ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS (CoBE)

DEPARTMENT OF ACCOUNTING AND FINANCE

ASSESSMENT OF ERP PROJECT BENEFITS AND BARRIERS IN POST IMPLEMENTATION STAGE: THE CASE OF ETHIO TELECOM

CASE STUDY

A Thesis Submitted to the college of Business and economics of Addis Ababa University in Partial Fulfillment of the Requirements for the Award of Degree of Master of Science in Accounting and Finance

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GSE0144/07

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FEBRUARY, 2017

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Approved by the Board of Examiners:

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Examiner	**Signature**

Statement of declaration

I, the undersigned, declare that this thesis is my original work, has not been presented for degree in any other university, and that all source of materials used for the thesis have been duly acknowledged.

Declared by: Confirmed by Advisor:

Name: Abdi Jemal Name: Dr. Alem Hagos

Signature_____ Signature _____

Date_____ Date _____

Place and date of submission: Addis Ababa University, February 13, 2017

TABLE OF CONTENTS

DEDICATION

To my parents and my family for the encouragement and support during this course, specially, to my mother Fatima for her wise guidance and upbringing, my brothers and sisters who have always been on my side whenever I needed them.

Acknowledgment

I would like to express my deepest gratitude to the advisor of my thesis, Dr. Alem Hagos for his priceless guidance and support. His time and persistent effort spent in reviewing my work are very much appreciated.

Most of the results described in this thesis would not have been obtained without the support of ethio telecom staff especially Finance, Human resource and Sourcing and facility both management and non-management members collaboration by filling the distributed questioner with the existing tight schedule in their operational work. I owe a great deal of appreciation and gratitude to them.

I am also truly grateful for the support and love that I received from my family, my mother Fatima, my brothers and sisters, my wife, Jemanesh, Junedin and Fuad, my lovely son I love you all.

Moreover I should mention my biggest thanks and gratitude to Almighty Allah, who is the source of all knowledge and wisdom and enables us to complete the thesis work.

List of Tables and Figures

List of Tables

List of Figures

Abbreviations and Acronyms

BPR ----------Business Process Reengineering

CRM ----------Customer Relations Management

DC----------Direct Channel

ERP---------- Enterprise Resource Planning

ETOM ----------Enhanced Telecom Operating Map

HR ----------Human Resource

IC ----------Inventory Control

IDC----------Indirect channel

ITU ----------International Telecommunications Union

MRP ----------Material Requirement Planning

SCM---------- Supply Chain Management

SFD---------- Sourcing and Facility Division

UAT---------- Users Acceptance Test

Abstract

In recent years, most developing countries companies implement integrated software to create smooth inter-organization integration, get competitive context of business environment, hold customer satisfaction, produce real time report, provide user satisfaction as operating the system, and getting output from the system. ERP is one of complex information systems that integrate the data of all business areas within the organization. Many researcher identifies varies factors which contribute for the ERP implementation and post implementation phase failure. The purpose of this study would be First, to assess the potential benefit and barriers that can affect the successful exploitation of ERP system in Ethiopian company. Second, to list which categories of benefits and barriers require more attention to maintain success at post implementation phase? A case study designed with quantitative method, Likert type data collected from 295 properly sampled participants and descriptive statistic were used to analyze each factors. The results found all benefit and except there barriers factors the rest barriers given consideration by the respondent but some were underestimated compared to relevant literature. The result also shows the benefits realized and barriers faced composed of all categories. Therefore, as the previous relevant study this research also concludes that both benefits and barriers are significant at post implementation stage.

Key words: ERP, user satisfaction, benefit, risk and barriers.

CHAPTER ONE:

1. INTRODUCTION

1.1 Background of the study

Information systems are the foundation of doing business today, implying that most business firms would not be able to operate without their information systems. The trend of global economic activity is highly influenced by large and permanent competition. To cop up with this environment process control and continuous improvement are necessary. This need lead many companies around the world to seek information and communication technology as cited byJalil, F., Zaouia, A., & El, R. (2016). Nazemi& Jafar &Djavanshir (2012) also mention existence of various functional units in most companies in some circumstance makes difficult to provide common and consistent information without the support of information communication system. These are some of Enterprise resource planning (ERP) benefit that force many companies for the implementation of ERP to entertain a real time and unified communication Shahin Dezdar and SulaimanAinin (2011).

Enterprise resource planning (ERP), the most complex and largest enterprise system, is the core business process management software for organizations, which provides cost savings, improved planning and operations, and organizational growth as cited by Mohamed A. Lotfy (2015). ERP is a suite of application modules that can link back-office operations to front-office operations as well as internal and external supply chains and ERP allows a company to manage its business with potential benefits of improved process flow, reduced inventories, better data analysis, better customer service, and

improved profit margins Dezdar, S.,& Ainin, S. (2011). “Despite ERP’s promises to benefit companies and a substantial capital investment, not all ERP implementations have successful outcomes. “ERP implementation commonly have a delayed an estimated schedule and overrun an initial budget” Seo (2013). Productivity and efficiency do not enhanced only through introduction of information technology into an organization rather it depends on the usage of this technology by people according to Ilyas, Fiaz, and Shoaib (2014). .and proper benefit from implementation of ERP realized when consideration takes place on all issues that may have a direct effect on ERP system success through decreasing the related risk ShahinDezdar (2012).

“The major problems of ERP implementation are not technologically related issues such as technological complexity, compatibility, standardization, etc. but mostly [about] organization and human related issues “as cited by Seo (2013).

By utilizing an analytical framework from the extant literature and empirical evidence from other countries context, the research were elaborated in more detail on potential benefit and barriers, identified the actual benefit and barriers in ERP project focus on Ethiopian telecommunication company context, assess whether proper benefit from implementation of ERP were realized and assess which barriers face the company during post implementation phase. Likert type questionnaire were distributed to managers, super users, and users at head office and selected zones of ethio telecom.

1.2 Background to the organization

According to the company's profile booklet (2013), the introduction of telecommunications services in Ethiopia dates back to 1894, seventeen years after the invention of telephone technology in the world. It was Minilik II, the King of Ethiopia, who imported telephone technology to the Country around 1894, with the installation of 477 km long telephone and telegram lines from Harar to Addis Ababa. The first Ethiopian pioneer of telephone was his cousin Ras Mekonnen who came back with telephone apparatus in 1889 after his visit to Italy. Gradually, the technological scheme was proved to contribute to the integration of the Ethiopian society when the extensive open wire line system was laid out linking the Ethiopian capital city with all the important administrative towns of the country.

The company was placed under government control at the beginning of the twentieth century, and was later brought to operate under the auspices of the Ministry of Post and Communications.

In 1952, telecommunications services were separated from the postal administration, and structured under the Ministry of Transport and Communications.

In 2010 Ethiopian government has decided to transform the telecommunication infrastructure and services to world class standard, considering the company as a key leverage in the development of Ethiopia.

Thus, ethio telecom was born on November 29th 2010 with the ambition of supporting the steady growth of the country. Following introduction of the ethio telecom, a best suited IT solution named ERP was introduced having an objective of creating an automated work environment focusing on the financial, human resources and other physical resources aspects of the company with the objective of avoiding the manual

working process to manage the ever ending transaction of the company business, and to obtain up to date information about the financial position of the company.

1.3 Problem Statement and Justification

According to Ilyas, Fiaz, and Shoaib (2014) Failure and success of ERPs implementation is dependent on several external and internal factors in an organization. Benefits and barriers are major factors for the success of ERP system. From the complexity future of ERP implementation assumption of some barriers are normal, unless these barriers get proper solution risk may occur but if barriers are adequately treated there are expectations of benefit from the ERP project .ÖmürY.Saatçıoğlu (2007).

The implementation of ERP in Ethiopia is relatively new and recent. In addition, the research studies that have been done in this area are few in number. There was also a need how to implement ERP successfully at all stage. There are varies reason for the successful implementation of ERP project among them realization of proper benefit from implementation of ERP and assumption of some barrier were critical issues during post implementation phase. Even though ethio telecom starting from 2011 until now are using ERP to perform the activities, the benefits realized and the barriers faced at post implementation phase were not yet assessed.

“Moreover, Implementation of ERP system in Ethio telecom is not about replicating other company‘s product rather it‘s about customizing and applying the tool in line with the nature (demographics and law) of the country, structure of the company, policies and procedures, internal processes and other vital parameters Getachew,(2014).That means the potential benefits and barriers identified by other country company may not

similar to our country context. Therefore, is better to see benefits and barriers factories in Ethiopian context to enrich and extend the understanding of benefit realized and barriers faced in ethio telecom context.

1.4 Research Question

Considering the above stated and uncovered relevant researches and reason for need to study in mind, this study will be conducted to answer the following research questions:

- What are the potential benefits that ethio telecom realized from ERP project during post implementation phase?
- What are the potential Barriers that ethio telecom faced from ERP project during post implementation phase?

1.5 Objectives of study

The general objective of the research is to list out the ERP potential Benefits and Barriers from valuable literatures then assess the realized benefits and faced berries at post implementation stage.

Specifically, the study has the under listed specific objectives:

- To identify the ERP benefit and barriers of which recognized by ethio telecom ERP users
- To assess the categories as to technical, human and process barriers in ethio telecom ERP project post implementation phase.
- To investigate which ERP potential benefit and barriers considered as a major and minor by ethio telecom users and compare it with the valuable literature.

1.6 Significance

The findings of the study have many advantages for all practitioners and academicians by providing useful information about realized benefits and faced barriers in Ethiopian Telecommunication Company. It also useful for organization`s management by providing information about actual and potential ERP benefit and barriers and very important for academic purpose by providing information in regard to statement of the problem.

Moreover, the study uses as an initiation for those who are interest to conduct a detail and comprehensive study regarding realized benefits and faced barriers on Ethiopian context

1.7 Scope of the study

The scope of the study would be limited to assessment of ERP project benefits and barriers in post implementation stage at ethio telecom head quarter and selected zones. It does not include other organizations in Ethiopia or other than Ethiopia that implement ERP project.

1.8 Limitations of the Study

The study focused only on ethio telecom division which implement ERP module for their activities and the geographical boundary is limited in Addis Ababa city.The researcher believes that the findings of this study would have been more productive if it has been conducted on all country wide branch of the company. However, due to time and financial constraints, it was out of the reach of the researcher to incorporate all in this study.

2. CHAPTER (TWO)

LITERATURE REVIEW

This chapter presents the review of related literatures and imperial facts. It were includes the conceptual understanding of what ERP mean, and the benefits to be obtained through ERP implementation, , the historical background of the system and its related evolutional stags, , detail review of benefit and Barriers and their relationship,. In

addition, ERP implementation success and failure human factors will be elaborately present in literature review part.

2.1. Theoretical Literature

2.1.1 The meaning of ERP

Most researcher define ERP as an acronym for Enterprise Resource Planning, is business process management software that allows an organization to use a system of integrated application to manage the business and automate many back office functions related technology service and human resource, including inventory and order management, accounting, human resources, customer relationship management (CRM), and beyond. At its most basic level, ERP software integrates these various functions into one complete system to streamline processes and information across the entire organization Dara Schniederjans Surya Yadav, (2013).

ERP is a broad term, a very complicated type of solution, a name of type of software/ a class of software that provides end to end management solution E.M. Shehab M.W. Sharp L. Supramaniam T.A. Spedding, (2004). ERP is those activities supported by multi module applications software that help a company manage the important parts of its business in an integrated fashion. An Enterprise Resource Planning System, commonly known as an ERP system, is a set of business software tools designed to facilitate the flow of information between all departments or functions within a business.

The ERP system integrates information seamlessly throughout the rest of the company. When the first ERP systems were designed over 26 years ago companies both large and small, used function-driven software for each area of their business. For example,

the accounting, purchasing, inventory, and sales departments each used a different software package which frequently didn't talk or integrate with any of the other systems. Reporting and tracking of even the most basic business activities across these different 'data silos' was tedious, error prone, and unreliable (E.M. Shehab M.W. Sharp L. Supramaniam T.A. Spedding, (2004).

The brain is powerful as it receives and interprets numerous signals that are sent to it from different parts of the body. An Enterprise Resource Planning (ERP) system is similar to the brain as it integrates different departments or functions across a company in a centralized manner. The central feature of all ERP systems is a shared database that supports multiple functions used by different business units. In practice, this means that employees in different divisions for example, accounting and sales can rely on the same information for their specific needs.

Key features of ERP

- Smooth and seamless flow of information across organization boundaries
- Standardized environment with shared data base independent of application and integrated application.

In summary, According to Jen-Her Wu Yu-Min Wang, (2006) there are three ways that differ ERP systems from traditional in-house or custom development systems:

(1) The user may have to make changes to business processes and procedures;

(2) The user may need to introduce customizations; and

(3) The user becomes dependent on the ERP vendor for assistance and updates.

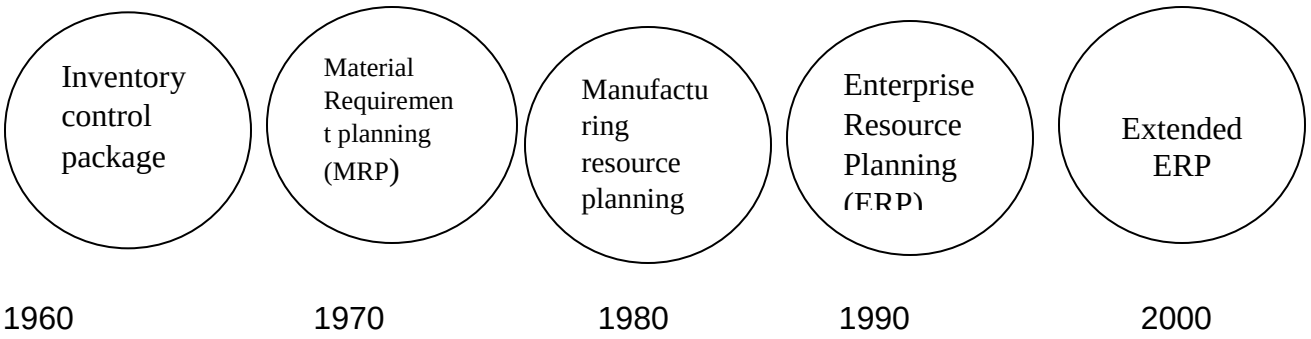
2.1.2 A Brief History of ERP

The evolution of computers and communication technologies are pushing the physical disintegration of market and enterprises to its global limits over the year, many information and communication technologies have been developed for integrating varies activities of the firm. A technology that has benefited corporations the most in their ability to integrate their operational processes to improve information flow, reduce cost, streamline business processes, offer product Variety, establish linkage with business partners and to reduce response time to customer needs is the enterprise resource planning (ERP). (As cited by Hooshang M. Besheshi Bruce K. Blaylock Dale A. Henderson James G. Lollar (2014).

According to E.M. Shehab M.W. Sharp L. Supramaniam T.A. Spedding, (2004) the term ERP was invented in 1990 by Gartner, but its roots date to the 1960s. Back then, the concept applied to inventory management and control in the manufacturing sector. Software engineers created programs to monitor inventory, reconcile balances, and report on status. By the 1970s, this had evolved into Material Requirements Planning (MRP) systems for scheduling production processes.

In the 1980s, MRP grew to encompass more manufacturing processes, prompting many to call it MRP-II or Manufacturing Resource Planning. By 1990, these systems had expanded beyond inventory control and other operational processes to other back-office functions like accounting and human resources, setting the stage for ERP as we've come to know it.

Figure 2, ERP Evaluation



Source Asad Ilyas, Muhammad Fiaz, and Muhammad Shoaib

As cited by Hooshang M. Besheshi Bruce K. Blaylock Dale A. Henderson James G. Lollar (2014) Currently ERP systems contain Web components for e-business and international communications which enables both manufacturing and service sectors to improve the information flow across multiple sites, even in different countries. ERP system has features that enable to translate language into consideration. Of course, languages are rarely translated with 100 per cent accuracy, but the systems have the ability to communicate through the language barrier. Due to exchange rates availability via the internet at real time ERP have ability to conduct business transaction with real time adjustments for currency values. Various human resources laws and regulations unique to individual locations also can be set up in to ERP systems. The ERP systems allow managers to access business transactions that are conducted anywhere within their multi-site ERP system. Improving the information flow will lead to better visibility of product and customer information at any of the multi-site location whenever required.

As per Kurbel, Karl E. (2013) Today, ERP has expanded to encompass business intelligence (BI) while also handling "front-office" functions such as sales force automation (SFA), marketing automation and ecommerce. With these product

advancements and the success stories coming out of these systems, companies in a broad range of industries from wholesale distribution to ecommerce use ERP solutions.

Moreover, even though the "E" in ERP stands for "Enterprise," high-growth and mid-size companies are now rapidly adopting ERP systems.

As a result, companies of all sizes and a wide range of industries are transitioning to ERP systems. When you stop to consider the benefits of ERP, it's easy to see why it's become so popular and why its use will continue to grow so rapidly.

2.1.3 The Business Value of ERP

At its core, ERP helps employees do their jobs more efficiently by breaking down barriers between business units. More specifically, an ERP solution:

- Gives a global, real-time view of data that can enable companies to address concerns proactively and drive improvements
- Improves financial compliance with regulatory standards and reduces risk
- Automates core business operations such as lead-to-cash, order-to-fulfillment, and procure-to-pay processes
- Enhances customer service by providing one source for billing and relationship tracking.
- Complete visibility into all the important processes, across various departments of an organization (especially for senior management personnel).
- Automatic and coherent workflow from one department/function to another, to ensure a smooth transition and quicker completion of processes. This also

ensures that all the inter-departmental activities are properly tracked and none of them is ‘missed out’.

- A unified and single reporting system to analyze the statistics/status etc. in real-time, across all functions/departments.
- Since same (ERP) software is now used across all departments, individual departments having to buy and maintain their own software systems are no longer necessary.
- Certain ERP vendors can extend their ERP systems to provide Business Intelligence functionalities that can give overall insights on business processes and identify potential areas of problems/improvements.
- Advanced e-commerce integration is possible with ERP systems – most of them can handle web-based order tracking/ processing.
- There are various modules in an ERP system like Finance/Accounts, Human Resource Management, Manufacturing, Marketing/Sales, Supply Chain/Warehouse Management, CRM, Project Management, etc.
- Since ERP is a modular software system, it’s possible to implement either a few modules (or) many modules based on the requirements of an organization. If more modules implemented, the integration between various departments may be better.
- Since a Database system is implemented on the backend to store all the information required by the ERP system, it enables centralized storage/back-up of all enterprise data.

- ERP systems are more secure as centralized security policies can be applied to them. All the transactions happening via the ERP systems can be tracked.
- ERP systems provide better company-wide visibility and hence enable better/faster collaboration across all the departments.
- It is possible to integrate other systems (like bar-code reader, for example) to the ERP system through an API (Application Programing Interface).
- ERP systems make it easier for order tracking, inventory tracking, revenue tracking, sales forecasting and related activities.
- ERP systems are especially helpful for managing globally dispersed enterprise companies, better.

When you add up these advantages, the value of ERP is clear. With an ERP solution, employees have access to accurate information that enables them to make better decisions faster. Not only that, but ERP software helps to eliminate redundant processes and systems, dramatically lowering the cost of doing business overall.

2.1.4 Disadvantages of ERP (Enterprise Resource Planning) Systems:

Although ERP systems have the above mentioned advantages they have under listed functional, technical and usability disadvantages due to the tight integration of application modules and data E.M. Shehab M.W. Sharp L. Supramaniam T.A. Spedding, (2004).

- The cost of ERP Software, planning, customization, configuration, testing, implementation, etc. is too high.
- ERP deployments are highly time-consuming – projects may take 1-3 years (or more) to get completed and fully functional.
- Too little customization may not integrate the ERP system with the business process & too much customization may slow down the project and make it difficult to upgrade.
- The cost savings/payback may not be realized immediately after the ERP implementation & it is quite difficult to measure the same.
- The participation of users is very important for successful implementation of ERP projects – hence, exhaustive user training and simple user interface might be critical. But ERP systems are generally difficult to learn (and use).
- There may be additional indirect costs due to ERP implementation – like new IT infrastructure, upgrading the WAN links, etc.
- Migration of existing data to the new ERP systems is difficult (or impossible) to achieve. Integrating ERP systems with other standalone software systems is equally difficult (if possible). These activities may consume a lot of time, money & resources, if attempted.
- ERP implementations are difficult to achieve in decentralized organizations with disparate business processes and systems.
- Once an ERP system is implemented it becomes a single vendor lock-in for further upgrades, customizations etc. Companies are at the discretion of a single vendor and may not be able to negotiate effectively for their services.

- Evaluation prior to implementation of ERP system is critical. If this step is not done properly and experienced technical/business resources are not available while evaluating, ERP implementations can (and have) become a failure.

2.1.5 ERP IMPLEMENTATION

Implementation of any innovation has been referred to as a "re-invention of the technology and simultaneous adaptation of the organization" cited by Dara Schniederjans Surya Yadav, (2013). ERP implementation as "the process of developing the initial business case and planning the project, configuring and implementing the packaged software, and subsequent improvements to business processes" cited by Sondoss El Sawah Assem Abd El Fattah Tharwat Mohamed Hassan Rasmy, (2008). Bringing dramatic change on work flow, organizational structure and on the way people do their jobs; socio-technical exercise requirement not only a technical exercise and not developed in home but adapted are some difference in implementing ERP from traditional IT implementation cited by Sondoss El Sawah Assem Abd El Fattah Tharwat Mohamed Hassan Rasmy, (2008).

ERP implementation success would not be possible without select CSFs as cited by Dara Schniederjans Surya Yadav, (2013). There are numerous critical factors which contribute to the ERP success or failure. According to Dara Schniederjans Surya Yadav, (2013) The ERP implementation is considered successful when the implementation of the system results in reduced costs, increased service levels, various benefits to an organization's internal and external environment, maintains adequate project management, user involvement and adequate performance and security of the ERP

system. While an ERP implementation is considered failure, when the implementation of the system results in delayed implementation, going over budget and needing additional funding, potential loss of authorization security, loss of data confidentiality, loss of authentication safety, server downtime, or ultimately system failure.

According to the 2015 CHAOS Report has been released by the Standish Group. These tables summarize the outcomes of 50,000 projects around the world, ranging from tiny enhancements to massive systems re-engineering implementations. Over the last five years, using the new definition of success factors (on time, on budget with a satisfactory result).

Table1 Standish Group 2015 CHAOS report

MODERN RESOLUTION FOR ALL PROJECTS

	2011	2012	2013	2014	2015
SUCCESSFUL	29%	27%	31%	28%	29%
CHALLENGED	49%	56%	50%	55%	52%
FAILED	22%	17%	19%	17%	19%

The Modern Resolution (OnTime, OnBudget, with a satisfactory result) of all software projects from FY2011–2015 within the new CHAOS database. Please note that for the rest of this report CHAOS Resolution will refer to the Modern Resolution definition not the Traditional Resolution definition.

CHAOS RESOLUTION BY PROJECT SIZE

	SUCCESSFUL	CHALLENGED	FAILED
Grand	2%	7%	17%
Large	6%	17%	24%
Medium	9%	26%	31%
Moderate	21%	32%	17%
Small	62%	16%	11%
TOTAL	100%	100%	100%

The resolution of all software projects by size from FY2011–2015 within the new CHAOS database.

Table2. Standish group 2015 CHAOS report

The results indicate that there is still work to be done around achieving successful outcomes from software development projects and the Standish Group identified factors which makes project more successful among them user involvement takes 15% points.

. According to E.M. Shehab M.W. Sharp L. Supramaniam T.A. Spedding, (2004) ERP packages touch many aspects of a company's internal and external operations. Consequently, successful deployment and use of ERP systems are critical to Organizational performance and survival. Because of the complexity of system implementation, the efforts may be expensive. Therefore, top managers are likely to require an evaluation of the success of the resulting system. In addition, mixed results lead the researchers to evaluate the performance of ERP implementation cited by Dara Schniederjans Surya Yadav, (2013).

According to El Sayed, May, Hubbard, Nick J. and Tipi, Nicoleta S. (2013) the pre-Implementation; during Implementation; and after Go-Live or post-implementation phase are the three main stages in ERP system life cycle. A number of processes that are critical for the system's success found in the post-implementation stage. During post implementation stage, an organization engages in a number of activities, such as post-implementation review, support and maintenance, in order to minimize the risks of failure of ERP projects. Even though implementing and having a functional ERP system, the organization needs to measure the impact of the ERP system on the organization post implementation phase A. Lotfy (2015).

2.1.6 End User

"Individual performance is an essential indicator of organizational performance"; thus, "studying the impact of ERP systems on stakeholders' performance is a significant way to assess the utility of this software and how it contributes to performance efficiency and effectiveness cited by Aloft (2015). Key-user and end-user are the two types of user in

an ERP environment. Key users are selected from user departments, experts in the company's processes, possess domain knowledge of their areas in the industry, specialize in parts of the ERP system and act as trainers, help-desk resources, educators, advisors, and change agents for end users; whereas end users have only very specific knowledge of the parts of the system they need for their work. Therefore, the measurement for these two types of user should be different as cited by Jen-Her Wu, Yuh-Min Wang (2000). This study assesses benefits realized and barriers faced from ERP project post implementation phase.

2.1.7 Benefit

Benefits derived from ERP system implementation varies from one company to another. However, there are some common benefits that all companies can receive from the system. It is important that these benefits outweigh the costs of the system and they should as long as the correct system for the organization is chosen and the system is implemented properly. These systems can, in the long run, save millions of dollars, an enormous amount of paperwork, and considerable hours of work.

.A large sum of money were spent by Firms on information systems through expecting the benefits to have strategic values. In today's dynamic economy, continuously generating new knowledge, combined with operational efficiency and effective delivery mechanisms increase the strategic value of a firm Eslam Nazemi & Mohammad Jafar Tarokh & G. Reza Djavanshir (2012). Organizations invest in ERP systems to achieve important benefits. These benefits may come in the form of improved business productivity such as shortened lead time, lower cost and efficiency communication among functional boundaries In the ERP system environment.

Categories of Benefits	List of Benefit	Kanthawongs, Penjira	Emad M. Kamhawi	Ömür Y. Saatçıoğlu
TANGABLE BENEFITES	reduction of employees	X	X	
	reduction/optimize of inventory/lower inventory level	X	X	X
	Better resource management			X
	Better logistics			X
	improved productivity	X	X	X
	reduce cycle time		X	X
	faster closing of financial cycles	X		X
	Quality improvement			X
	improvements in order management/optimize supply/improved order cycle	X	X	X
	Generate product differentiation			X
	Increased IT infrastructure capability			X
	enhancement of cash flow management	X		X
	reduction in procurement costs	X		
	reduction in logistics and transportation costs	X	X	
	increase of revenue and profits/Support sales growth/	X	X	X
	improvement on-time delivery performance/reduce time to market	X	X	X
	reduction in the need for system maintenance/replace mainframe	X	X	
	improved information and processes/enhance our poor quality data	X	X	
	internal integration/Integrate operation	X	X	
	Standardize our processes		X	
	Possible redesigning of ineffective business functions			X
	Faster, more accurate transactions			X
	Control of flow of goods			X
	Financial flows control			
	Information flows control			X
	Update our obsolete systems		X	
	improved or new business processes/Re-engineer our process/more efficient business process	X	X	X
INTANGABLE	better visibility of corporate data/integrate data	X	X	
	improved /enhance responsiveness to customers/quickened information response time	X	X	
	unexpected reduction in cost	X	X	
	worldwide sharing of information/Support globalization strategy	X	X	
	Better management and controlling functions			X
	Support business growth			X

	Support organizational changes			X
	Increased(business) flexibility	X	X	
	Enhanced/Boost business performance	X	X	X
	cost efficiency in staff	X		
	inventory, procurement improvement	X		
	Build common visions			
	cash/order management, improvement in productivity	X		X
	overall profitability	X		
	Facilitate Business learning			X
	Enhance cooperation with people outside the organization/Improved interaction with customer		X	X
	Empower our user		X	
	Standardize our databases		X	
	Respond to competitive pressures		X	
	Enhance managers' individual decision-making abilities/Improve decision making		X	X
	Support collaborative decision making inside the organization/better coordination and cooperation b/n function & different company dep.		X	

Table 3 which shows the list of tangible and intangible benefit list with the related Author As cited by Kanthawongs, Penjira (2011) the organizational impacts of ERP systems classified into tangible and intangible benefits. Whereas Joseph K. Nwankpa (2015) and Li Fang, Sylvia Patrecia (2015) cited five dimension developed benefits of ERP system namely, operational, managerial, strategic, IT infrastructure and organizational, other researcher list out various benefits of ERP system and the researcher agree with the conclusion cited in Li Fang, Sylvia Patrecia (2015) that ERP benefit was a continuous process with benefits realized at different rate in different core processes.

Categories of Benefits	List of Benefits	Authors		
		Li Fang Sylvia Patrecia	Joseph K. Nwankpa	Kenneth E Murphy* & Steven John Simon
Operational benefits	cost reduction	X	X	X
	cycle time reduction	X	X	X
	productivity improvement	X	X	X
	quality improvement	X	X	X
	improved customer service	X	X	X
Managerial benefits	Better resource management	X	X	X
	improved decision making and planning	X	X	X
	performance improvement	X	X	X
Strategic benefits	Support business growth	X	X	X
	Support business alliance	X	X	X
	Build business innovation	X	X	X
	Generate product differentiation	X	X	
	Assist cost/Build cost leadership	X	X	X
	Build external linkages.	X	X	X
IT infrastructure benefits	Build/support business flexibility	X	X	X
	reduced IT cost	X	X	X
	marginal cost of business units	X	X	
	increased capability for quick implementation of new applications	X	X	X
	Support IT	X	X	
Organizational benefits	Support organization structure change	X	X	X
	facilitating employee/business learning	X	X	X
	empowering workers	X	X	X
	Building common visions.	X	X	X

Table 4 Shows the five dimension developed benefit of ERP system and related authors

2.1.8 Barriers

According to the citation in Peng and Nunes (2010) the concept of barrier is defined differently in the literature as shown in the two examples below: “A barrier is, generally speaking, an obstacle, an obstruction, or a hindrance that may prevent an event from taking place”. “From the business perspective, barrier is an obstacle within the business context that prevents business objectives from being realized” These two definitions point out that a barrier is an existing obstacle that prevents an action or event from being carried out successfully. For the purpose of this paper, a barrier to ERP exploitation is defined as follows: “Any obstacle or factor that is inherent to the business context or the system itself; and can prevent companies from efficiently using, maintaining and improving the implemented ERP system.”

As cited by Ömür Y. Saatçıoğlu, (2009) ERP software have some barriers which are caused by the variation between functionality offered by the package and that required by the firm in ERP projects. While trying to adjust the ERP software and the system in the enterprise, there will be some barriers. Barriers cause firms to experience a decrease in organizational performance instead of realizing improvements. , identification of barrier in ERP post-implementation could be a very complicated task. Due to the size and complexity of an ERP system peng, G.C. and Nunes, J.M.B. (2010) barriers to organizational activities may often exist within the organizational context cited by peng, G.C. and Nunes, J.M.B. (2010)

As cited by Ömür Y. Saatçıoğlu, (2009) barriers categorized as people, process or technology related barriers. While peng, G.C. and Nunes, J.M.B. (2010) develop post implementation barriers ontology consists of two hierarchical levels ranging from

general barrier categories (e.g. organizational barrier) to specific barrier items (e.g. lack of top management support) and categories barriers as cultural, organizational and system barriers.

Barriers	**Type of barrier**	Ömür Y. Saatçıoğlu	Geo Chao &Miguael
Difficulties in changing to new from old systems	Technical	X	
Unavailability of skilled project people	People	X	
Insufficient supports from system vendors	System		X
Turnover of key project people	People	X	
Low user involvement	Organizational		X
Misfits between system functions and company requirements	System		
Insufficient use of critical thinking of employees	Cultural		X
Short-term behavior of top managers	Organizational		X
System inflexibility	System		X
High costs of implementation	Technical	X	
Difficulties in estimating project requirements	People	X	
Significant resistance from staff	People	X	
Unwilling to disclose problems, faults and failures due to preservation of 'face'	Cultural		X
In house resource constraints	Technical	X	
Unclear strategic direction and vision for the use of ERP	People	X	
High context and implicit form of communication	Cultural		X
Coordination between functional groups / Inefficient collaboration and communication between functional departments	People/Organizational	X	
Lack of commitment from top leadership	People	X	

Lack of top management support	Organizational		X
Deficient design of the system	System		X
Incompetent consultants People Bugs in the software	Technical	X	
Lack of discipline	People	X	
Lack of change management	People	X	
Insufficient post-implementation funds & resources	Organizational		X
Poor reporting procedures	Technical	X	
High cost for add-on & further system development	System		X
Lack of process engineering	Process		X
Lack of in-house IT experts	Organizational		X
Less inclined to use systematic procedures and explicit information to tailor forecasts and plans	Cultural		X
Poor software functionality	Technical	X	
Inexperienced system consultants	System		X
Fear of loss of power and loss of job	Organizational		X
Trust personal common sense rather than system data to make decisions	Cultural		X
Slow system response time	System		X
Inadequate ongoing support	Technical	X	
System incompatibility	System		X
Under performed project team	People	X	
Lack of explicit and detailed ERP exploitation plan	Organizational		X
Poor data quality	System	X	
Power centralization of top management	Cultural		X

Table 5 shows the possible potential barriers of ERP system

2.2 Empirical literature review

Charalambos Spathis Sylvia constantinides (2003) describe the production of real time data shared across the organization and consequently the integration and automation of business processes as the main benefit of ERP system while in the new business environment automation, effectiveness and efficiency in operation and real-time data are important factors for business success.to obtain these benefit successful ERP system implementation is a prerequisite. An attempt has been made to review the relevant and available studies and research work and the results are summarized as follows.

Hooshang M. Beheshti Bruce K. Blaylock Dale A. Henderson James G. Lollar, (2014) investigate factors that contribute to the successful implementation of enterprise resource planning (ERP) systems concluded that the main reason ERP systems are pursued by top management are for efficiency and cost reduction so that a business may stay competitive in the marketplace. The study analysis of results reveal that having clear goals and objectives, user training and education, interdepartmental communication as well as user involvement in evaluation, modification and implementation are considered most critical success factor. A. Momoh R. Roy E. Shehab, (2010) study the detailed of critical factors that cause enterprise resource planning (ERP) implementation failures. Nine factors are found to be critical in the failure of ERP implementations: excessive customization, dilemma of internal integration, poor understanding of business implications and requirements, lack of change management, poor data quality, misalignment of IT with business, hidden costs, limited training and lack of top management support.

There are many research undertaken to cover directly or indirectly the effect of benefit and/or barriers on ERP project such as Kenneth E Murphy* & Steven John Simon (2002) studies an effort by a large computer manufacturer to incorporate intangibles into traditional cost–benefit analysis in an ERP project, Charalambos Spathis Sylvia Constantinides, (2003) studies the worth of ERP systems in meeting company needs in this challenging business environment, Emad M. Kamhawi, (2008) studies to provide better understanding of Enterprise Resource Planning (ERP) systems adoption, as well as non-adoption practices in a less developed country, Ömür Y. Saatçıoğlu, (2009),studies to identify the effects of benefits, barriers and risks on user satisfaction in ERP projects and Peng G.C. and Nunes, J.M.B. (2010) • designed to identify and explore potential barriers and risks that can affect successful exploitation of Enterprise Resource Planning (ERP) systems.

From the above mentioned researcher Kenneth E Murphy* & Steven John Simon (2002) and Charalambos Spathis Sylvia Constantinides, (2003) focus on the importance of benefit on ERP system project, Peng G.C. and Nunes, J.M.B. (2010) discover potential causal relationships between the identified barrier and risk items while Emad M. Kamhawi, (2008) and Ömür Y. Saatçıoğlu, (2009), focus on the importance of both benefit and barriers in ERP system project.

Charalambos Spathis Sylvia Constantinides, (2003,) Emad M. Kamhawi, (2008) and Peng G.C. and Nunes, J.M.B. (2010) were employed A survey method using five scale Likert questioner to study 48 manufacturing, service and other sector Greek companies, top 100 Bahrain manufacturing, telecommunication ,oil trade banking, publishing and IT industries and 118 electronics and telecommunication manufacturing

China companies. While Kenneth E Murphy* & Steven John Simon (2002) and Ömür Y. Saatçıoğlu (2009) used Case study were conducted at USA manufacturing, sales and distribution organization and at a Turkish branch of a Switzerland-based multinational enterprise respectively.

Kenneth E Murphy* & Steven John Simon (2002) confirmed that traditional cost–benefit analysis be able to applied to large-scale information systems projects such as infrastructure and ERP and showed how intangible measures can be used to supplement cost–benefit analysis through take in what was once considered not measurable This upgrade analysis provided managers with a more accurate and realistic view of the returns projected by means of undertaking the ERP implementation. Charalambos Spathis Sylvia Constantinides, (2003) prove that the benefit resulted from companies implementing ERP systems have fulfilled individual expectations but not that strongly. In specific, increased flexibility in information generation, improved quality of reports, integration of applications and easy maintenance of databases appear the major benefit derived from ERP system.

Joseph K. Nwankpa (2015) recommended that ERP system usage is directly related with ERP benefit but the association is moderated by the degree of knowledge integration mechanisms within the firm. The results also disclose that technical resources, organizational fit and the extent of ERP implementation are key drivers of ERP system usage. Emad M. Kamhawi, (2008) confirmed that the benefits derived from ERP should not be credited to one single type of benefits. Operational, strategic, and technical types of benefits indicated similar levels of importance. Also it was found that many of the benefits with high rankings in this survey such as improving productivity,

inventory reduction, new improvement processes, and customer responsiveness, have been found as prime benefits as in previous studies. However, reducing no. of employees was ranked least while considered prime in many previous studies.

Ömür Y. Saatçıoğlu, (2009), results show that firms targeting to succeed in ERP projects should give emphasize to benefits of ERP system. Better management and controlling functions, financial flows control, information flows control, increased IT infrastructure capability, control of flow of goods and quickened information response time are the top six benefits gained in the ERP projects. While cycle time reduction, lowered inventory levels, productivity improvement, and performance improvement, generate product differentiation, and facilitate business learning are the least important six benefits In addition the least important benefits fall in three categories as strategic, operational, and organizational similar empirical review shows the following result for the barriers.

Emad M. Kamhawi, (2008) illustrated large capital investments requirement, intensive training, and having other important priorities were the only three reasons from a possible barriers, that were found to be statistically significant reasons for not implementing ERP systems. According to Ömür Y. Saatçıoğlu, (2009), difficulties in changing to new from old systems, difficulties in estimating project requirements, significant resistance from staff, high costs of implementation, and poor reporting procedures are the most important five barriers. While lack of commitment from top leadership, turnover of key project people, under performed project team, unclear strategic direction and vision for the use of ERP and lack of discipline the least important five barriers.

Peng G.C. and Nunes, J.M.B. (2010) list out 10 top barriers namely insufficient vendor support, System incompatibility, slow system response time, System inflexibility, Deficient design of the system, Inexperienced system consultants, Power centralization of top managers, Lack of in-house specialists, High cost for ERP add-ons and Misfits between ERP and user needs. Moreover, the study noted that these most critical barriers were found around one category, namely the system category and realized that the respondents of the survey identified organizational and cultural barriers as less important in their companies but from the correlation map the study identified organizational barriers are the main triggers for other ERP barriers. . As far as I know there is only one case study concerning Assessment of Enterprise Resources Planning (ERP) Implementation: The case of ethio telecom.

2.3 Chapter Summary

Enterprise Resource Planning provide valuable role in organization, it is one of information and communication technology that have been developed for integrating varies activities of the firm, to improve information flow, reduce cost, streamline business processes, better resource management, improve productivity offer product Variety, establish linkage with business partners, Support organization structure change, reduce cycle time, Building common visions and to reduce response time to customer needs. All these benefits cannot realized without successful implementation of ERP system. The ERP implementation is considered successful when the implementation of the system results in reduced costs, increased service levels, various benefits to an organization’s internal and external environment, maintains adequate

project management, user involvement and adequate performance and security of the ERP system.

ERP implementation success would not be possible without select CSFs; the participation of users is top listed important CSFs for successful implementation of ERP projects. In order to minimize the risks of failure of ERP projects an organization engages in a number of activities, such as post-implementation review, support and maintenance During post implementation stage as a result the organization needs to measure the impact of the ERP system on the organization post implementation phase.

3. CHAPTER (THREE):

METHODOLOGY

3.1. Research Design and Method

Research design is a logical structure of the inquiry and its purpose is to guarantee that the evidence obtained enables us to answer the initial question as clearly as possible. That means when designing research considering the research question we have to ask what type of evidence is required to answer the question in a convincing way. Research design deals with a logical problem and not a logistical problem as a result it's different from the method by which data are collected. There are four design type namely Experimental, Case study, longitudinal design and Cross-sectional design. The IS research community is now accepted Case study as a valid research. Strategy cited by Kenneth E Murphy & Steven John Simon (2002). According to Ömür Y. Saatçıoğlu, (2009) even there are some common benefits and barriers, information system have different impact on different companies and can be concluded that benefits and barriers derived from ERP system implementation varies form one company to another. Therefore, the research design applied in this thesis is case study. A case study is an empirical research design that observes a specific event or an activity in a limited environment and uses the data collected from the observations.

According to Yin (1993) equating a particular research design with either quantitative or qualitative methods is wrong assumption. Quantitative method provides data that can be expressed in numbers and can apply statistical test namely descriptive statistic like the mean, median, and standard deviation in making statement about the data.

Therefore, the research will use a quantitative method of research and survey strategy used to collect large amount of data using a questionnaire to assess benefits realized and barriers faced in ERP project in Ethiopian telecommunication service sector company namely ethio telecom with the descriptive design for the study.

3.2. Data Collections Strategies

3.3.1 Sources of the Data

As a source of data both primary and secondary data sources has been used. As the source of primary data ERP user, super user and managers from selected division and section were asked through five scale Likert questioner. As a source for secondary data official documents of ethio telecom, varies relevant literature and Oracle Company varies document were used.

3.3.2 Sample Design and Size

Survey sampling is a group about which the researcher desires to make generalized statements, the process of selecting from a considerable large population so that the selected part will represent the total group cited by Seid Ali (2011). This study required inputs from end-users. The sample of respondents was selected from ethio telecom where by means of company head count report until August, 2016 it has 12634 permanent employees and among these 7,831 employees was assigned in Addis Ababa and the rest are working in regions.

ethio telecom is a larger company having five hierarchy namely chief Officers, officers, managers, supervisors, and staffs. The first three levels are classified as management group whereas the last two levels are categorized as non-management group. Therefore, a comparison of benefits and barriers with respect to the project responsibility able to consider through perceptions of managers, ordinary staff and super users are possible. In determining the actual sample size the researcher taken in to account the minimum required returned sample size, type of data analysis to be used and the expected rate of missing data.

Since ERP modules are more or less fully implemented in Human resource, Finance & Sourcing and Facility divisions the researcher uses these as a major source of information. Therefore, out of the 7,831 Addis Ababa employees, 2,056 were staffed under those three divisions (strata) in which ERP are fully deployed. Because of time and geographical constraint, the study concentrated on Addis Ababa main office and five zone office.

To calculate the sample size, formula of Glenn D. Israel from University of Florida was used. First the author developed a formula for a large population:

$$n_o = \frac{Z^2 pq}{e^2}$$

Where no = sample size

Z2 = abscissa of the normal curve that cuts off an area α at the tails (1 – α equals the Desired Confidence level, e.g., 95%)

e = desired level of precision

p = estimated proportion of an attribute that is present in the population, and q is 1-p.

Hence, the sample size for the given population (2,256) at e = ±5%, confidence level = 95%, and p = 0.5 (maximum variability)

$\frac{(1.96)2\ (.5)\ (.5)}{(.05)2} = 385 = \text{given}$

The following formula is derived from large population formula

$$n = \frac{n_o}{1 + \frac{(n_o - 1)}{N}}$$

Where n is the sample size and N is the population size.

Then the sample size is

$$\frac{385}{1 + \frac{(385-1)}{2056}} = 324 \text{ sample size}$$

Table 3 - Questionnaire distribution and response rate

Strata/Division	Total Population				Distributed						Collected
	Management	Non-Management	Total	Super User	Management	Non-Management	Total	Super User	User	Viewer	
Finance	33	517	550	18	14	81	95	17	62	16	82
Sourcing & Facility	35	1252	1287	24	17	156	173	25	110	38	169
Human Resources	25	194	219	11	13	43	56	15	32	9	44
Total			1699				324				295

NB Super user can be management or staff

The questioner distributed to the selected division which the researcher considered as strata based on ERP implementation status. It was given to 324 individuals and 295 of them responded to the questionnaire. The response rate is 91 percent.

3.3.3 Data Collection Technique

The techniques that were used for data collection are five scale Likert Questionnaire. Questionnaire was used to collect the primary data (see Appendix). Meanwhile, the questionnaire was adopted from Ömür Y. Saatçıoğlu, (2009).

3.3.4 Data Analysis Strategies

To analyze the collected data descriptive data analysis was employed. The descriptive statistics was used to quantitatively describe the important features of the variables using mean, maximum minimum and standard deviations. Therefore, the collected data are clearly presented by using tables and charts which have been expressed in the form of mean, maximum minimum and standard deviations. Then, descriptive analysis technique has been applied to manipulate the organized data. Meanwhile, E-views was used as the main tool to manipulate the data

3.3.5 Reliability

The test of data reliability is important test of sound measurement. A measuring instrument is reliable if it provides consistent results, cited by Getachew (2014). Hence, to prove reliability of the instrument, the researcher has distributed some questionnaires as a pilot test and then makes some corrections accordingly.

3.3.6 Ethical Issues

- Regarding privacy of the respondents, their responses are strictly confidential and only used for academic purposes.
- The study was in line with the organizations policy in relation to any intellectual property rights of the organization.
- It could not be ethical to access some confidential documents of the organization. So, the organization‘s code of ethics taken in to account without significantly compromising the findings of the study.
- Concerning references, all the materials and sources are properly acknowledged.

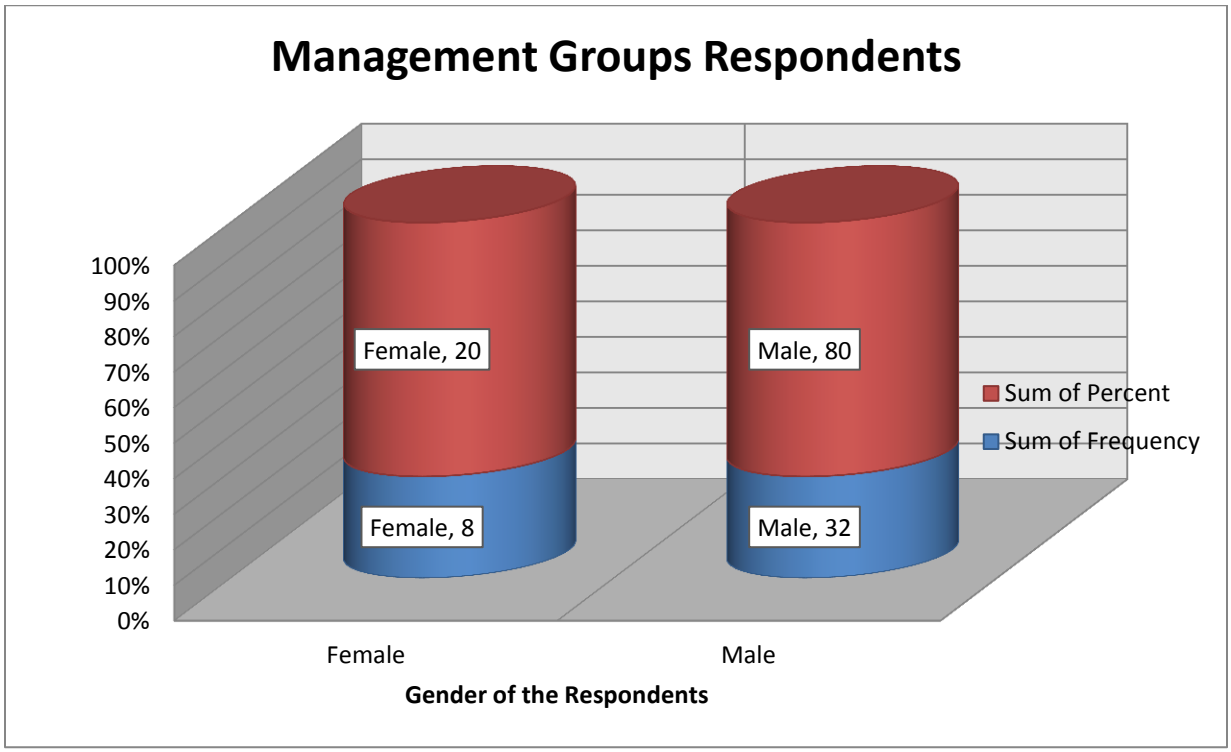
4. CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

This chapter presents the results of the study and interpretation of the findings. The chapter comprised of two sections. The first part presents the profile of participants showing gender, age group, level of education, work experience, and position of respondents using cross tabulation. The second section presents analysis of benefits and barriers by using tables and consisting of mean and standard deviation. Finally give answers for the research questions.

4.1. Demographic Information of the Respondents

N=112



N=255

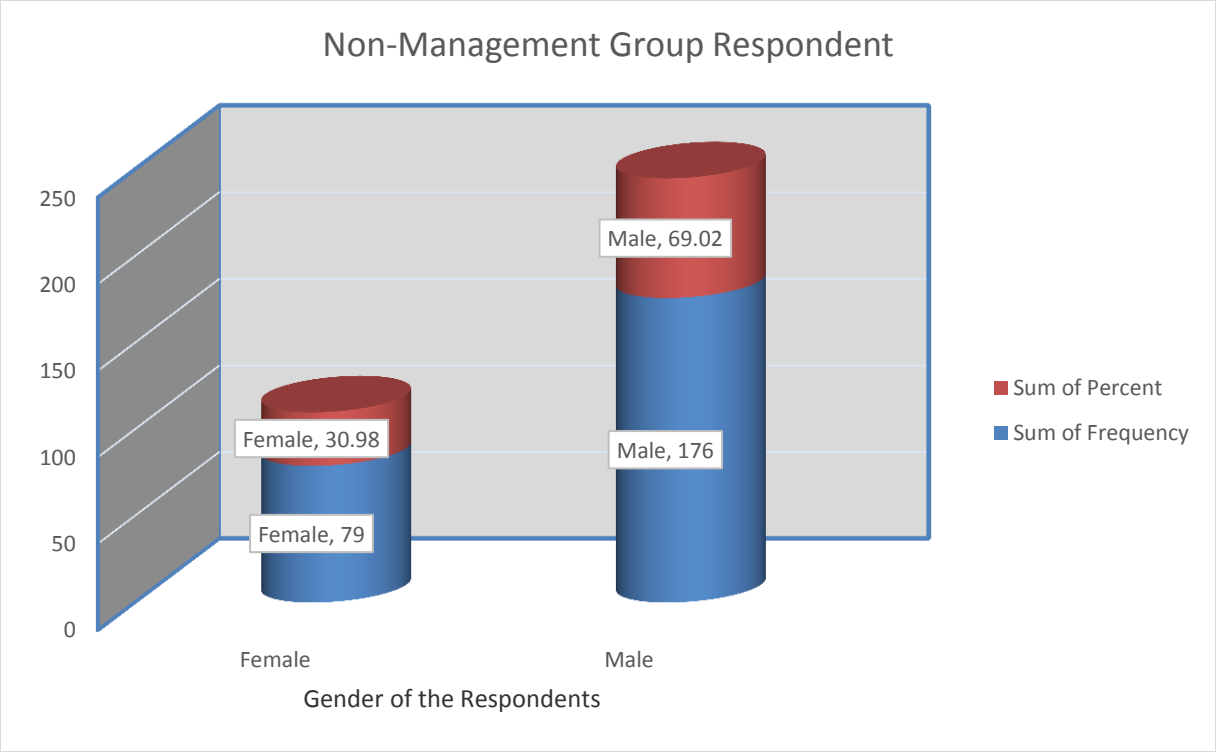


Figure 4 - Gender proportion based on employee category

After summarized the collected data it is easy to see that the composition of the company employee is highly dominated by male employees, but when the management and non-management position portion compared Female takes 20 percent of management position of the company whereas 30.98 percent of non-management employees. Similarly male management and non-management position portion is 80 and 69.02 percent respectively. This result shows the portion covered by female employees in non-management position approximately greater than by 11 percent to that of management position. Even if the result still shows the employee composition of the company dominated by Male, there is a great improvement compared to that of study made by Engidayehu Getachew (2014).

Table 6:– Age, Educational Status, Service Year, Employee Category, Work Unit, and ERP privilege granted of the respondents.

Demographic Information	Classification	Frequency	Valid Percent
Age	< 25	7	2.37%
	26-35	154	52.20%
	36-40	101	34.24%
	41 and above	33	11.19%
	Total	295	100%
Education Status	Diploma	7	2.37%
	BA/BSC	258	87.46%
	Masters	30	10.17%
	Total	295	100%
Service Year	<5	30	10.17%
	6-10	98	33.22%
	11-15	75	25.42%
	16-20	67	22.71%
	21 and above	25	8.47%
	Total	295	100%
Employee Category	Management	40	13.56%
	Non-Management	255	86.44%
	Total	295	100%
Work Unit	Finance	82	27.80%

	Human Resource	44	14.92%
	SFD	169	57.29%
	Total	295	100%
ERP privilege Granted	View	55	18.64%
	User	191	64.75%
	Super user	49	16.61%
	Total	295	100%

The table summarized six demographic features, of which tells some detail about the company, such as 89 percent of the employees cumulated under 41 years old that means the company composed with highly energetic and productive age groups employees, In addition their education status shows 87.46 percent BA/BSC, 10.17% Masters and only 2.37 hold diploma that means the company employees profile mostly covered by good education background. From these two features result the company has energetic, productive and good education background employees that contribute to meet its objectives and the company has human resource which can be easily transform to face the dynamic change of the business and technology.

As illustrated on table 4.1, majority of the employees have relatively shorter existence in the company. And to be specific, 33.22% of the respondents have been working with the company for at least 6 up to 10 years, whereas 10.17% of the respondents have an experience 5 years or less. Moreover, the other 25.42% of the respondents have an experience which spans from 11 up to 15 years while 22.71% of the respondents have been working with the company for at least 16 up to 20 years and the remaining

8.47%% have longer experience (which is 21 years and above) in the company. Out of the 295 employees who returned the questionnaire, 57.29% of the respondents belong to Sourcing and Facilities division while Finance Division covers 27.80% and the remaining 14.92% of respondents are from Human resources division. A total 13.56 percent of the participants' positions are management; and 86.44 percent are non-management Moreover, the company employee classified based on ERP privilege granted as having user, super-user and view access and replied the questioner 64.75%, 16.61% and 18.64% respectively.

4.2 Descriptive **statistics** of the study variables

This section discuss the summary statistics each variables under the categories of benefits and barriers. Under the benefit categories there are 31 detail lists of potential benefits under studies. Accordingly, the descriptive statistics for all variables under benefits are presented below in table 7

Table7. Descriptive statistics summary of benefits

	N	Maximum	Minimum	Mean	Standard Deviation
RD1	295	5	2	3.35254	0.981696
CTR2	295	5	1	3.65231	0.729807
PI3	295	5	2	3.396610	0.959373
QI4	295	5	2	3.389831	0.962157
PI5	295	5	1	3.267119	1.193781
BRM6	295	5	2	4.281356	0.750618
SBG7	295	5	2	3.918644	0.979462

GPD8	295	5	1	3.542373	1.070985
DFCC9	295	5	2	4.010169	0.934904
IC 10	295	5	1	4.220339	0.826183
LIL11	295	5	2	3.389831	0.962157
FBL12	295	5	2	3.755932	1.037440
IDM13	295	5	1	4.444068	0.730360
SOC14	295	5	1	3.847458	1.00000
BCV15	295	5	2	3.742373	1.047219
QIRT16	295	5	1	4.216949	0.825024
IOM17	295	5	2	3.396610	0.959373
IIC18	295	5	2	4.179661	0.776960
IOD19	295	5	1	3.31330	1.146001
IIS20	295	5	2	4.186441	0.784080
ICM21	295	5	2	3.410169	0.967797
EBP22	295	5	1	4.372881	0.771479
BCC23	295	5	1	4.20000	0.831358
BMC24	295	5	2	4.233898	0.757864
PRBF25	295	5	2	3.413559	0.964587
CFG26	295	5	2	3.396610	0.959373
IFC27	295	5	2	3.389831	0.9622157
FFC28	295	5	2	4.206780	0.774567
FAT29	295	5	1	4.345763	0.784051
IBL30	295	5	2	3.40000	0.959734
IR31	295	5	2	3.389831	0.9622157

Source: primary data, Sep-2016

A list of 31 potential benefits has been selected from previous study to identify the actual benefits realized in Ethio Telecom Company; respondents indicated the level of observation of those 31 different possible benefits in post implementation stage of ERP project on a 5-point Likert –type. The point of the scale ranged from “I have never experienced” (1) to “I have experienced too much” (5). A variable with a mean larger than three (the midpoint of the scale) accompanied with less standard deviation is regarded as important benefits.

The survey result shows that all items of list of benefits had a mean of greater than 3 00 having greater mean value of 4.444068 with standard deviation of 0.730360 that is less than 1 standard deviation and least mean value of 3.267119 with standard deviation of 1.193781 which is greater than 1 standard deviation. As standard deviation closer to one indicates close perception of respondents whereas greater than one standard deviation imply respondents’ perception were far away from another.so, the respondent perception for the response of improved on-time delivery, build common vision, facilitate business learning, generate product differentiation and performance improvement were far away from one another. The result also shows ERP systems certainly offer considerable benefit, the top benefits gained identified by the survey participant as follows: Improved interaction with customers, improved interaction with suppliers, More efficient business process, Better resource management, Decreased financial close cycle, Increase IT infrastructure, improved decision making, Quickened information response time, better coordination and cooperation b/n functions and different company department, better management and controlling function. Financial flow control, faster, more accurate transaction. These benefits are composed of both tangible and

intangible, also operational, managerial and IT infrastructural categories. These results suggest that ERP implementation in ethio telecom have realized variant type of benefits. These results are similar to the relevant literature.

Even though The result of Table7 show all variables are significant we infer that these variables obtain less perception comparably: Reduction of cost, cycle time reduction, Productivity improvement, Quality improvement, Generate product differentiation, Lowered inventory level, improved order management/order cycle, Improved on time delivery, Improved cash management, Possible redesign of ineffective business function, Control of flow of goods, Information flows control, Better logistics, Increased revenue are least important benefits results identified from the survey, these benefits are composed of 7 operational, 5 managerial and 2 strategic types of benefits. But according to ÖmürY.Saatçıoğlu (2007).realization of organizational and strategic benefit is impossible without realizing operational and managerial benefits, Moreover the reason behind it is lack of full implementation of the ERP project as shown in the survey. Hence, the result shows lack of full implementation ERP project prevents ethio telecom from realizing the expecting level of benefits from the least items.

4.3 Analysis of Barriers

A list of 20 potential barriers has been selected from previous study to identify the actual barriers faced in ethio telecom company, respondents indicated level of experience of those 20 different possible barriers were in ERP project on a 5-point Likert –type. The point of the scale ranged from “I have never met” (1) to “I have always met” (5). A

variable with a mean value larger than three (the midpoint of the scale) accompanied with closer than standard deviation one is regarded as important barrier.

Table 8 illustrated that, all variables except poor reporting procedure, poor software functionality and underperformed project team have greater than three mean within the interval 4.403390 mean value and 0.74914 standard deviation to mean value 2.827119 and 0.947936 standard deviation. There are seven variables respond obtain a standard deviation values greater than one implies the respondent perception far away one another. The variables listed on the top includes Difficulties in changing to new from old systems, Difficulties in estimating project requirements, Inadequate Training, Inadequate Ongoing Support and High costs of implementation.. These variables were found from two categories, namely technical and personal category.

Table 8 Descriptive statistics summary of barriers

	N	Maximum	Minimum	Mean	Standard Deviation
DCOS1	295	5	1	4.403390	0.749141
USPP2	295	5	1	3.166102	0.991222
NUM3	295	5	2	3.325424	0.801273
HCI4	295	5	1	3.983051	0.956388
DEPR5	295	5	2	4.071186	0.957436
SRS6	295	5	1	3.00000	1.124858
IRC7	295	5	1	3.138983	1.179908
GPD8	295	5	1	3.138983	1.179908
USDV9	295	5	1	3.044068	1.245983
CBFG10	295	5	1	3.461017	0.995400
IC11	295	5	2	3.081356	0.965471

BIS12	295	5	2	3.220339	0.88443
LOD13	295	5	1	3.074576	0.980003
LCM14	295	5	1	3.01.169	1.041600
IT15	295	5	1	3.735593	1.194341
PRP16	295	5	1	2.908475	1.057093
LPE17	295	5	1	3.284746	0.936925
PSF18	295	5	1	2.827119	0.947936
IOS19	295	5	1	3.481356	1.247647
UPT21	295	5	1	2.888136	0.890823

Source: Survey results, Sep, 2016.

The least barriers from the survey result are as follows: Unavailability of skilled project people, Turnover of key project people, significant resistance from staff, unclear strategic direction and vision for the use of ERP, Lack of commitment from top leadership, Incompetent consultants, Bugs in the software, Lack of discipline and Lack of change management. The result summarized that only one variable identified technical the rest eight were human factories. Therefore, the respondent seemed to perceive most human factories considered to be less important, the reason behind it clearly show that, the government and company intention to put ethio telecom in to a world class level telecom service company through reengineering every business structure and process became real and in progress, this intention bring a dramatic change in neutralize the human factories. Turnover of key employee and underperformed project team considered as least barriers in the empirical study but not here, also significant resistance considered as top barriers in other study but here as least barriers, Incompetent consultants, Bugs in the software and Lack of change

management considered here as least barriers but not in Ömür Y. Saatçıoğlu.(2007) study.

5. CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary of Findings

- Concerning the benefit realized by the company, the respondent perceived top benefits as follows: Cycle time reduction, Better resource management, Decreased financial close cycle, Increase IT infrastructure, improved decision making, Quickened information response time, better coordination and cooperation b/n functions and different company department, better management and controlling function. Financial flow control, faster, more accurate transaction.

- The least perceived benefits by the participants were Reduction of cost, Productivity improvement Quality improvement, Generate product differentiation, Lowered inventory level, improved order management/order cycle, Improved on time delivery, Improved cash management, Possible redesign of ineffective business function, Control of flow of goods, Information flows control, Better logistics, Increased revenue.

- The top benefit realized by the company composed of operational, managerial and IT infrastructure type, whereas the least benefit realized by the company operational, managerial and strategic type of benefits

- Lack of full implementation of ERP project prevent the company from realizing the expected operational and managerial benefits in return for possible realization of organizational and strategic benefits,

- Related with the potential of barriers, Difficulties in changing to new from old systems, Difficulties in estimating project requirements, Inadequate Training, Inadequate Ongoing Support and High costs of implementation were the top perceived barriers.

- Unavailability of skilled project people, Turnover of key project people, significant resistance from staff, unclear strategic direction and vision for the use of ERP, Lack of commitment from top leadership, Incompetent consultants, Bugs in the software, Lack of discipline and Lack of change management were also least barriers illustrated.

5.2 Conclusion

ERP packages touch many aspects of a company's internal and external operations. Consequently, successful deployment and use of ERP systems are critical to Organizational performance and survival. Because of the complexity of system implementation, the efforts may be expensive. Therefore, top managers are likely to require an evaluation of the success of the resulting system. In addition, mixed results lead the researchers to evaluate the performance of ERP implementation cited by Dara Schniederjans Surya Yadav, (2013).

A number of processes that are critical for the system's success found in the post-implementation stage. During post implementation stage, an organization engages in a number of activities, such as post-implementation review, support and maintenance, in order to minimize the risks of failure of ERP projects. Even though implementing and

having a functional ERP system, the organization needs to measure the impact of the ERP system on the organization post implementation phase A. Lotfy (2015).

This study aimed to identify potential benefits and barriers then test their user perception as to the realization of benefits and faced barriers. This research conducted in Ethiopian company namely ethio telecom. The results found were similar to the relevant study. The result presented in top and least benefits and barriers, and the result indicates not only the existence of benefits during post implementation phase but also lists of significant barriers.

The above finding leads to the following conclusion. Firstly, implementing and having a functional ERP system is not the end of the story, there are varies activates required to remain successful that time the company experience many effective barriers and important benefits, identify these barriers and benefits is one way to have successful ERP project in a desired level.

Further Research

- The study was carried out in a non-fully ERP project implemented company but there are company having fully implemented ERP project, successful implementation and failure ERP project. Therefore Research should be conducted in future to company having fully implemented ERP project and having a failure ERP project

5.3 Recommendation

- The company should maintain the realized benefits in-order to have a successful ERP projects
- The company also takes immediate action to reduce the level of barriers which can be a source of risk to brought failure in ERP projects.
- The company should take attention to those variables having greater significant values in barriers categories.
- To have a successful ERP project a continuous identification and test of the level should be made
- The company should test the level of benefit, if the expected benefit have not realized, they should investigate the reason or barriers and resolve it.
- To realize the expected benefit ERP project should be fully implemented and have a clear strategic direction and vision for the use of ERP.

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APPENDICES

1. QUESTIONER

ADDIS ABABA UNIVERSITY

College of Business and Economics

Master of Science in Accounting and Finance

Researcher: Abdi Jemal

Dear Respondents

The main purpose of this questionnaire is to gather information about the determinant factor of user satisfaction in ERP project in ethio telecom for the partial fulfillment of the requirements for Masters of Accounting & Finance at Addis Ababa University. The outcome of this study will be used for academic purpose only.

Therefore, your genuine response to the questions is vital for the quality and successful completion of the study. The accuracy of the information you provide highly determine the reliability of the study.

Contact Address:

Abdi Jemal
Tele - +251 911 50 41 02
E-mail – imranabdi2000@gmail.com

Thank you in advance for your unreserved cooperation

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

1.1. Gender

Male ☐ Female ☐

1.2. Age Group:

≤ 25 ☐ 26 – 35 ☐

36 – 40 ☐ 41 and above ☐

1.3. Educational Status:

Below Diploma ☐ Diploma ☐

BA/BSC ☐ Masters & Above ☐

Other please specify _____

1.4. Your service year:

≤ 5 ☐ 6 – 10 ☐

11 – 15 ☐ 16 – 20 ☐

21 and above

1.5. Which division are you working in?

Finance ☐ Sourcing & Facilities ☐

Human Resources ☐

1.6. The position you hold in the organization

Staff ☐ Supervisor ☐

Manager ☐ Officer ☐

Other _____

1.7. The ERP privilege right you have in the organization

User ☐ Super user ☐

Viewer ☐ Other _____

Part II: Issues Related with the study area

Do you think ERP projects provides the under listed benefits in your company?

Please read each list of benefits carefully and show the extent of your agreement on the list of benefits by circling the numbers in the column using the following rating scale (Likert Scale).

Where: 1=I have never experienced, 2= I have not experienced, 3=Neutral, 4=I have experienced and 5 =I have experienced too much

Ser. No.	**List of benefits**	**Scale**				
1	Reduction of cost	1	2	3	4	5
2	Cycle time reduction	1	2	3	4	5
3	Productivity improvement	1	2	3	4	5
4	Quality improvement	1	2	3	4	5
5	Performance improvement	1	2	3	4	5
6	Better resource management	1	2	3	4	5
7	Support business growth	1	2	3	4	5
8	Generate product differentiation	1	2	3	4	5
9	Decreased financial close cycle	1	2	3	4	5
10	Increased IT infrastructure capability	1	2	3	4	5
11	Lowered inventory levels	1	2	3	4	5
12	Facilitate business learning	1	2	3	4	5
13	Improved decision making	1	2	3	4	5
14	Support organizational changes	1	2	3	4	5
15	Build common visions	1	2	3	4	5
16	Quickened information response time	1	2	3	4	5
17	Improved order management/order cycle	1	2	3	4	5

18	Improved interaction with customers	1	2	3	4	5
19	Improved on-time delivery	1	2	3	4	5
20	Improved interaction with suppliers	1	2	3	4	5
21	Improved cash management	1	2	3	4	5
22	More efficient business processes	1	2	3	4	5
23	Better coordination and cooperation between functions and different company departments	1	2	3	4	5
24	Better management and controlling functions	1	2	3	4	5
25	Possible redesigning of ineffective business functions	1	2	3	4	5
26	Control of flow of goods	1	2	3	4	5
27	Information flows control	1	2	3	4	5
28	Financial flows control	1	2	3	4	5
29	Faster, more accurate transactions	1	2	3	4	5
30	Better logistics	1	2	3	4	5
31	Increased revenue	1	2	3	4	5

1. Based on your experience in the company, and using this scale from 1 to 5 circle in the table below, your opinion regarding the following list of barriers encountered in ERP project.

   Where: 1=I have never met, 2=I have not met, 3=Neutral, 4=I have met and 5=I have always met

Ser. No.	**List of barriers**	**Scale**				
1	Difficulties in changing to new from old systems	1	2	3	4	5
2	Unavailability of skilled project people	1	2	3	4	5
3	Turnover of key project people	1	2	3	4	5
4	High costs of implementation	1	2	3	4	5
5	Difficulties in estimating project requirements	1	2	3	4	5

6	Significant resistance from staff	1	2	3	4	5
7	In house resource constraints	1	2	3	4	5
8	Unclear strategic direction and vision for the use of ERP	1	2	3	4	5
9	Coordination between functional groups	1	2	3	4	5
10	Lack of commitment from top leadership	1	2	3	4	5
11	Incompetent consultants	1	2	3	4	5
12	Bugs in the software	1	2	3	4	5
13	Lack of discipline	1	2	3	4	5
14	Lack of change management	1	2	3	4	5
15	Inadequate Training	1	2	3	4	5
16	Poor Reporting Procedures	1	2	3	4	5
17	Lack of Process Engineering	1	2	3	4	5
18	Poor Software Functionality	1	2	3	4	5
19	Inadequate Ongoing Support	1	2	3	4	5
20	Underperformed Project Team	1	2	3	4	5

2. Based on your perception, circle the below number using the following rating scale of the ERP project implemented in your company?

1 = ERP project is too below of my expectations,
2 =ERP project is below my expectation,
3=Neutral,
4=ERP project met my expectation and
5=ERP project exceed my expectation.

If there is any other issue/ problem that you observed in relation to ERP implementation and its utilization, please write down here;

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……
……
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Thank You Again!