between user departments
8	Composition of project team members
9	Failure to redesign business process
10	Misunderstanding of change requirements

Source: Huang *et al*., 2004

2.3.4 Change management challenges in ERP implementation

Before implementing an ERP system, business enterprises analyses organizational strategy, structure, culture, and operations. Making an organization and ERP system compatible may require the organization to change some or all of the aforementioned facets of the business. These drives change to business process, which means people must also change. If change management is not handled well, ERP projects are apt to fail. In fact, most ERP failures are blamed on people issues rather than technology issues. People, process and technology are the three drivers of change management for ERP projects. Hurt (2011) relates in the case study several established management and information systems concepts: the value chain, expectancy theory, change management principles, the capability maturity model and the systems development life cycle. They relate eight competencies required for successful change management based on literature of Crawford and Nahmias (2010) especially to ERP projects. These competencies are leadership, stakeholder management, planning, team selection/team development, communication; decision making and problem solving, cultural management and project management. Al-Shamlan and Al-Mudimigh (2011) discussed that the top management usually faces an unexpected attitude from potential users during implementing an ERP system. As their resistance may cause failure of project top management should deal with this problem using effective change management strategies and processes. They also provided a very significant and very explicit contribution towards the change management factors for ERP implementation. Madapusi and D'Souza (2012) presented a literature-based and theory-driven model developed to examine the relationship between ERP system implementation and operational performance and also influence on operational performance. A better understanding of the contribution of ERP systems to operational performance can be obtained if researchers address and assess changes at modular and system level also the use of longitudinal designs to capture and tease out the time delayed effects between ERP system fine-tuning (at the module and sub-module levels) as well as changes in operational performance. Adams and Martin (2011) in the web paper discusses in detail role of change management to address the People aspect in

an ERP implementation project, realize the path for delivering the new processes and ERP solution into production operations, and gain 'reach' into the organization. It also addresses how resistance to change affects ERP implementation and how to mitigate these challenges.

2.3.5 ERP implementation challenges

A typical implementation of ERP project is costly, time-consuming and complex undertaking. In fact, many companies have described their ERP implementation being a nightmare. Chen (2001); explained based on a recent study indicated that 40 % of all the ERP installations manage only partial implementation and 20 % totally fail and the remaining 20% has been fully successful. Depending on how someone is defining failure, percentage can be even higher. Hence; depending on the degree of failure according to our existing practical situations here are the major ERP challenge areas:

- **Complexity**

The complexity of the system implementation arises from the fact that companies have to integrate ERP software with hardware, operating systems, and database management systems and so on. Further, it initiates the changes throughout the entire organization. As ERP software comes in a ready-made package companies are required to adjust their businesses to fit the system requirements. The reasons being that even with the today 's art of technology ERP systems do not fit all the requirements of a company. Moreover, changes in one component might cause the collapse of the whole system, which is designed as an integration of separate modules.

- **Costs and benefits**

The total implementation costs of ERP include software, hardware, consulting and internal personnel costs, which usually sum to 2-3 % percent of the company's revenues (Chen, 2001) The huge investment has to be weighed against the future economic and strategic benefits that he system should eventually provide. However, the benefits might be difficult to quantify. Non-financial benefits such as improved customer response,

strengthened supplier relationships through information sharing and real-time access to operating and financial data can be vital for the growth of many companies but are hard to convert to monetary profits in the cash flow statements. Moreover, it might take years for the companies to take the advantage of the all-capabilities ERP systems provide. In addition to what has been mentioned above Markus M. (2000), explain that success depends from the point of view from which you measure it. It can be viewed from many dimensions: in technical terms, in economic, financial or strategic business terms, in terms of smooth running of business operations, from the point of view of managers and employees or from the point of view of customers, suppliers and investors.

- **Time**

On time and within the budget is another success criterion, which in practice is no easy to achieve. Meeting deadlines is a primary concern of the ERP project management as any delay costs the company additional money. The amount of time needed for project is often underestimated. In length, the whole implementation process can take up from three to five years. Chen (2001); explained that, considering today ‘s business dynamics companies cannot afford spending too much time on the technology implementation in spite of all the benefits as competitors might have enough time to overtake them. Moreover, implementations can increase the risk of project failure; reduce the management and staff commitment, decline productivity and delivery performance and cause the loss of the customers.

- **Training**

Welti (1999); indicated that training and change management are matters that affect all the phases of the ERP implementation project. Not surprisingly, there are many related trainings as each user group has different needs, preferences and learning potential. For instance, the steering committee members need to have a good project overview and general idea the functionality of the system. Project leaders instead require in-depth knowledge system ‘s functionality and project management. Users have to learn only

functions that are related to their tasks in addition to the understanding the new processes and procedures. Moreover, O 'Leary (2000); also explained that training is expensive underestimating the needs and the requirements are the reasons for exceeding the budget. Skilled employees tend to switch their jobs and training of new employees will remain a continuous effort. However, the importance of training cannot be neglected and it is not something that should be conducted only before or after the implementation but rather it has to be present in each part of the ERP life cycle. Moreover, ERP training has been identified as a requirement in ERP implementation and this has led to creation of an entire industry providing ERP training.

2.4 Chapter Summary and Knowledge Gap

Nelson (2004); investigated the importance of the key activities in enterprise system implementations, and when their effect is most critical across the ERP system life cycle. Even though the critical success factors of ERP implementations are well covered, the temporal importance of key activities is less understood.

Tanis (2000); articulated that the involvement of key stakeholders on ERP implementation is crucial for it success; and he identified the key activities across ERP implementation process are the following: -

2.4.1 Key activities

- **User training and education**

The role of training is well covered in the management of the information systems literature. Lacks of user training and understanding how software system is changing the business processes have been the foremost reasons for ERP implementation failure. Due to ERP system complexity training is essential at the acceptance stage and at the latter stages of the life cycle.

- **Management of expectations**

Managing user expectations successfully is closely related to the successful implementation of the project. Exaggerated promises of ERP systems fail to meet employee's expectations regardless of the positive contribution to the organization. Therefore, management of expectations is highly important from the initiation to adaptation stage.

- **Careful selection of the appropriate package**

Right ERP package selection determines the overall success of the project and therefore, it should be emphasized at the initiation and adoption phases.

- **Project management**

Project management activities spread out throughout the project life cycle. However, effective project management including project planning and control activities, organizational, political and human issues and many more is critical from the initiation to acceptance stage but less significant during reutilization and infusion.

- **Customization**

The amount of customization needed to the software has to be handled at the early stages of the implementation process. Minimal customization brings usually better results as it means less costs, shorter implementation time, less dependence on vendor services such as system maintenance and upgrades, and et cetera.

- **Data analysis and conversion**

Timely and accurate data in a single consistent format is a fundamental requirement for the effectiveness of ERP systems and data issues are especially critical from the initiation to adaptation stages and less important during the system acceptance and use.

- **Business process reengineering/transformation**

As ERP or transformation software comes in a readymade package organization need to adjust their business processes to the software. Business reengineering/transformation plays a crucial role at the early stages of the implementation but its importance starts to decline from the acceptance stage.

- **Dedicating resources**

Having sufficient resource available for the project is crucial to guarantee success. Resource requirements have to be set up early in the process.

Implementation of ERP systems is a complex task with a high level of risk. It is important to understand which prerequisites would lead to a successful ERP implementation and usage. Therefore, a natural extension of this literature is to develop a generic framework for successful ERP implementation based on key insights from the empirical analysis and other theoretical frameworks in IS literature. The framework combines four prerequisites that are considered to be a vehicle to achieve successful ERP implementation. Also, it identifies areas that require careful attention while implementing ERP systems. According to the generic framework, organizational leaders must be able to do four things to achieve successful implementation of ERP systems. These four prerequisites should not be considered in isolation from each other; rather, they should be viewed as mutually reinforcing elements of successful ERP implementation. First, leaders need to adapt ERP systems to translate business needs into appropriate parameter settings. ERP adaptation can be achieved through two processes:

1. The right selection of implemented modules that fit functional and organizational needs
2. Configuring key technical aspects such as functionality, portability, scalability, modularity, versioning, upgradeability, accessibility, flexibility, security, presence and maintainability.

Second, leaders must be able to restore the knowledge gap toward ERP system that may arise at two levels:

1. Between members in different organizational levels such as managers and users
2. Between members in different functional units.

CHAPTER THREE

METHODOLOGY

Research methodology is the set of processes, methods, tools and techniques deployed and used to conduct a research and reach to the final output of the study. The methods and techniques used for this research are explained here below.

3.1. Research Design and Approach

The objective of the research is to assess and describe the performance, challenges and prospect of implementing ERP in ethio telecom. The research study adopted a descriptive survey research design. Descriptive research design provides a comparative approach to the ERP systems in automating and integrating management practices of ethio telecom. This methodology also helped the researcher in using comparative statistical methods to analyze the research subject in the case of ethio telecom. Best and Kahn (2006) says research can be qualitative, if it describes events and persons scientifically without the use of numerical data while quantitative research consist of research in which data can be analyzed in terms of numbers. Mixed approach is an approach, which combines both qualitative and quantitative ones. Thus, the study applied mixed approach that is quantitative and qualitative approaches as research methodology. Mixed approach helps to gain a better understanding of the phenomenon under study by obtaining data from different sources, such as interviews, questionnaire and document which help to capture diverse ideas about the same issue and assist in cross-checking the results, and consequently helps to increase the validity, reliability of the findings and comforts data analysis. To this end primary data source were integrated to be able to provide adequate discussion and to get current information about what has already been discovered. Thus, the study used the quantitative approach. On the other hand, to look at the humanistic aspect of Kaizen and to have a rich understanding of people's attitudes of Kaizen challenge, qualitative approaches were used. In an attempt to complement and validate one research method with the other in order to compare results in different context, research triangulated via using primary data source specifically, questionnaire.

3.2. Sampling Technique

The population for this study comprised all the heads of department in particular human resource, ERP, PRO and supply chain. A purposive sampling technique was employed in the study. This method of sampling was chosen since it allows individuals to be chosen at random and not more than once to prevent a bias that would negatively affect the validity of the result of the experiment.

Generally, representatives of the total population have been included in the research study. All parties involved in the implementation process of Enterprise Resources planning System are represented by the sample. As a division human resources, ERP section, PRO and supply chain are major source of information. The organization has four hierarchical levels. These are, manages, administrators, specialist and supervisors. Among this hierarchal level manger and administrators are key users of ERP. As result of this statement show that the majority of key user taken as for respondent and the other taken randomly, therefore out of 104 randomly select sample a 33 of them are from key user and the rest of 71 of them are supervisors and specialists. In determining the actual sample size, the researcher taken in to account that the minimum required returned sample size, type of data analysis to be used and the expected rate of missing data. Because of the geographical, time, cost and transportation constraint, the study was concentrated on Addis Ababa. Moreover, studying different zones and, regions would not bring significant different since company follows centralized management system most of the activities are similar. As a result, almost all ERP user head office of ethio -telecom were taken as a population for this study.

3.3. Data Collection Method

The research study relied on both primary and secondary data sources. Primary data was gathered using structured five-point scale Likert questionnaire. In addition to the primary data, secondary data from journals and e-books was also used to provide comparative perspectives to the study.

3.4. Data Presentation and Analysis

The collected data would be presented by using tables and charts that to be expressed in the form of frequency, percentage and mean. Then, descriptive analysis technique was applied to manipulate the organized data using SPSS (of appropriate version) as the main tool. The output obtained from the system will be analyzed quantitatively.

3.5. Ethical Consideration

The study was in line with the organizations policy in relation to any intellectual property rights of the organization. Also, in regards privacy of the respondents, their responses are strictly confidential and their response used for academic purposes only.

3.6. Validity and Reliability Test of the Instrument

According to Kothari, (2004), Validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure. Validity can also be thought of as utility. In other words, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested. As stated above, questionnaire was used to collect the primary data (see Appendix). Meanwhile, the questionnaire was adopted from Adopted from Beadles, Lowery, & Johns, (2005), Batool, Sajid, & Raza (2012), and Shiri (2012) scientific Standardize questionnaires. Validity and reliability was taken into consideration in the study in order to determine its objectivity, level of trustworthiness and credibility. This study made use of face validity where a panel of experts gave their input as to whether the instrument met the criterion while Cronbach's alpha (α) values were computed to test reliability where a score of more than 0.7 is considered acceptable. Scrutiny of the study by colleagues, peers and my supervisors was also used to gather and challenge assumptions made. Data was analyzed using descriptive statistics, and factor analysis.

3.7. Chronbach's Alpha Analysis

Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group. It is considered to be a measure of scale reliability. A "high" value for alpha does not imply that the measure is one-dimensional.

$$\alpha = \frac{N\bar{c}}{\bar{v} + (N-1)\bar{c}}$$

Here;

N = the number of items

$\bar{c}$ = the average inter-item covariance among the items and

$\bar{V}$-= the average variance.

Table 3.1 Reliability Statics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.870	.885	47

The reliability statics will be defined using the Cronbach's alpha analysis. Alpha coefficient for the 47 items is 0.870, based on the standard alpha coefficient for the 47 items 0.870, suggesting that the items have relatively high internal consistency.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1. Introduction

This chapter deals with the presentation, analysis and interpretation of the data collected through questionnaire and document analysis from ethio telecom employees. The data was then coded and checked for any error and omission (Kothari, 2004). This chapter presented and analyzed the data collected to seek appropriate answer for the basic question distributed to collect data from employee and management bodies. I use Likert scale with 5 points i.e. strongly agree (5), agree (4), neutral (3), disagree (2), strongly disagree (1). The first part presents the profile of respondents showing gender, age group, level of education, work experience, and position of respondents using cross tabulation. The second section presents analysis of the study variables by using tables and consisting of percentages and mean. And it has also contained the discussion of results and overall responses.

4.2. General Information about the Respondent

The information generated to address the stated research objectives is solicited from respondents with diverse demographic characteristics. The first part of the questionnaire consists of the demographic information of the participants. This part of the questionnaire requested a limited amount of information related to personal and professional characteristics of respondents. These variables were included: gender, age, educational level, experience, department and position.

4.2.1. Demographic information of the respondents

Table 4.1 Respondents by sex

Profile	Description	Frequency	Percent
Gender	Male	53	50.96
	Female	51	49.04
	Total	104	100

(Source: Own Survey).

The data obtained from the respondents Table and Figure 4.2.1.1, 53 (51%) of the respondents were male while 51 (49%) were female. This shows that there is slight differences in the distribution of the respondents in the study area were male as compared to female respondents.

Table 4.2 Respondents by Age

Profile	Description	Frequency	Percent
Age	Less than 30	48	46.2
	30-35	24	23.1
	36-40	16	15.4
	Above 41	16	15.4
	Total	104	100

(Source: Own Survey).

As revealed in the table and figure 4.2.1.2, out of the total respondents, 48 (46.2%) of them are below and 30 years of age, 24(23.1%) of respondents are in the age range of 31-

35, 16(15.4%) of respondents are in the age range of 36-40 and the remaining 16(15.4%) are in the age range of over 40 years. This outcome indicates that almost half of the respondents are categorized under the productive age group.

Table 4.3 Respondents by educational level

Profile	Description	Frequency	Present
Educational Level	Below Diploma	0	0
	Diploma	2	1.9
	BA/BSC	66	63.5
	Masters	36	34.6
	PhD	0	0
	Total	104	100

(Source: Own Survey).

Seeing in the above table and figure 4.2.1.3, the educational level of respondent 66(63.5%) of respondents had attained bachelor's degree as their highest level of education 36(34.6%) of them had attained masters' level of education and the rest 2(1.9%), 0(0%) and 0(0%) had attained diploma, below diploma and PhD level of education respectively. This information shows that the respondents have enough knowledge to contribute positively to this study.

As revealed in the Table and figure 4.2.1.4, out of the total respondents, 41(39.4%) of respondent have less than 5-year experience, 22(21.2%) respondents have 6-10 years' experience, 12(11.5%) have 11-15years' experience, 16(15.4%) respondents have experience from 16years up to 20years and lastly 13(12.5%) respondents have above 21 years' experience in the sector. Company employee's large percentage has 5 years and minimum percentage has above 21 years' experience.

Table 4.4 Respondents by experience

Profile	Description	Frequency	Present
Experience Level	Less than 5	41	39.4
	6-10	22	21.2
	11-15	12	11.5
	16-20	16	15.4
	Above21	13	12.5
	Total	104	100

(Source: Own Survey).

Seeing the above table and figure 4.2.1.5, department of respondent 22(21.2%) of respondents were from Human resource department, 29(27.9%) of them were from ERP section and the rest 32(30.8%) and 21(20.2%) were from pro and supply chain department respectively.

Table 4.5 Respondents by department

Profile	Description	Frequency	Present
Department	Human Resource	22	21.2
	ERP Section	29	27.9
	Supply Chain	21	20.2
	PRO	32	30.8
	Total	104	100

(Source: Own Survey).

As the above table and figure 4.2.1.6 indicates, Job position Level of the respondent in this study was randomly selected. Admin's, specialist, supervisors and managers were responding to the provided questioners. In regards of that, from 104 respondents, 44(42%), 20 (19%), 26(25%), 14 (14%) were admins; specialist, supervisors and managers respectively were the respondent numerically.

4.2.2. Respondents' perception towards the process of ERP implementation level

This part covers the data presentation and analysis on process ERP system meets the benefit of customer satisfaction to contribution the company in achieving the goal of being world class telecom service provider.

Table 4.6 Process status

Process		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree	N	Mean	S.D
The organization is obtaining the benefits expected from ERP implementation	F	2	4	7	24	67	104	4.442	.9225
	%	1.99%	3.8%	6.7%	23.1 %	64.4%			
ERP implementation highly contribute in achieving company's vision (being world class telecom service provider)	F	1	3	6	24	70	104	4.529	.8120
	%	1%	2.9%	5.8%	23.1 %	67.3%			

There are some functional areas still using both the manual and automated working system	F	2	5	15	17	65	104	4.327	1.019
	%	1.9%	4.8%	14.4%	16.3 %	62.5%			
ERP implementation in the company is the best solution in satisfying the customer demand	F	1	3	7	25	69	104	4.500	.8244
	%	1%	2.9%	6.7%	24%	65.4%			
Non-value adding jobs and processes are reduced after ERP implementation	F	2	3	6	28	65	104	4.452	.8800
	%	1.9%	2.9%	5.8%	26.9 %	62.5%			
The company apply and utilize all the features of ERP system	F	46	16	4	24	14	104	2.462	1.558
	%	44.2%	15.4%	3.8%	23.1 %	13.5%			

(Source: Own Survey).

For the question which concerns about the benefits realized by the company with that of the stated expectation? Out of the total sample population, 67 (64.4%) and 24(23.1%) of the respondent has strongly agreed and agreed respectively that the system has been

providing the benefits expected from it and they are fully satisfied with the outcomes. Above on that, out of the total sample population, 2(1.99%), 4(3.8%) and 7(6.7%) of the respondent were strongly disagree, disagree and neutral respectively on the above question.

Regarding the question which tells about the contribution of the system towards achieving the company's vision? Out of the total sample population 70(67.3%) and 24(23.1%) of the respondents has strongly agreed and agreed respectively that the system has a high contribution in achieving company's vision. Out of the total sample population 1(1%) and 3(2.9%) of the respondents were strongly disagreed and disagreed respectively that implementing the ERP system has no any contribution in achieving the company's vision. The respondents from the total sample population 6(5.2%) were given neutral response for the above question which implies that, they have no clue about the ERP system.

On the other hand, for the questions which indicate that, rather than using the ERP system in all functional areas is there some functional areas which are still using both the manual and automated working system? out of the total sample population 65(62.5%) and 17 (16.3%) of the respondent were strongly agree and agree respectively that they confirmed there are still some functional areas which were use both manual and automated system. respondents believed that the deployed ERP system makes the entire company business process fully automated (specifically on the divisions that the system has been already deployed). From this fact, we can deduce that majority of the respondents believe that the ERP implementation does not make the company working process fully automated and there are some tasks that has been handled manually even if the system is already there to support the daily routine. Other than that, 2(1.9%), 5(4.8%) and 15(14.4%) of the respondents were strongly disagree, disagree and neutral respectively.

In the case of customer satisfaction, ERP implementation in the company is the best solution in satisfying the customer demand? Out of the total population 69(65.4%) and

25(24%) of the respondents were strongly agreed and agreed respectively that the system create a best solution in satisfying customer demand. Besides that, 1(1%), 3(2.9%) and 7(6.7%) were giving there respond strongly disagree, disagree and neutral towards the question.

The points mentioned in the above table about non-value adding jobs and processes are reduced after ERP implementation? Out of the sample population 65(62.5%) and 28(26.9%) of the respondents were agreed that the system minimizes the non- value adding jobs and process. On the other hand, 1(1.9%), 3(2.9%) and 6(5.8%) respondents out of the total population strongly disagree, disagree and give neutral response respectively towards the above question.

For the final question on the implementation levels were, The Company apply and utilize all the features of ERP system? Form the total sample population 14(13.5%) and 24(23.1%) were strongly agree and agree respectively that ethio telecom has utilizes all the features of ERP system. proportion of the employees from both sides believe that the company is not exhaustively utilizing all the features of ERP system even if the package is already procured by huge investment. Were as, 46(44.2%) and 16(15.4%) were strongly disagree and disagree that the company were not fully apply the system and were not utilize all the features of the system. Beside on that also 4(3.8%) of the respondent were given neutral for the above question.

Generally, as indicated in table in achieving the business requirement of the company (i.e., making the business process automated 58(55%) of the total sample population of the respondents have reflected that due to different factors the company is currently utilizing both the manual and system based working methods on the area that ERP system is already deployed.

4.2.3. Respondents' perception towards the competence of ERP implementation level

Enterprise Resource Planning (ERP) systems are very popular systems for information management in the global business environment. The questions investigate the competency of the project team on the ERP integration contributes to ERP implementation strategy in the case of ethio telecom.

Table 4.7 Competence status

Competence		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree	N	Mean	S.D
The ERP project has been the top and only priority for the team	F	41	17	15	19	12	104	2.462	1.4543
	%	39.4%	16.3%	14.4%	18.3%	11.5%			
Is the project team members had knowledge of the key issues relating to ERP implementation?	F	1	12	12	31	48	104	4.087	1.0622
	%	1%	11.5%	11.5%	29.8%	46.2%			
The project team had experienced in previous ERP implementations	F	4	3	20	29	48	104	4.096	1.0568
	%	3.8%	2.9%	19.2%	27.9%	46.2%			
Is the project team members had technical	F	2	3	15	38	46	104	4.183	.9218
	%	1.9%	2.9%	14.4%	36.5%	44.2%			

knowledge									
Is the project team members have carefully been selected based on their knowledge and ability to accept change	F	1	9	11	31	52	104	4.192	1.0056
	%	1%	8.7%	10.6%	29.8%	50%			

(Source: Own Survey).

Regarding the question about the ERP project has been the top and only priority for the team? 12(18.3%) of the respondents are strongly agree and 19(11.5%) of respondents are agree this shows that most i.e., 31(29.8%) of the respondents were agreed. This shows that, the team has been giving priority for the project of ERP. Rather than that, from the total sample population, 41(39.4%) and 17(16.3%) were responds that they were strongly disagrees and disagrees that the team were not giving a priority for the project of ERP. And the rest respondents 15(14.4%) has no clue on the situation.

The points mentioned in the above table about the adequacy and experience of the project team member on the key issues relating to ERP implementation? Out of the total population 48(46.2%) are strongly agree and 31(29.8%) of respondents are agree. This shows that the overall majority i.e., 79(76.0%) of the respondents find it that the knowledge, skill and experience of the project team is adequate in the key issues relating to the system. Were as 1(1%), 12(11.5%) and 12(11.5%) of the respondents were strongly disagree, disagree and neutral for the above question respectively.

The table above deals with the question about the technical knowledge of project team member's competency? In return 46 (44.2%) of the respondents are strongly agree and 38 (36.5%) of respondents are agree this shows that the overall majority i.e. 84(80.7%) of

the respondents find it that the project team were competent in regards of technical knowledge of the system. Were as, out of the total sample population 2(1.9%), 3(2.9%) and 15(14.4%) were respond strongly disagree, disagree and neutral on the project team competency towards the technical knowledge of the implementation.

The points mentioned in the above table the project team members have carefully been selected based on their knowledge and ability to accept change? In return 52 (50%) of the respondents are strongly agree and 31(29.8%) of respondents are agree this shows that a total of 83 (79.8%) of the respondents find it that the project team members were selected carefully by taking consideration of their adequate skill, theoretical and technique skill towards the implementation. Were as, out of the total population, 1(1%), 9(8.7%) and 11(10.6%) were strongly disagree, disagree and neutral in the above question respectively.

Generally, from the total sample population 41.2% of the respondents were strongly agreed on the adequacy and competency of ERP project team in all technical skill and knowledge needed for the implementation of ERP system.

4.2.4. Respondents' perception towards training, documentation and Knowledge Transfer

Knowledge transfer is the process by which experienced employees share or distribute their knowledge, skills and behaviors to the employees replacing them. Training departments are often asked to develop and manage the knowledge transfer activities of the company. Regards of that, this section of the questions investigates the adequacy of training, documentation and knowledge to employees towards the system.

Table 4.8 the Rate of Training, Documentation and Knowledge Transfer

User training and education		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree	N	Mean	S.D
Training was given exhaustively for all users	F	57	21	10	11	5	104	1.904	1.2269
	%	54.8%	20.2%	9.6%	10.6%	4.8%			
Organization has provided all resources required for training	F	53	22	11	12	6	104	2.000	1.2695
	%	51%	21.2%	10.6%	11.5%	5.8%			
The training given on the system was adequate and useful to your functional module	F	48	17	13	18	8	104	2.240	1.3899
	%	46.2%	16.3%	12.5%	17.3%	7.7%			
Enough time was allocated for ERP training	F	54	19	15	11	15	104	1.981	1.2384
	%	51.9%	18.3%	14.4%	10.6%	48%			
Training materials had	F	50	16	15	13	10	104	2.202	1.4030

been built by the organization functional experts.	%	48.1%	15.4%	14.4%	12.5%	9.6%			
Training program was handled by highly qualified consultants and trainers.	F	52	13	16	17	6	104	2.154	1.3494
	%	50%	12.5%	15.4%	16.3%	5.8%			
The level of in-dependency on integrates are still high.	F	49	9	20	16	10	104	2.317	1.4364
	%	47.1%	8.7%	19.2%	15.4%	9.6%			
The functional and technical support of integrator are successful in relation to knowledge transfer	F	49	9	13	24	9	104	2.375	1.4759
	%	47.1%	8.7%	12.5%	23.1%	8.7%			

(Source: Own Survey).

In regards of the adequacy of training towards ERP system implementation, out of the total sample population 57(54.8%) and 21(20.2%) were strongly disagreed and disagreed respectively on the raised question. this implies that training wasn't given exhaustively for all users. The above data indicates that, ethio telecom did not deploy an intensive training program in order to equip those employees who are expected to work on the

system as main tool. Were as, 5(4.8%), 11(10.6%) and 10(9.6%) were responded strongly agree, agree and neutral respectively.

The table above deals with the question about Organization has provided all resources required for training? Out of the total sample population 53(51%) and 22(21.2%) of the respondent were strongly disagree and disagreed respectively that the there is no resource provided for the specific training of the system. were as, the rest respondent, 6(5.8%), 12(11.5%) and 11(10.6%) were strongly agreed, agreed and neutral on the raised question.

The points mentioned in the above table were, is the training given on the system was adequate and useful to your functional module? Out of the total sample population, 48(46.2%) and 17(16.3%) of the respondents were strongly disagree and disagree respectively. This indicates that, 65(62.5%) out of 104(100%) respondent believes that the training which has been given for the employees were inadequate and it is not useful for a specific functional module. rather than that, out of the total sample population 8(7.7%), 18(17.3%) and (13(12.5%) were strongly agree, agree and neutral respectively on the adequacy of the training and usefulness of the training towards there functional module.

As seen in the above table, the respondents were questioned that if there is enough time allocated for the purpose of ERP training? Out of the total sample population, 54(51.9%) and 19(18.3%) respondents were strongly disagreed and disagreed respectively. Above half (73 respondents) of the sample population disagreed on the raised question. This implies that there is no scheduled time for the training of ERP system. Were as, 5(4.8%), 11(10.6%) and 15(14.4%) respondents were strongly agreed, agreed and neutral respectively for the above question.

On the other hand, the question which says Training materials had been built by the organization functional experts? Out of the total sample population 50(48.1%) and 16(15.4%) were strongly disagreed and disagreed respectively on the issue. This leads out

of the total sample population 66(63.5%) were disagreed that the training materials were not build by functional experts. Beyond that, 10(9.6%), 13(12.5) and 15(4.4%) respondents were strongly Agree, agree and neutral respectively on the raised question.

For the question about Training program was handled by highly qualified consultants and trainers? Out of the total sample population, 52(50%) and 13(12.5%) of the respondents were strongly disagreed and disagreed respectively. This shows that from 104 respondents 65 respondents were disagreed that the training program were not consulted by highly qualified consultants and trainers. Besides that, 3(5.8%) and 17(16.3%) were strongly agreed and agreed respectively that there are a highly qualified consultants and trainers for the training program. And the rest 16(15.4%) has no clue about the training program of ERP system.

In the case of the level of in-dependency on integrates are still high? Out of the total respondent 49(47.1%) and 9(8.7%) of the respondents were strongly disagreed and dis agreed respectively. This implies that, because of the inadequacy of the training the level of dependency on integrates were still high. Were as, 10(9.6%), 16(15.4%) and 20(19.2%) were respond strongly agree, agree and neutral respectively towards the above question.

The final question in the section of training, documentation and Knowledge Transfer were, the functional and technical support of integrator is successful in relation to knowledge transfer? From the total sample population of 49(47.1%) and 9(8.7%) respondents were strongly disagreeing and disagree respectively. this shows that from out of 104 respondents 58 respondents were dis agree. which implies that, because of inadequacy of the training there is no successful relationship between functional and technical supports integrator with that of knowledge transfer. Besides that, 9(8.7%), 24(23.1%) and 13(12.5%) were respond strongly agree, agree and neutral respectively for the raised question.

Generally, the survey of the above section i.e., training, documentation and Knowledge Transfer about the ERP system in ethio telecom leads the research to conclude that, there is lack of training which was observed as one common constraint for ERP implementation in ethio telecom. By this, it could be said that, from the total sample population 75% of the respondents believe that, imparting training program and additional enhancement training program is highly required. Finally, the above issues which basically lack training can also be considered as one of the challenges for successful implementation of ERP system in ethio telecom.

4.2.5. Respondents' perception towards system easiness

Compatibility issues with ERP modules usually lead to issues in integration of modules. Companies associate different vendors to implement different ERP modules, based on their competency. Therefore, it is very essential that there is a way to handle compatibility issues in dealing with implementation of technologies such as ERP solutions. In this study to deal with the issues of compatibility, user friendliness, ease of understandability and ease of understandability of the reporting formats were used as yardsticks.

Table 4.9 the system easiness

System easiness		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree	N	Mean	S.D
Users interface of the system is easily understandable	F	35	16	15	30	8	104	2.615	1.4025
	%	33.7%	15.4%	14.4%	28.8%	7.7%			
Users can work on the system without any	F	39	22	19	20	4	104	2.308	1.2624
	%	37.%	21.2%	18.3%	19.2%	3.8%			

challenge									
The reporting formats are easily understandable by external users and decision makers	F	5	10	27	49	13	104	3.529	.9947
	%	4.8%	9.6%	26%	47.1%	12.5%			

(Source: Own Survey).

Regarding the question which says User's interface of the system is easily understandable? Out of the total sample population 35(33.7%) and 16(15.4%) respondents were strongly disagreed and disagree respectively. This implies that from 104 respondents 51 of them were disagreed this leads the research to conclude that the user's interface of the system were not easily understandable. Beside on that, 8(7.7%), 30(28.8%) and 15(14.4%) respondents were given strongly agreed, agreed and neutral for the question raised.

In the case of users, can users work on the system without any challenge? Out of the total population 39(37.5%) and 22(21.2%) of the respondent were strongly disagree and disagree respectively. This implies that the data gather from the respondent leads the research to conclude that 61 of the respondents were disagreed that users were face challenges when they intended to work ERP system. Were as, 4(3.8%) and 20(19.2%) were strongly agreed and agreed that all the users can work the system without any challenge to be faced. And the rest of the respondent 19(18.3%) were neutral for the raised question.

Seeing the above table, the reporting formats are easily understandable by external users and decision makers? Out of the sample population 13(12.5%) and 49(47.1%) of the respondents were strongly agreed and agreed respectively. This shows that, most of the respondent (62 respondents out of 104 sample population) the reporting mechanism were

easily understandable. Were as, 27(26%) of the respondent were neutral which means the respondents has no clue about report. Besides that, 5(4.8%) and 10(9.6%) of the respondents were disagree on the raised question.

Generally, in compatibility issue with ERP module from the above discussion, compatibility is recognized as one major challenge and constraining successful ERP implementation in the company

4.2.6. Respondents' perception towards ERP implementation

This part covers the presentation and analysis of ERP implementation evaluation process.

Table 4.10 Evaluation status

ERP implementation evaluation		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree	N	Mean	S.D
Overall, ERP implementation was successful	F	0	6	13	50	35	104	4.096	.8305
	%	0	5.8%	12.5%	48.1%	33.7%			
The organization Service is improved after using ERP.	F	1	2	9	55	37	104	4.202	.7553
	%	1%	1.9%	8.7%	52.9%	35.6%			
ERP allows for better control of business operating expenses	F	0	2	10	47	45	104	4.298	.7725
	%	0	1.9%	9.6%	45.2%	43.3%			

ERP is integrated in the whole business process	F	2	2	13	46	41	104	4.173	.8640
	%	1.9%	1.9%	12.5%	44.2%	39.4%			
ERP has improved customer satisfaction	F	1	2	13	49	39	104	4.183	.7976
	%	1%	1.9%	12.5%	47.1%	37.5%			
ERP system is easy to operate and user friendly	F	42	7	11	27	17	104	2.712	1.5929
	%	40.4%	6.7%	10.6%	26%	16.3%			

(Source: Own Survey).

Concerning the question which was raised about Overall, ERP implementation was successful? Out of the total sample population, 35(33.7%) and 50(48.1%) of the respondent strongly agreed and agreed respectively. This shows that, out of the total sample population of 104 respondents, 85 of them were agreed that the ERP implementation in ethio telecom is successful. Ware as, 6(5.8%) and 16(12.5%) of the respondents were disagreed and give neutral response towards the question raised respectively.

In regards of the question which says the organization Service is improved after using ERP? 37(35.6%) and 55(52.9%) respondent were strongly agreed and agreed respectively out of the total sample population. This implies that the services which were being provided by the organization were improved after the implementation of the ERP system. The rest respondent were given their response towards the above question were 1(1%), 2(1.9%) and 9(8.7%) were strongly disagree, disagree and neutral respectively.

For the question which says ERP allows for better control of business operating expenses? Out of the total population, 45(43.3%) and 47(45.2%) of the respondent were strongly agreed and agreed respectively, this implies that the system can allow a better control of business operating expenses. Regardless of that, 2(1.9%) and10 (9.6%) of the respondents were disagreed and given a neutral response respectively for the raised question.

By the same manner for the question arises related with ERP system, is it integrated in the whole business process or not? The respondent out of the total sample population of 104, 41(39.4%) and 46(44.2%) were strongly agreed and agreed respectively that the ERP system were integrated in the whole business process. Apart from that, 2(1.9%), 2(1.9%) and 13(12.5%) of the respondents were given strongly dis agree, disagree and neutral response for the raised question respectively.

Employees were also asked whether ERP has improved customer satisfaction or not? Out of the total population, 39(37.2%), 49(47.1%), 1(1%), 2(1.9%) and 13(12.5%) were respond that strongly agree, agree, strongly disagree, disagree and neutral for the above question respectively. 88 of the respondent out of 104 sample population were agreed that the system had improved the satisfaction of customers towards the service.

Regarding the observation of employees about ERP system were easy to operate and user friendly or not? Out of the total sample population, 42(40.4%) and 7(6.7%) of the respondent were strongly disagreed and disagreed respectively, this implies that, 49 respondents were not agreed that the system is friendly rather they think it is difficult to operate and it is unfriendly to the users. Were as, 17(16.3%), 27(26%) and 11(10.6%) out of the total population responds strongly agree, agree and neutral for the raised question respectively.

Generally, depict of ERP system were not easy to operate and unfriendly to the users, the survey analyzed that out of the total respondent of 104, 39 and 47 of them were strongly

agreed and agreed respectively. This implies that 89 respondents were agreed on the total improvement ethio telecom by using the system of ERP is successful in all aspects.

4.2.7. Respondents Perception towards performance ERP implementation

This part covers the presentation and analysis of overall perceptions of employees about the deployed ERP system.

Table 4.11 Performance of ERP implementation

Performance ERP implementation		Strongly Disagree	Disa gree	Natural	Agree	Strongly Agree	N	Mean	S.D
ERP reduced the financial cycle closing time	F	2	8	13	35	46	104	4.106	1.0232
	%	8%	7.7%	12.5%	33.7%	44.2%			
ERP reduced cycle time for decision making	F	0	6	9	43	46	104	4.240	.8418
	%	0%	5.8%	8.7%	41.3%	44.2%			
ERP reduced procurement cycle lead time	F	0	5	7	43	49	104	4.308	.8014
	%	0%	4.8%	6.7%	41.3%	47.1%			
ERP reduced time for pay slip generation	F	0	5	10	37	52	104	4.308	.8370
	%	0%	4.8%	9.6%	35.6%	50%			
There is improvement in tracing detail of employees	F	1	1	10	45	47	104	4.308	.7642
	%	1%	1%	9.6%	43.3%	45.2%			

(Source: Own Survey).

To have an overall view about the system the research raised the above-mentioned questions, and regarding whether ERP implementation reduces the financial cycle closing time or not,46 (44.2%) of respondents have agreed that deployed ERP system reduces the financial cycle closing time. With similar fashion, the research has raised a question whether the decision-making cycle time has been reduced or not. Thus, 46 (44.2%) of management respondents replied that the decision cycle time has been reduced after ERP implementation. In addition, employees were requested to indicate that whether the procurement cycle time is reduced or not 52 (50%) of respondents have agreed and similarly a question related to the pay slip generation has also been raised. Finally, a question was raised about if there is an improvement in tracing employees' detail. Hence, 47 (45.2%) of employees agreed that there is an improvement in tracing different employment related records of the employee.

4.2.8. Respondents' perception towards prospects of ERP implementation

This part covers the presentation and analysis of prospect of ERP implementation.

Table 4.12 Prospect

Prospects of ERP implementation		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree	N	Mean	S.D
In the future ERP helps in handling all business operations	F	0	2	10	27	65	104	4.490	.7503
	%	0%	1.9%	9.6%	26%	62.5%			
In the future ERP system	F	0	0	5	37	62	104	4.548	.5892

with a centralized database makes it more secured	%	0%	0%	4.8%	35.6%	59.6%			
In the future ERP solutions provide reduced operational and management cost.	F	1	0	7	33	63	104	4.510	.7105
	%	1%	0%	6.7%	31.7%	60.6%			
In the future ERP provides the system with improved profitability and growth	F	0	0	6	31	67	104	4.587	.6011
	%	0%	0%	5.8%	29.8%	64.4%			

(Source: Own Survey).

Regarding the question which says in the future ERP helps in handling all business operations? Out of the total population, 65(62.5%) and 27(26%) of the respondent were strongly agreed and agreed respectively that the system will handle all business operation in the future. Besides that, 2(1.9%) and 10(9.6%) of the total sample population were respond disagree and neutral respectively for the raised question.

Regarding the observation of employees towards the future ERP system with a centralized database makes it more secured? Out of the sample population 62(59.6%) and

37(35.6%) of respondents were strongly agreed and agreed respectively that the system can be secured by centralized databases in the future. Apart from that, 5(4.8%) of the respondent give neutral for the specific question.

On the other hand, the employee was asked that, in the future ERP solutions provide reduced operational and management cost? Out of the total population, 63(60.6%) and 33(31.7%) of the respondent were strongly agreed and agreed respectively the system can provide a better solution by minimizing both operational and management cost. Other than that, 1(1%) and 7(6.7%) of the respondents were strongly disagree and neutral for the given question respectively.

For the question which says in the future ERP provides the system with improved profitability and growth? 67(64.4%) and 31(29.8%) of the respondent were strongly agreed and agreed respectively. This shows that from the total sample population of 104, 98 of the respondents were agreed that ERP provides the system with improved profitability and growth in the future. Were as, 6(5.8%) of the respondent were neutral in the regard of the above question.

Generally, the survey of the research can conclude that out of the total population 64 and 32 respondents were strongly agreed and agreed respectively in all the raised questions respectively. This implies that the ERP system in the future can fulfill all the features basically, handling all business operations, the system can be secured by centralized databases, can provide a better solution by minimizing both operational and management cost and also provides the system with improved profitability and growth for the company.

4.2.9. Respondents perception towards ERP implementation constrains

This part covers the presentation and analysis of ERP implementation constrains.

Table 4.13 Constraints

ERP implementation constrains		Strongly Disagree	Disagree	Natural	Agree	Strongly Agree	N	Mean	S.D
Lack of management (top, middle or lower-level mangers commitment)	F	6	9	19	42	28	104	3.740	1.1234
	%	5.8%	8.7%	18.3%	40.4%	26.9%			
Ineffective communication with users	F	3	11	18	44	28	104	3.798	1.0463
	%	2.9%	10.6%	17.3%	42.3%	26.9%			
Insufficient training of end users	F	3	2	14	48	37	104	4.096	.9086
	%	2.95	1.9%	13.5%	46.2%	35.6%			
Failure to get user support	F	0	15	11	48	30	104	3.894	.9845
	%	0%	14.4%	10.6%	46.2%	28.8%			
La ck of effective project management methodology	F	3	48	20	21	12	104	2.913	1.1157
	%	2.9%	46.2%	19.2%	20.2%	11.5%			
Attempts between	F	1	44	20	27	12	104	3.048	1.0917

bridges to legacy application	%	1%	42.3%	19.2%	26%	11.5%			
Conflicts between user department	F	4	13	18	48	21	104	3.663	1.0577
	%	3.8%	12.5%	17.3%	46.2%	20.2%			
Composition of project team members	F	2	51	18	24	9	104	2.875	1.0675
	%	1.95%	49%	17.3%	23.1%	8.7%			
Failure to redesign business process	F	5	51	18	19	11	104	2.808	1.1241
	%	4.8%	49%	17.3%	18.3%	10.6%			
Misunderstanding of (resistance to) change requirement	F	3	14	17	48	22	104	3.692	1.0435
	%	2.9%	13.5%	16.3%	46.2%	21.2%			

(Source: Own Survey).

One of the issues raised in this part is concerning lack of management commitment in the implementation of ERP system, 28(26.9%), and 42(40.4%) of the respondents were strongly agreed and agreed respectively. This indicates that, 70 respondents out of 104 total sample populations believe that there is lack of commitment in implementing the system. On the other side, 6(5.8%), 9(8.7%) and 19(18.3%) respondents were strongly disagreed, disagreed and neutral responses respectively towards the question.

For the question which says Ineffective communication with users? Out of the total population, 28(26.9%) and 44(42.3%) were strongly agreed and agreed respectively that there is a huge gap in effective communication with users in ethio telecom. Were as, 3(2.9%), 11(10.6%) and 18(17.3%) were strongly disagree; dis agreed and neutral response towards the raised question.

In the case of insufficient training of end users, the responses were, 37(35.6%), 48(46.2%), 3(2.9%), 2(1.9%) and 14(13.4%) strongly agree, agree, strongly disagree, disagree and neutral respectively. This indicates that out of the total population 85 of the respondent were agreed that there is insufficient training for the end users.

For the question of that says failure to get user support? The response were, 30(28.8), 48(46.2%), 0(0%), 15(14.4%) and 11(10.6%) strongly agree, agree, strongly disagree, disagree and neutral respectively. This shows that out of the total sample population, 78 of the respondents were agreed that they were failed to get support from the users.

Regarding the question of Luck of effective project management methodology? The response were, 12(11.5%), 21(20.2%), 3(2.9%), 48(46.2%) and 20(19.2%) strongly agree, agree, strongly disagree, disagree and neutral respectively. The data shows us that 51 of the respondents out of the total population of 104 were disagreed about the raised question they believed that is no luck on the effectiveness of project management methodology.

Concerning the question which was raised about Attempts between bridges to legacy application? The response were, 12(11.5%), 27(26%), 1(1%), 44(42.3%) and 20(19.2%) strongly agree, agree, strongly disagree, disagree and neutral respectively.45 of the respondent out of 104 total population sample were disagreed that there are brides in attempting legacy applications were as 39 of the respondents were agreed that there is no brides in attempting legacy applications.

For the question which tell that Conflicts between user departments? The response were, 21(20.2%), 48(46.2%), 4(3.8%), 13(12.5%) and 18(17.3%) strongly agree, agree, strongly disagree, disagree and neutral respectively. The above data implies that, 69 of the respondents out of the total sample population were agreed that there is a conflict between users in the departments.

In the case of Composition of project tram members, the response were, 9(8.7%), 24(23.1%), 2(1.9%), 51(49%) and 18(17.3%) strongly agree, agree, strongly disagree,

disagree and neutral respectively. It implies that out of the sample population, 59 were disagreed the question, which means they believe that the composition of project team is poor.

Regarding the question Failure to redesign business process, the response were, 11(10.6%), 19(18.3%), 5(4.8%), 51(49%) and 18(17.3%) strongly agree, agree, strongly disagree, disagree and neutral respectively. It implies that out of the sample population, 56 respondents were disagreed on the raised question. They believed that there is no such thing called failure in the redesigning of the business process.

The final question were Misunderstanding of (resistance to) change requirement? The response were, 22(21.2%), 48(46.2%), 3(2.9%), 14(13.5%) and 17(16.3%) strongly agree, agree, strongly disagree, disagree and neutral respectively. It implies that out of the sample population, 70 of the respondents were agreed that there is a misunderstanding of change requirement.

Generally, An ERP system lets an organization to establish a completely synchronized configuration that connects all the business processes together. It enables an enterprise in gaining an advantage over competitors by saving resources and responding to an ever-changing business environment. But, there are some challenges that one needs to take into account before implementing an ERP system. Commitment from the Top Management, Adequate Training, Implementation Time, Proper Project Management, Implementation Cost, Sufficient Testing and employee retention. Regarding on the above mentioned constraint the data shows that there is a noticeable gap in the implementation of ERP constraints.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary of Findings

In this research, Values were ingrained in every sample individual and this study presents some insights to understand this individual and how values are reflected in the interactions within their understanding towards the system of ERP. The objectives of this study were to assess and evaluate the overall performance, challenges and prospect of implementing Enterprise Recourses planning (ERP) in ethio telecom and to recommend possible solutions for the gap. Depending on the data presentation, nearly 62.5% of the respondents believed that the deployed ERP system doesn't make the working process fully automated, especially in the area it's deployed. Almost 78% of the sample proportion responded that from the individual as well as company perspective, ERP helps them by enhancing their efficiencies. Similarly, ERP implementation also contributes a lot in achieving the company vision (being a world class telecom service provider) even if there are things to be done for the better achievements and benefits to be realized from the system.

From the system user friendliness perspective, 57% of the respondents believe that the systems user interface, the navigation panels and the navigation steps are not difficult to understand and work on it, but from the reporting perspective more than half of both the respondents believe that the reporting formats are difficult to understand by decision makers as well as external stakeholders.

Regarding the system utilization point of view 36.6% of the respondents have stated that there are number of ERP features which is not yet exploited by the company even if the entire package of the system has been procured. Regarding mix up usage of both the manual and automated working process, more than 80% of the respondents from both side believe that the company is now utilizing both the manual as well as system based working process for the day to day activity of the company even if a full-fledged system

is already introduced. As per the results of the study major challenges to ERP implementation were identified. Accordingly, lack of top management support, the rate of training, documentation and knowledge transfer, compatibility issues with ERP module were found major challenges in ERP implementation in ethio telecom. Moreover, the analysis results showed that misunderstanding of change requirements, ineffective communications with users, lack of management support, insufficient training of end users, failure to get user support, conflict between user departments, application were computed to be major challenges determining the success of the implementation of ERP.

5.2. Conclusion

The assessment done on ethio telecom in regarding the implementation of Enterprise resources planning (ERP) and evaluates the overall the performance, challenges and prospect of implementing Enterprise Recourses planning (ERP) and has come up with major findings discussed in the previous section. Based on these findings the following conclusions are drown. The study gives understanding on ERP practices, effectiveness of ERP implementation, and benefits as well as challenges encountered throughout the implementation process. ERP system had used first by the large organizations on premise to manage the raw, in process, and finish good material information communication. (Bardhan, R. I2003). ERP system acceptance rate had slowed in the beginning due to ERP implementation is a time consuming and high investment process to adopt for any organization. However, it is adopted by nearly all the business nowadays and changing the business legacy due to its exceptional benefits. (Booth, P., Matolcsy, Z., & Wieder, B 2002,). ERP systems got upgraded with advanced trends to work efficiently. Regardless of that, it has issues of data security and recurring subscription investment. In the cases of ethio telecom, ERP implementation requires an enabling organizational structure. ERP alone cannot really improve performance in an organization unless all the business functions are made responsive to market demands. The company or organization has to restructure their operational processes to fit the functionality of an ERP system. Top management has to believe in the value of an ERP solution. Therefore, without proper top management support and organization-wide acceptance and participation of employees,

an ERP system implementation can easily be scuttled. Also, unless, organizational structure and culture is streamlined, an ERP system may precipitate a crisis in an organization. *(Brown et al, 2003, 10).* Beside on that, Management has to consider the time available for the implementation of the system. ERP implementation projects are known to take longer than other ordinary Information management systems. But the management or the project team should have to aware each employee by deploying trainings with skilled personnel in order to provide adequate knowledge transfer for the users. However, because of the complexity involved in implementing ERP applications, the organization should have well-choreographed plans. The implementation of the system requires closer coordination among all stakeholders. Necessarily, the project management should be left to experts. However, the participation of all employees is very vital. The time spent on ERP implementation may cost the company business. Therefore, contingent plans have to be instituted to deal with any possible inconveniences to business due to ERP implementation. Finally, as overall observations of the system in this particular study, it was tried to conduct focus group discussion so as to identify ERP system implementation challenges/constraints which are distinguishable to ethio telecom. Regardless of that, ERP implementation has supported the company by reducing the financial cycle time, decision making cycle time, procurement lead time and pay slip generation time. In addition, it improves the efficiency of tracing employee's detail.

5.4. Recommendation

An ERP software deployment may go wrong in the above-listed ways, so proposed actions for the success of the ERP system implementation as listed below,

1. An ERP implementation partner or project manager shall do the scope of the project based on the organization's team very precisely. Further, they shall have done the responsibilities of the individual team members and prepare the resources required. A project manager shall present the scope and resources required list to senior leadership to get the buying over the proposed budget and time availability of the project before starting it.

2. Users training and change adaption management: All ERP software users must be trained with new systems and job responsibility so that they can adopt the change easily over the period.

3. Future growth plan and its scale: Future business expansion scope shall be outlined to skip from new change shall not set back our requirements for several weeks, months, or years ahead.

REFERENCE

Aladwani, A.M. 2001. Change management strategies for successful ERP implementation. Business Process management journal, 7(3):266-275

Batool, S., Sajid, M., & Raza, S. (2012). Benefits and Barriers of Human Resource Information System in Accounts Office & Azad Jammu & Kashmir Community Development Program. International Journal of Humanities and Social Science, 211-217.

Batool, S., Sajid, M., & Raza, S. (2012). Benefits and Barriers of Human Resource Information System in Accounts Office & Azad Jammu & Kashmir Community Development Program. International Journal of Humanities and Social Science, 211-217.

Beadles, N., Lowery, C., & Johns, K. (2005). The Impact of Human Resource Information Systems: An Exploratory Study in the Public Sector. Communications of the IIMA, (pp. 39- 46).

Chen I. J. (2001): Planning for ERP systems: analysis and future trend. *Business Process Management Journal*, Vol. 7, No. 5, pp. 374-386

Davenport, T. (1998) 'Putting the enterprise into the enterprise system',*Harvard Business Review*,Vol. 76, No. 4, pp.121–131.

Davenport, T., Harris, J. and Cantrell, S. (2002) *the Return of Enterprise Solutions*, Accenture.

Davis, F., Bagozzi, R. and Warshaw, P. (1989) 'User acceptance of computer technology: a comparison of two theoretical models', *Management Science*, Vol. 35, No. 8, pp.982–1003.

Deloitte Consulting (1998) 'ERP's second wave: maximizing the value of ERP-enabled Processes'.

Dong, L. (2001) 'Modeling top management influence on ES implementation', *Business Process Management Journal*, Vol. 7, No. 3, pp.243–250.

Esteves, J., Pastor, J. and Casanovas, J. (2002) 'Measuring sustained management support in ERP implementation projects: a GQM approach', *Proceedings of the Eighth Americas Conference on Information Systems*, pp.1381–1389.

Gupta, B. (2013). Human Resource Information System (HRIS): Important Element of Current Scenario. IOSR Journal of Business and Management (IOSR-JBM), 41-46.

Ibrahim, A. (2010). What Organizations Should Know About Enterprise Resource Planning (ERP) System. European, Mediterranean & Middle Eastern Conference on Information Systems 2010 (EMCIS2010), (pp. 1-16). Abu Dhabi.

Kothari, C. R. 2004.*Research Methodology*, 2nd ed. New Delhi: New age international limited.

Markus M. L., Axline S., and Petrie D., Tanis C. (2000): Learning from the adapters' experiences with ERP: problems encountered and success achieved. *Journal of Information Technology*, Vol. 15, pp. 245-265

Mital A. (1997): What role for humans in computer integrated manufacturing? *International Journal of Computer Integrated Manufacturing*, Vol. 10, No.1-4, pp. 190-198

Norasmah, H. O., & Sabariah, I. (2007). Tahap tingkah laku kognitif keusahawanan di kalangan pelajar dan remaja. In N. H. Othman, & H. Harun (Eds.), Keusahawanan Remaja Malaysia (pp. 78-102). Serdang: Penerbit Universiti Putra Malaysia.

Norasmah, H. O., & Salmah, I. (2011). Kecenderungan terhadap pemilihan kerjaya keusahawanan mengikut persepsi peserta skim usahawan siswa. Jurnal Teknologi, 56, 47-63.

O'Leary D. E. (2000): *Enterprise recourse planning systems: systems, life cycle, electronic commerce and risk.* Cambridge University Press

Ross J. W. (1999): Surprising facts about implementing ERP. *IT Pro,* July/August

Sakaran, U. (2003). Reserach Methods for Business. John Wiley and Sons, Inc.

Sarker, S. and Lee, A. (2003) 'Using a case study to test the role of three key social enablers in ERP implementation', *Information & Management*, Vol. 40, No. 8, pp.813–829.

Welti N. (1999): *Successful SAP R/3 implementation: Practical management of ERP projects,* Pearson Education Limited

Whyte, D. & Fortune, J. (2002). Current practice in project management – an empirical study *International journal of project management*, 20:1-11

APPENDIX I

St. Mary's University

Post Graduate Studies

Department of Project Management

Questionnaires for ERP implementing survey in Ethio telecom

Dear Respondent

The main purpose of this questionnaire is to gather information about "ERP Project Implantation as an inquiry of the Performance, Challenges and Prospects in the case of ethio telecom". The research is planned to be conducted for the in partial fulfillment of the requirement for the degree of Masters of Art in project management. The survey is intended to assess and evaluate the overall the performance, challenges and prospect of implementing Enterprise Resource planning (ERP) in ethio telecom. It will be a great contribution if you may complete all the items covered in the questionnaire. The information you are going to give here is very important for the study; any information you fill in this questionnaire will be kept confidential and used only for this study.

I thank you in advance for sharing your valuable experience and time in completing the questionnaire.

Contact Addis

Frehiwot K.

Mobile - + 251923161673

E- mail- fremisu1984@gmail.com

Part I: Demographical Information: - Please put '**X**' in the box

1. Gender

☐ Male ☐ Female

2. Age

☐ Less than 30 ☐ 31-35

☐ 36-40 ☐ 41 and above

3. Educational Status

☐ Below Diploma ☐ Diploma

☐ BA/BSC ☐Masters

☐PhD

4. Experience

☐ Less than 5 ☐ 6-10

☐ 11-15 ☐ 16-20

☐ 21 and above

5. Division

☐ Human Resource ☐ ERP section

☐ PRO ☐ Supply Chain

6. Position

☐ Admin ☐ Supervisor

☐ Specialties ☐ Manager

Part II: Issues Related with the study area

Please put "X" the alternative of your choice, the numbers below has been defined with their respective equivalent meaning to ease the questionnaire for each respondent.

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

1. Process						
How much effective is the current deployed ERP system in transforming the legacy of manual working condition in to automated system at ethio telecom						
#	Item	1	2	3	4	5
1	The organization is obtaining the benefits expected from ERP implementation					
2	ERP implementation highly contribute in achieving company's vision (being world class telecom service provider)					
3	There are some functional areas still using both the manual and automated working system					
4	ERP implementation in the company is the best solution in satisfying the customer demand					
5	Non-value adding jobs and processes are reduced after ERP implementation					

6	The company apply and utilize all the features of ERP system					
2. Competence						
To what extent do you agree on the following statements regarding project tem competences						
#	Item	1	2	3	4	5
1	The ERP project has been the top and only priority for the team					
2	The project team members had knowledge of the key issues relating to ERP implementation					
3	The project team had experienced in previous ERP implementations					
4	The project team members had business and technical knowledge					
5	The project team members have carefully been selected based on their knowledge and ability to accept change.					
3. User training and education						
To what extent do you agree on the following statements regarding user training and education						
#	Item	1	2	3	4	5
1	Training was given exhaustively for all users.					
2	Organization has provide all resources required for training					
3	The training given on the system was adequate and useful to your functional module					
4	Enough time was allocated for ERP training					
5	Training materials had been built by the organization functional experts					
6	Training program was handled by highly qualified consultants and trainers					
7	The level of dependency on integrates are still high					
8	The functional and technical support of integrators are successful in relation to knowledge transfer					
4. System easiness						
To what extent do you agree on the following statements regarding on system easiness						
#	Item	1	2	3	4	5
1	Users interface of the system is easily understandable					
2	Users can work on the system without any challenge					

3	The reporting formats are easily understandable by external users and decision makers					
5. ERP implementation evaluation						
To what extent do you agree on the following statements regarding on ERP implementation evaluation						
#	Item	1	2	3	4	5
1	Overall, ERP implementation was successful.					
2	The organization Service is improved after using ERP					
3	ERP allows for better control of business operating expenses					
4	ERP is integrated in the whole business process					
5	ERP has improved customer satisfaction					
6	ERP system is easy to operate and user friendly.					
6.Overall impact of ERP implementation						
#	Item	1	2	3	4	5
1	ERP reduced the financial cycle closing time					
2	ERP reduced cycle time for decision making					
3	ERP reduced procurement cycle lead time					
4	ERP reduced time for pay slip generation					
5	There is improvement in tracing detail of employees					

Part III: Related to feature prospects of ERP implementation

Kindly indicate the extent to which the following aspects influence the feature prospects of company after the implementation process.

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Prospects of ERP implementation						
#	Constraint	1	2	3	4	5
1	In the future ERP helps in handling all business operations					
2	In the future ERP system with a centralized database makes it more secured. .					
3	In the future ERP solutions provide reduced operational and management cost.					
4	In the future ERP provides the system with improved profitability and growth.					

Part IV: Related to challenges constraints in implementation

The following table ERP implementation constrains so called as risk factors is listed and please ranks them one up five according to your division. One is very low and five very High.

ERP implementation constrains						
#	Constraint	1	2	3	4	5
1	Lack of management (top, middle or lower level mangers commitment)					
2	Ineffective communication with users					
3	Insufficient training of end users					
4	Failure to get user support					
5	Luck of effective project management methodology					
6	Attempts between bridges to legacy application					
7	Conflicts between user department					
8	Composition of project tram members					
9	Failure to redesign business process					
10	Misunderstanding of (resistance to) change requirement					