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Department of Public Administration and Development Management

Master in Public Management and Policy

Assessment of Enterprise Resources Planning (ERP) Implementation:

The case of ethio telecom

A THESIS SUBMITTED TO THE SCHOOL OF GRADUATE STUDIES OF ADDIS ABABA UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTERS IN PUBIC MANAGEMENT AND POLICY

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This is to certify that the thesis prepared by Engidayehu Getachew, entitled: Assessment of Enterprise Resources Planning (ERP) implementation: the case of ethio telecom is submitted in Partial fulfillment for the Degree of Masters of Arts (Public Management and Policy, Development Management Stream) complies with the regulations of the University and meets the expected standard with respect to originality and quality.

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List of Acronyms and Abbreviations

ERP	Enterprise Resource Planning
E-business	Electronic Business
SMEs	Small to Medium Enterprises
APS	Advanced Planning and Scheduling
CRM	Customer Relations Management
SCM	Supply Chain Management
IC	Inventory Control
MRP	Material Requirement Planning
MRP II	Manufacturing Resource Planning
HR	Human Resource
SFD	Sourcing and Facility Division
B2B	Business to Business
B2C	Business to Customer
BPR	Business Process Reengineering
ITU	International Telecommunications Union
eTOM	Enhanced Telecom Operating Map
PCMM	People Capability Maturity Model
CRP	Conference Room Pilot
UAT	Users Acceptance Test
I-Procurement	Internet Procurement

Abstract

Ethio Telecom has introduced a new information system solution named ERP (Enterprise Resources Planning) in 2011, following its restructuring. Therefore, the major objective of this study is to assess the implementation of Enterprise resources planning in ethio-telecom and to recommend possible solutions for the gap created during the implementation. As result, the researcher has tested the implementation effectiveness by selecting major effectiveness variables and other related concepts. This research has a descriptive nature which elaborates the existing phenomenon as it exists. The data was collected using questionnaires from a sample population. The collected data was analyzed using mainly by computer such as SPSS (Statistical Package for the Social Sciences) version 20.

Furthermore, three work units/strata have been selected since these work units are the major owner of the modules in the system, accordingly 40 employees from management and 268 from non-management categories were taken as a sample by using stratified random sampling technique and questionnaires were distributed accordingly. Consequently, results shows 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 and lack appropriate customization process in relation to the companies as well as countries regulatory framework were also identified as the next most serious problems. Finally, the reporting formats as per of the user friendly nature of the system has been identified as a major challenge in relation to the decision making activity and other external stakeholders consumption.

Hence, the researcher has recommended that the company should re-consider its system utilization, since there are important features not yet utilized by the company even if the license is fully procured from oracle by ethio-telecom. Moreover, the company should also revisit whether in considering the required business requirements through customization, I addition the company has to implement adequate training and development in order to equip both end-users and super users so that they can easily work on the system and support each other even if integrators are not there. Finally, the company should give emphasis for the reporting formats so that any decision maker or external stakeholder can understand it easily.

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 require 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 costs, 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 bring 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 companies 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 are 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 finance, human resources and supply chain management.

1.2. Background of 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. Statement of the Problem

Ethio Telecom, the company under study, has been serving the public for long period of time. However, it was very challenging to continue with the existing management style and technology as a result of the dynamic environment of the sector. Therefore, the government planned a reengineering project which was undertaken from 2007 to 2010 and that was mainly designed to introduce world class business processes including the implementation of "Enterprise Resource Planning" system and to bring in latest telecommunication technologies in to the organization. In the meantime, the company had been working with different international companies from America, China, India, and France in the form of outsourcing of some activities, benchmarking and consultation services.

Since December, 2010, based on the newly introduced organizational objective and structure, an IT solution named Enterprise Resource Planning has been introduced in a manner that fits the current work arrangements and expectations.

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. 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).

As cited by Ibrahim (2010) 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.

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, internal processes and other vital parameters.

Therefore, it is very difficult to say the fiasco of implementation has existed because of the inefficiency of the tool, nature of the country, nature of the company, policies and procedures or other things unless a detailed investigation is done.

The researcher has many reasons to conduct this research ,among them nature of the telecom industry, nature of Enterprise Resource planning (ERP), nature of ethio-telecom employees' competency, Performance and behavior are the major ones; these reasons makes this paper different from those researches which were conducted on the same topic. Mainly, other papers contextualized themselves on developed countries. Assessing the benefits and challenges which are explained here are mainly influenced by the above reasons.

Shiri (2012) and other scholars discussed different benefits and challenges of companies as a result of implementing HRIS. Some of the major observed problems are:-

1. After implementing the system, companies don't know the generated benefits and the faced challenges.
2. Some companies say they got the benefit but they can't quantify it clearly. I.e. if things can't be measured they can't be managed.
3. Some company even don't know whether the benefit is transactional, traditional or transformational
4. Some companies know the type of the benefit but they can't categorize them.
5. Some companies can't assess whether the HRIS has fulfilled its promises or not.

In all these problems the reasons are different.

Therefore the main reason to conduct this research is the scarcity of other researches which contextualize Ethiopia on the discussed topic. In addition to that, currently, after implementing the phase one Project of Oracle ERP, the company is on the verge of implementing the second phase of Enterprise resource Planning. Hence, the company has to learn from the strengths and weaknesses of the first phase implementation - they have to know clearly the real benefits they

enjoyed and the potential benefits they haven‘t figured out yet – they have to know the problem they faced on first phase and have to take corrective action for the upcoming second phase.

1.4. Research Question

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

Main Research Question:

- ✓ How much effective is the current deployed ERP system in transforming the legacy of manual working condition in to automated system at ethio telecom?

Specific questions:

1. Does ERP system properly customized considering the existing company work process and countries regulatory activity?
2. What are the actual and potential challenges of Implementing ERP?
3. How far a capacity building program has been implemented to equip system users?
4. What are the major challenges in integrating the business requirements of the company?

1.5. Objective of the Study

The general objective of the research is to assess the benefits and challenges of implementing Enterprise Recourses planning (ERP) in ethio-telecom and to recommend possible solutions for the gap.

Specifically, the study has the under listed specific objectives:

- ➢ To explore whether the deployed has been system formulated in a way which fulfills the requirements of bringing the intended result in changing the manual working process
- ➢ To examine the extent of capacity building program implemented to equip all system users to perform doing their day to day activity using the system
- ➢ To assess and identify the challenges and problems which hamper the effectiveness of the system deployment and to recommend possible solutions.
- ➢ To investigate and make comparisons regarding what employees are facing about the system simplicity (whether it is user friendly or not).

1.6. Scope of the Study

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, Finance and Sourcing & Facility Divisions.

From the country-wide branches of ethio-telecom, the researcher has only focused on the company's Head Quarter and its six remaining Addis Ababa's (Zone) offices. The main reason of selecting these geographical locations is mainly due to the geographical constraint.
Finally, the delimitations of this research is, since this system is being deployed since 2012 (2 years), the feedbacks received from the respondents are based on their 2 years' experience only.

Not only the feedbacks, the data which are used by the researcher regarding this specific ERP have being cooked with in these years only.

1.7. Significance of the Study

The findings of the research have both practical and theoretical significances. Some of them are:-

- It is intended that the findings of this research project is to 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 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.
- Finally, it provides useful information and practical suggestions that may help managers of the company at different level and users to get a better understanding of how to deploy such systems. And the recommendations could also be used as an input for the second phase ERP System deployment which is planned to be implemented early 2008 E.C.

1.8. Organization of the Paper

The research report comprises five chapters; the first chapter contains introduction of the study which consists of background of the study, background of the organization, statement of the problem, research questions, objectives 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. And in chapter three the research methodology and design has been detailed and the sample size and was also determined. Then, chapter four presents all the collected data in a clear manner and the analysis accordingly.

And finally, the last chapter is about is the conclusion and recommendation, which portrays the summary, conclusion, limitation of the study and recommendation part.

Chapter Two

LITERATURE REVIEW

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 and its related evolutional stags, the conceptual understanding by differentiating ERP with E-Business, common ERP platforms, it's characteristics from the technical, organizational and information perspective and ERP implementation success and failure factors will be dealt 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. Theoretical Literature

2.1.1. 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).

2.1.2. 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

2.1.3. Characteristics of ERP

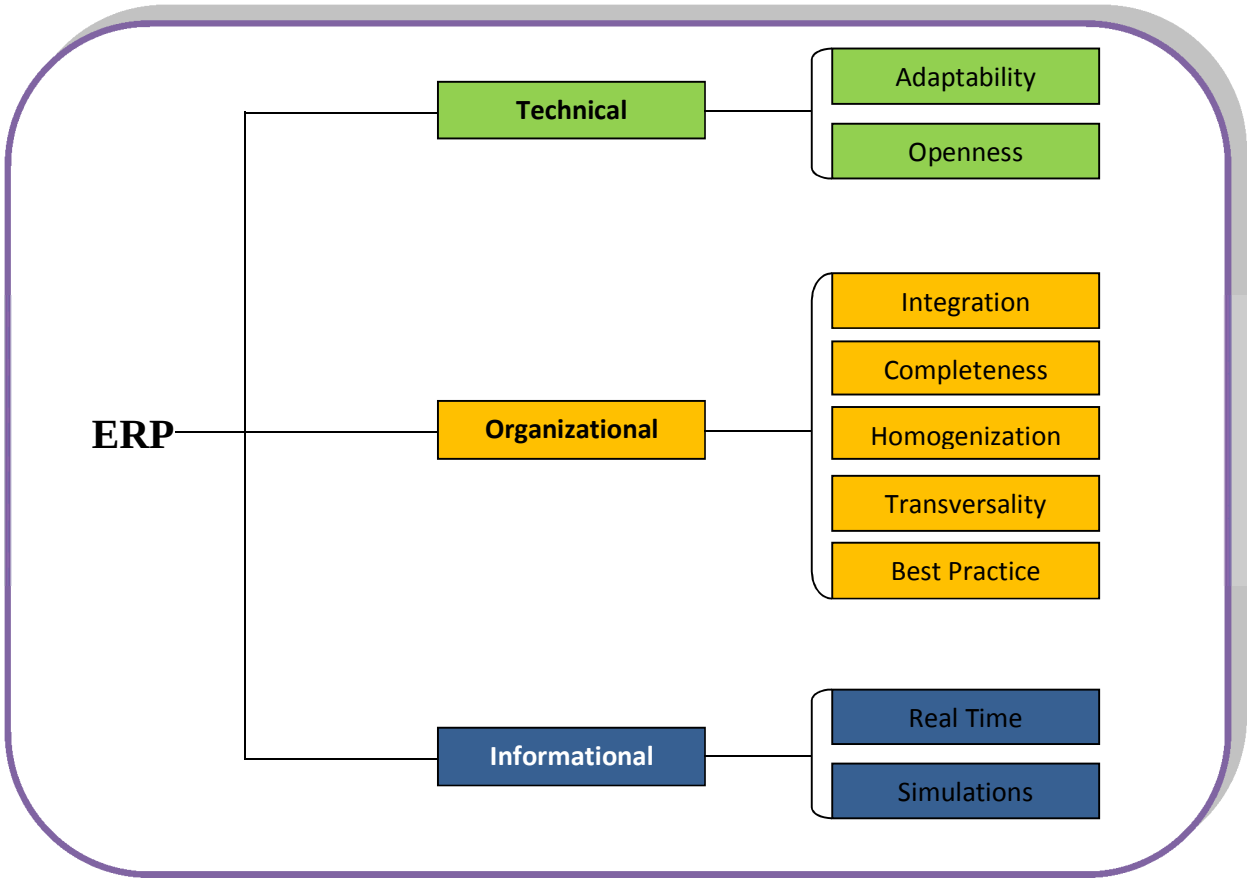
An ERP system can be defined as an adaptable and evaluative commercial package that supports, in real time and in an integrated manner, the management of most if not all of a firm's business processes. One can attempt to better define it by looking at its characteristics. In this regard, an attentive observer of both the research and professional literature will denote quite a number of attributes deemed to be possessed by ERP systems.

For a better understanding, Sylvestre (2004:71) has categorized characteristics of ERP system under three dimensions in regards to their nature, namely technical, organizational and informational, as presented in Figure 2.1. The technical dimension regroups characteristics that refer to the capabilities or facilities for applications development offered by ERP systems in comparison to traditional systems. This includes two basic characteristics: flexibility (adaptability) and openness (evolutionary).

The organizational dimension refers to the system's deployment in the firm. These are the characteristics that best reflect the impact of an ERP system on the organization, on its structure as well as its practices. This includes integration, completeness (generic function), homogenization, transversality (process-oriented view) and best practices.

The informational dimension regroups characteristics that relate to the quality and usefulness of the information provided by the system, namely real-time (update and consultation) and simulation (of actual business processes).

Figure 2.1: ERP characteristics under three dimensions



Source: - Enterprise Resource Planning Systems: Graeme Shanks and Peter B. Seddon (P-81, 2002)

2.1.4. 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)

Figure 2.2 Evolution of ERP

Source: - The Evolution of ERP Systems: A Historical Perspective, Mohammad A. Rashid (P-4, 2002)

2.1.4.1. Material Requirements Planning (MRP)

Wallace F. (2001:6) explained that Material Requirements Planning (MRP), an outgrowth of early efforts in bill of material processing. MRP's inventors were looking for a better method of ordering material and components, and they found it in this technique. MRP simulates the

universal manufacturing equation. It uses the master schedule (What are we going to make?), the bill of material (What does it take to make it?), and inventory records (What do we have?) to determine future requirements (What do we have to get?).

MRP could detect when the due date of an order (when it's scheduled to arrive) was out of phase with its need date (when it's required). For the first time ever in manufacturing, there was a formal mechanism for keeping priorities valid in a constantly changing environment. This is important, because in a manufacturing enterprise, change is not simply a possibility or even a probability. It's a certainty, the only constant, the only sure thing. The function of keeping order due dates valid and synchronized with these changes is known as priority planning. (ibid, 2001:6)

Techniques for helping plan capacity requirements were tied in with Material Requirements Planning. Further, tools were developed to support the planning of aggregate sales and production levels (Sales & Operations Planning); the development of the specific build schedule (master scheduling); forecasting, sales planning, and customer-order promising (demand management); and high-level resource analysis (Rough-Cut Capacity Planning). Systems to aid in executing the plan were tied in: various plant scheduling techniques for the inside factory and supplier scheduling for outside factory. (ibid, 2001:8)

2.1.4.2. Manufacturing Resource Planning (MRP II)

Manufacturing Resource Planning or MRP II (to distinguish it from Material Requirements Planning, MRP) is a direct outgrowth and extension of MRP.

Wallace F. (2001), explained that in the 1980's MRP expanded from management of materials to plant and personnel planning and distribution planning, which in turn became MRPII (Manufacturing Resource Planning). As the materials requirements planning systems matured in the 1970s and 1980s, other portions of the productive system were naturally added to the computer software system.

As it is indicated by Thomas F. (2001:9), the manufacturing resources planning involve three additional elements:-

I. Sales & Operations Planning—a powerful process to balance demand and supply at the volume level, thereby providing top management with far greater control over operational aspects of the business.
II. Financial interface—the ability to translate the operating plan (in pieces, pounds, gallons, or other units) into financial terms (dollars).
III. Simulation—the ability to ask "what-if" questions and to obtain actionable answers—in both units and dollars. Initially this was done only on an aggregate, "rough-cut" basis, but today's advanced planning systems (APS) enable effective simulation at very detailed levels.

Falls 1999 (Cited by Thomas F., 2001:10), Manufacturing Resource Planning (MRP II) - A method for the effective planning of all resources of a manufacturing company. Ideally, it addresses operational planning in units, financial planning in dollars, and has a simulation capability to answer "what-if" questions. It is made up of a variety of functions, each linked together: business planning, sales and operations planning, production planning, master scheduling, material requirements planning, capacity requirements planning, and the execution support systems for capacity and material. Output from these systems is integrated with financial reports such as the business plan, purchase commitment report, shipping budget, and inventory projections in dollars. Manufacturing resource planning is a direct outgrowth and extension MRP.

2.1.4.3. Enterprise Resource Planning (ERP)

Thomas F. (2001:26), also explains ERP as the same as with MRP II. However, thanks in large measure to enterprise software, ERP as a set of business processes is broader in scope, and more effective in dealing with multiple business units. Financial integration is even stronger. Supply chain tools, supporting business across company boundaries, are more robust. He also defined Enterprise Resource Planning (ERP) as business software which predicts and balances demand and supply. It is an enterprise-wide set of forecasting, planning, and scheduling tools, which:

- ✓ Links customers and suppliers into a complete supply chain,
- ✓ Employs proven processes for decision-making, and

- ✓ Coordinates sales, marketing, operations, logistics, purchasing, finance, product development, and human resources.

Its goals include high levels of customer service, productivity, cost reduction, and inventory turnover, and it provides the foundation for effective supply chain management and e-commerce. It does this by developing plans and schedules so that the right resources-manpower, materials, machinery, and money—are available in the right amount when needed.

Thomas F. (2001:28), summarizes enterprise resource planning is a direct outgrowth and extension of Manufacturing Resource Planning and, as such, includes all of MRP II's capabilities. ERP is more powerful in that it: a) applies a single set of resource planning tools across the entire enterprise, b) provides real-time integration of sales, operating, and financial data, and c) connects resource planning approaches to the extended supply chain of customers and suppliers. The primary purpose of implementing Enterprise Resource Planning is to run the business, in a rapidly changing and highly competitive environment, far better than before.

2.1.5. ERP and E-Business

According to Fiona (2002:2), ERP is a structured approach to optimizing a company's internal value chain. The software, if implemented fully across an entire enterprise, connects the various components of the enterprise through a logical transmission and sharing of data. When customers and suppliers request information that have been fully integrated throughout the value chain or when executives require integrated strategies and tactics in areas such as manufacturing, inventory, procurement and accounting, ERP systems collate the data for analysis and transform the data into useful information that companies can use to support business decision-making. ERP systems, if implemented successfully, enhance and redesign business processes to eliminate non-value-added activities and allow companies to focus on core and truly value-added activities.

E-business stands for "electronic business," which involves communications and doing business electronically through the Internet. E-business is defined as "the use of electronically enabled communication networks that allow business enterprises to transmit and receive information". It can significantly improve business performance by strengthening the linkages in the value chain between businesses (B2B) and consumers (B2C). Besides increasing

efficiency in selling, marketing and purchasing, e-business achieves effectiveness through improved customer service, reduced costs and streamlined business processes. Furthermore, e-business creates a strategic, customer-focused business environment for shared business improvements, mutual benefits and joint rewards. Companies use the Internet to implement customer-relation-management (CRM) and supply-chain-management (SCM) capabilities, which enable them to link their operations seamlessly with customers and suppliers. (ibid, 2002:3)

By definitions and by their respective functions, traditional ERP systems take care of internal value chain (i.e., within a company) whereas e-businesses establish the value chain across the market and the industries. More and more companies construct their systems' architectures by integrating ERP systems with e-business. They use Web-based interface (corporate portals) with outside entities plus add-on modules such as CRM, SCM, etc. in the integration.

2.1.6. ERP Implementation Success and Failure Factors

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.

2.1.6.1. 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.

2.1.6.2. ERP Implementation Failure Factors

In spite all the benefits implementing ERP is a risky undertaking. The truth is that due to the behavioral and management related challenges in the implementation process many ERP projects have been terminated. The reasons being: end-user not being ready, resistance to change, lack of user education and training, high turnover of key personnel, lack of communication and support documentation.

In addition, ERP implementation usually requires an extensive level of BPR or transformation as it happen in Ethio telecom, which means redesigning existing business processes in way that they are the best supported by the system. The change BPR/Transformation requires produces resistance from the employee's side as they see it as a threat to their job security.

According to O'Leary D.E. (2000) all the risks throughout the ERP implementation cycle can be categorized into three main groups:

- ✓ **Technical**

  Technical risks arise largely from the information processing, for instance, problems with software modifications, system integration, data errors, operating systems, network capabilities et cetera.

- ✓ **Business**

  Business risks derive from the models, artifacts and processes that are chosen for the ERP implementation such as insufficient resources, competitor's position in the market, cost and benefit judgments, cost and time overruns, problems with customers and suppliers, drop in company's key performance indicators and similar.

- ✓ **Organizational**

  Organizational risks occur from the people, organizational structure and environment in which the system is implemented, for example, lack of end user and personnel training, turnover of key personnel, cultural issues, choosing the right consultant, business process reengineering and so forth.

Technical risks are largely related to the information processing technology and are usually handled by the company professionals and vendors. Business and organizational risks are the most critical and difficult ones to manage.

2.1.6.3. Critical Success Factors

ERP Implementation success depends on different factors like people management, organizational issues, change management, process reengineering and training. For example, the recent study of L. Ganesh (2010) has identified the following key success factors for ERP implementation:-

1. Business Plan, Vision

2. Top Management Commitment and Support
3. Project Champion
4. Focused Performance Measure
5. Change Management Process
6. Effective Communication Plan
7. Risk Management
8. Post Implementation Evolution
9. BPR and Software Configuration

On top of these success factors Gargeya and Brandy (2005) has identified six major critical success factors by using a content analysis model and searching different articles and books.

Factor 1: Worked with Functionality/Maintained Scope

A crucial part of working with the ERP functionality is the ability to streamline operations. When implementing a system, many organizations fail to specify their organizational objectives. Job skills are raised by the requirements of the new, post-implementation company. Idiosyncratic ways of doing business, which were manageable, although most likely inefficient, under the "old system" are no longer tolerated. Companies that do not understand these issues early on will face serious problems, Davenport, 2000 (Cited by Gargeya and Brandy, 2005:37).

The ability to implement ERP with minimum customization requires assistance from several other factors, primarily streamlining operations and re-engineering the business – both of which will help the organization to run in a more straightforward manner. Thorough planning is also a close partner, as it is threaded through the plans from scope to budgets (Gargeya and Brady, 2005: 43).

Scope is the initial "blueprint" of an implementation plan. Within this original plan, budgetary and resource needs are established. During the course of the project, it can be easy, often transparently so, to become so involved in details that additional responsibilities or requirements are added or affected. Suddenly, but not often too late, the realization comes that the project is a victim of "scope creep". The ability to maintain scope is closely related to planning, and it is possible to achieve for companies both large and small (ibid, 2005: 51).

Maintaining scope is just as important for small companies as it is for large organizations. The approach for "rolling out" their implementation is another very important consideration.

Factor 2: Project team/Management support/Consultants

The ERP team should consist of the best people in the organization. Building a cross-functional team is also critical. The tam should have a mix of consultants and internal staffs so the internal staff can develop the necessary technical skills for design and implementation.

The team should be given compensation and incentive for successfully implementing the system on time and within the assigned budget. The team should be familiar with the business functions and products so they know what needs to be done to support major process Rosario, 2000 (Cited by Gargeya and Brandy, 2005:63).

A successful implementation is only achievable when high-level executives have a strong commitment to the project. The attitude of senior managers will affect not only the flow of funds and information to the project, but also the subordinate view the project, its future impact upon the company as a whole, and its impact upon the employees as valued and capable individuals. Top management support is needed throughout the implementation. The project must receive approval from top management and align with strategic business goals. This can be achieved by tying management bonuses to project success (Wee, 2000)

Due to the complexities of implementing an ERP system, most companies choose to hire consultants to help them select, configure, and implement the system. Walti N. (1999) argues that the success of a project depends on the capability of the consultants, because they have in depth knowledge of the software. Somers and Nelson (2001) pint out that consultant should be involved in different stages of the ERP project implementation.

Factor 3: Internal Readiness/Training

The "people element" and training aspect of an ERP implementation have historically received the least amount of attention. The paradox of this is that when this factor is ignored or downplayed, primarily because it does not have the largest quantifiable benefit, expenses are greatly increased in the long run. By treating resource training with little regard and financial support, it is not hard to realize the reality of delay, confusion and finical ruin that may result. Some companies insist on assigning a fixed cost or percentage to the training effort, regardless of need or variable conditions (Gargeya and Brady, 2005).

This mistake has certainly been the root cause of many failed implementation attempts. Fortunately, it has also been a source for others to learn from such experiences and avoid repeating the mistake (ibid, 2005).

Gargeya and Brady (2005) states that people element must be handled on two levels. At one level, employee must be trained on the new system in order to use it to continue day-to-day operations. The second level is educational exposure. Managers must know and understand the implications of the system, and must come to a consensus about the changes that will take place. If they agree that change is necessary and possible. If managers are not in agreement or collaboration, then there will be no "enthusiasm", or buy-in, and there may even be active resistance (Davenport, 2000). The reinforcement of a "team environment" is critical to the overall success of an ERP implementation. Members of the project team should be encouraged to support each other and work toward common goals. This also leads to a "cross-pollination" effect, resulting in a more collaborative and self-sufficient mix of talent and responsibilities (Gargeya and Brady, 2000).

Many companies have been guilty of making simplistic assumptions of how an implementation will affect the culture within their organization. Culture changes do not occur magically, and must be handled with utmost care and precision (Davenport, 2000). These changes directly relate to the human cost element, or human psyche. All managers must be changed with the responsibility of controlling workers anxiety and resistance to the ERP system (Aladwani, 2001).

A culture with shared values and common aims is conducive to success. Organizations should have a strong corporate identity that is open to change.

As part of the change management effort, users should be involved in design and implementation of business processes and the ERP system, and formal education and training should be provided to help them do so. Education should be a priority from the beginning of the project, and money and time should be spent on various forms of education and training (Roberts and Barrar, 1992).

Training, re-skilling and professional development of the IT workforce is critical. User training should be emphasized, with heavy investment in training and re-skilling of developers in software design and methodology. Employees need training to understand how the system will change business processes. There should be extra training and on-site support for staffs as well as managers during implementation (Wee, 2000)

Factor 4: Deal with Organizational Diversity

Organizations have many cultures. Individual branches of the same organization have their own ways of doing things, and each function/department operates with different procedures and business requirements. Not unexpectedly, the larger, more global companies cite their diversity as an obstacle to success (Gargeya and Brady, 2005). Individual units and groups are often companies of their own right, and do not wish to be assimilated in to one corporate culture. "Re-engineering" of the business is required here, both on the "people" level, and on the operational level. This organizational diversity differs from factor #1 (work with functionality/maintained scope) in that the company changes its culture, not just its processes.

In addition to having important strategic implications, enterprise systems also have a direct, and often paradoxical, impact on a company's organization and culture. On the other hand, by proving universal, real-time access to operating and financial data, the system allow companies to streamline their management structures, creating flatter, more flexible, and more democratic organizations. On the other hand, they also involve the centralization of control over information and the standardization of process, which are qualities more consistent with hierarchical, command-and-control organizations with uniform cultures (Davenport, 1998).

Davenport (1998) argues that for Multinational Corporation, enterprise systems raise another important organizational question: How much uniformity should exist in the way it does business in different regions and countries?

Some large companies have been even more ambitious, using the systems as the basis for introducing a global lean-production model. By imposing common operating process on all units, they are able to achieve tight coordination throughout their business. They can rapidly shift sourcing, manufacturing, and distribution functions worldwide in response to changing

patterns of supply and demand. This capability allows them to minimize excess manufacturing capacity and reduce both component and finished-goods inventory (ibid, 1998).

For most companies, however, differences in regional markets remain so profound that strict process uniformity would be counterproductive. If companies in such circumstances don't allow their regional units to tailor their operations to local customer requirements and regulatory strictures, they risk sacrificing key markets to more flexible competitors (ibid, 1998).

Factor 5: Planning/ Development/Budgeting

Planning a sophisticated ERP project should not be taken lightly or with little forethought. As mentioned before, there are enormous potential costs associated with such an undertaking. In addition to the high costs paid out before the go live date, there can and have been major expenses incurred by companies that were unable to fully develop a comprehensive plan. Planning should be closely identified with maintaining scope during an implementation. Cost overruns and developmental delays are costly, sometimes fatal results of ineffective planning. (Gargeya and Brady, 2005)

A clear business plan and vision to steer the direction of the project is needed throughout the ERP life cycle. A business plan that outlines proposed strategic and tangible benefits, resources, costs, risks and timeline is critical (wee, 2000). This will help keep focus on business benefits.

There should be a clear business model of how the organization should operate after the implementation effort. There should be a justification for the investment based on a problem and the change tied directly to the direction of the company. Project mission should be related to business need and should be clearly stated. Goals and benefits should be identified and trucked; the business plan would make work easier and impact on work.

Software development, testing and troubleshooting is essential, beginning in the project phase. The overall ERP architecture should be established before deployment, taking in to account the most important requirements (Wee, 2000).

There is a choice to be made on the level of functionality and approach to link the system to legacy systems. In addition, to be meet business needs, companies may integrate other specialized software products with the ERP suite. Interfaces for commercial software applications or legacy systems may need to be developed in-house if they are not available in the market (Bingi et al., 1999).

Factor 6: Adequate Testing

System testing has proven to be the key element of success for some companies and a direct cause of failure for others (Gargeya and Brady, 2005).

Gargeya and Brady, (2005) argue that "after months or years of development, it may be feasible to assume that both team members as well as executive management are tired of dealing with the project and just want it to be completed". The result of this myopic thinking, however, is that testing is reduced or ignored, and "red flags" are disregarded.

Troubleshooting errors is critical; the organization implementing ERP should work well with vendors and consultants to resolve software problems. Quick response, patience, perseverance, problem solving and firefighting capabilities are important, because vigorous and sophisticated software testing eases implementation (Rosario, 2000).

Scheer and Habermann (2000) indicate that modeling methods, architecture and tools are critical. Recruitments definition can be created and system requirements definition can be documented. There should be a plan for migrating and cleaning up data. Proper tools and techniques and skill to use those tools will aid in ERP success.

This also proves the importance of another factor – top-management support. Unrealistic fears of delaying the "go-live" deadline indicated that senior executives were not completely "in tune" to the importance of completely testing the implementation; even that resulted in a slight delay.

2.1.6.4. 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.

2.1.7. Key Players and Activities in ERP Implementation

Nelson (2004); investigated the importance of the key players and 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 players and 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 players and activities across ERP implementation process are the following:-

2.1.7.1. Key Players

Top Management

These are the executive organ of the organization who will involve on key and strategic decision making process. Sustained management support and management's active involvement in monitoring the progress of the project and providing directions to project teams are essential throughout the implementation project.

Steering Committee

The steering committee consisting of senior management from different corporate functions, senior project managers and system end users ensures their active involvement and is critical for the success of the project and hey make an intense and close follow up during the entire project time. Their impact is highest at the initiation, adoption, adaptation and acceptance stages a at the project life cycle.

Implementation Consultants

Companies rely on outside expertise for set-up, installation and customization of their software systems. However, consultants' role declines in the last stages of the implementation when the system becomes operational.

Project Team

The project team's business and technological competence determines either the success or failure of the project. Their expertise needs to compensate the team members' lack of knowledge. Project team's role is more important during the earlier stages of the implementation and less important after post-installation.

Vendor - Customer Partnerships

A close relationship between the software buyer and vendor has a positive impact on the success of ERP project and is critical at the earlier stages of the implementation.

Vendor's Tools

Rapid implementation technologies and programs such as business process modeling tools, industry specific solutions, bundling server hardware with ERP software, support services and the like can substantially reduce the cost and time of ERP implementation. These tools provided by the vendors have a central role during adoption and adaptation stages.

Vendor Support

Implementing an ERP system is a life-long commitment and requires continuous investments in adding new modules and upgrading the system. Thus, vendor support, for instance, technical assistance, emergency maintenance, updates, user training and the similar is essential through post-implementation stages.

2.1.7.2. 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 employees' 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 routinization 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 organizations need to adjust their business processes to the software. Business process 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.

2.1.8. Phases of the ERP Life-Cycle

The phases of the ERP life-cycle consist in the several stages that an ERP system goes through during its whole life within the hosting organization. The following ERP implementation Phases has been identified by Jones M. Esteves,(2002: 53); adoption decision phase, acquisition phase, implementation phase, use and maintenance phase, evolution phase and retirement phase.

1. **Adoption decision Phase:-** This phase is the one during which managers must question the need for a new ERP system while selecting the general information system approach that will best address the critical business challenges and improve the organizational strategy. This decision phase includes the definition of system requirements, its goals and benefits, and an analysis of the impact of adoption at a business and organizational level.
2. **Acquisition Phase:-**This phase consists of the product selection that best fits the requirements of the organization. Thus, minimizing the need for customization. A consulting company is also selected to help in the next phases of the ERP life-cycle especially in the implementation phase. Factors such as price, training and maintenance services are analyzed and, the contractual agreement is defined. In this phase, it is also important to make an analysis of the return on investment of the selected product.
3. **Implementation Phase: -** This phase consists of the customization or parameterization and adaptation of the ERP package acquired according to the needs of the organization. Usually this task is made with the help of consultants who provide implementation methodologies, know-how and training.
4. **Use and maintenance Phase: -** This phase consists of the use of the product in a way that returns expected benefits and minimizes disruption. During this phase, one must be aware of the aspects related to functionality, usability and adequacy to the organizational and business processes. Once a system is implemented, it must be maintained, because malfunctions have to be corrected, special optimization requests have to be met, and general systems improvements have to be made.
5. **Evolution Phase: -**This phase corresponds to the integration of more capabilities into the ERP system, providing new benefits, such as advanced planning and scheduling, supply-chain management, customer relationship management, workflow, and expanding the frontiers to external collaboration with other partners.
6. **Retirement Phase: -** This phase corresponds to the stage when with the appearance of new technologies or the inadequacy of the ERP system or approach to the business needs, managers decide if they will substitute the ERP software with other information system approach more adequate to the organizational needs of the moment.

2.1.9. Reasons for Ethio Telecom to Go for ERP

For the developing world, a modern telecommunications infrastructure is not only essential for domestic economic growth, but a prerequisite for participation in increasingly competitive world markets and for attracting new investments. In the advanced industrial countries of Europe and North America, universal telecommunications services have penetrated every sector of society. In many developing countries the limited availability of service is constraining economic growth.

Apart from the telecommunication infrastructure deployment it is highly important to equip the back office activities through ITC in a manner that can highly assist the core telecommunication activities, and implementation of modern information and management technologies guarantees a successful improvement in competitive ability. The offered solutions are in demand by the companies seeking to enhance monitoring systems and upgrade their business activities.

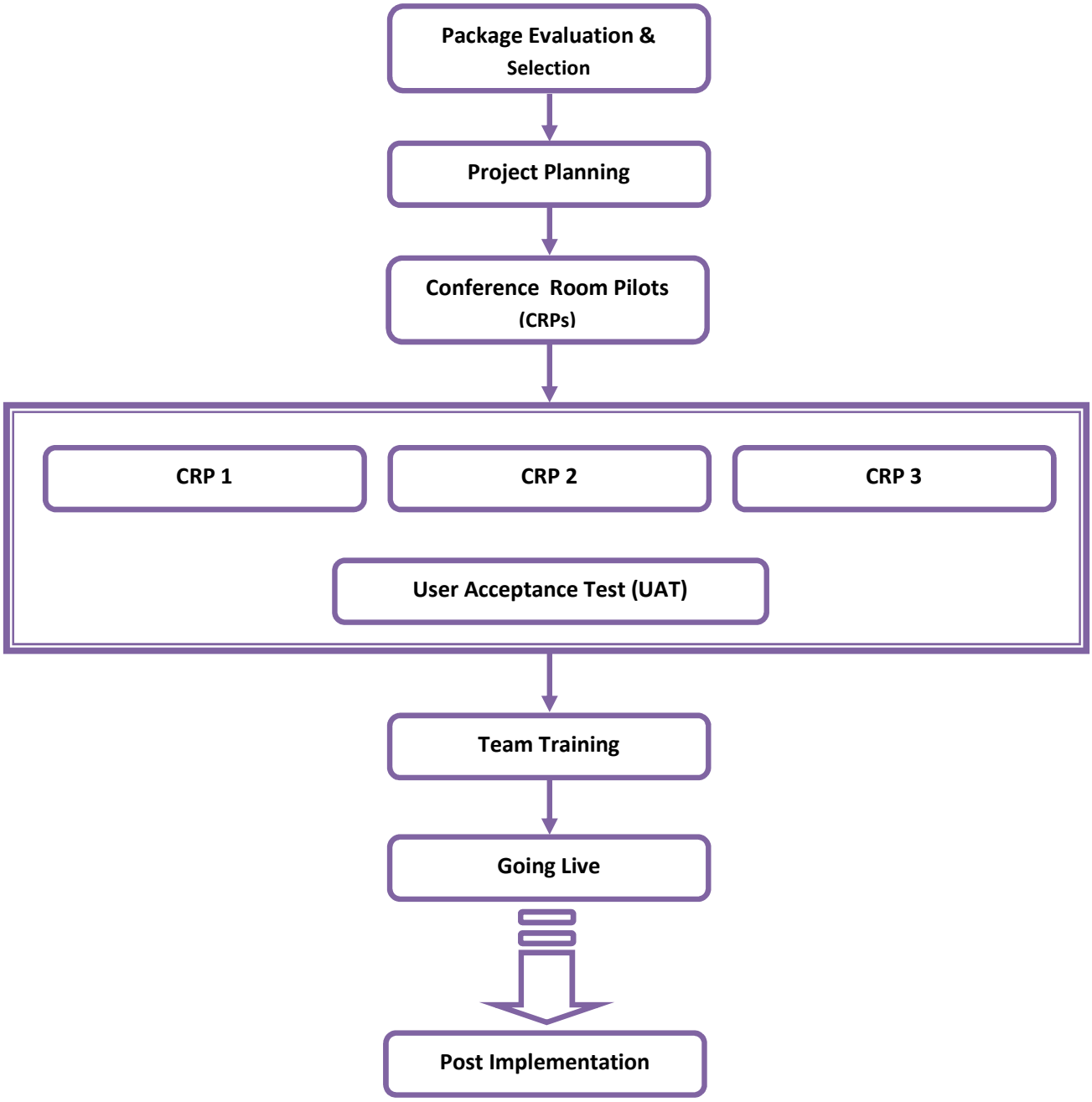
For companies to improve transparency of their business, they need to have up-to-date information about all operation and financial indicators, assets and resources of all departments and divisions. Actuality is very important: information for the previous quarter or month will not help in making justified decisions. Hence, the requirements for a powerful system that can quickly process large volumes of information are highly required.

ERP is an information system for company management, designed for the efficient planning and management of all company resources, as well as for the automation of all or individual key business processes. This solution enables proactive resources management for the quick adaptation of business processes to changing market conditions and allows precise evaluations of company's current state of affairs, which helps to increase the company's competitiveness across the board.

With the similar reasons mentioned above ethio telecom also introduce this system with the vision of obtaining world class telecom service provider. To be a world class telecom operator there are many requirements set by ITU that all telecom operators across the world need to fulfill, and some of the requirements are having a well-defined business process as per the international standard named eTom and PCMM, supporting all this business process by information system mainly ERP and deploying the best quality of service for the customers in

all aspects of product and services. Hence; for the fulfilling the expected requirement and to support the steady growth of the country's economic development ethio telecom implemented an integrated ERP system on December 01/2011 on a modular manner. And mainly the license for this system implementation has been procured from the world well known software developer named Oracle through open tender and integrated by softpro (i.e. Indian software integrator). And the major reasons that drive the company to choose for ERP are mainly related to improving company's performance and decision making, to reduce labor costs, bureaucracy and other related errors. And the other reasons are: to enhance the integration among work units, and establish organizational standardization across different locations.

Figure 2.3 - ERP Implementation Phase in Ethio Telecom



Source: - Ethio telecom ERP implementation project charter – 2011 P: 19

2.1.9.1. ERP Implementation Process at Ethio Telecom

The implementation of ERP in ethio telecom undergone different process, before the deployment of oracle ERP system there was a system procured from the company called PTE, but at that time the capability ethio telecom project team was not as good in assessing the required level of the system in terms of capacity, flexibility, integration and other requirements. Hence; a decision has been passed to procure another ERP system from the world well known software developers and as a result with the help of France telecom experts Oracle has been selected and deploy the system. Hence; the implementation of the entire system mainly crosses through the following phases:-

I. Package Evaluation and Selection

At this stage a decision about a perfect package from the best vendor will be done. For Ethio telecom ERP implementation two globally known IT developer companies named Oracle and SAP has been participated, and these companies present their respective business solution and the benefits that the company will get. And the established steering committee in collaboration with the respective division and project managers asses these two companies as per the screening criteria including the financial offers, considering all the parameters defined Oracle has been selected in both implementing, configuring and customizing the system.

II. Project Planning

In this phase the detail Designs the implementation plan has been defined considering the available resources. During this phase different activities has been undertaken among these activities: Resources has been identified, Implementation team has been selected and task for each team has been allocated, detail activities has been identified, project governance document designed, Special arrangement for contingencies has been framed.

III. Conference Room Pilots (CRPs) Discussion

Most ERP project teams understand the value of functional and integration testing. It's an important pre-go-live step to ensure the software works according to design specs and that data flows accurately through the system. Conference room pilots (CRPs) are also critical to addressing several non-technical critical success factors. CRP Demos are scheduled during Analysis, Design and Build Phases of the project. The CRP session should not be scheduled

too early or too late in the project. For a typical project optional timing for the first session would be middle of the phase. This gives sufficient time for the team to work on the tasks. The conference room pilots have been done on phase basis:

CRP – 1:- Detailed requirements gathering interviews will be conducted, and the entire project members from the respective Division has been participates in this requirement gathering phase. The major activates held at this stage is: analyzing the existing business process modeling and gap analysis, draft process flows and initial software configuration completion prior to the CRP2, Prioritization of requirements/processes (based on business ranking and level of configuration /customization/development required) to be demonstrated in CRP2 or CRP3, Completion of requirements for "bucket one" for custom development delivered to technical team.

CRP – 2:-At this stage review of key business scenarios against predefined scripts has been undertaken. The scenarios will be driven from the business process and **requirements mapping** activities carried out earlier in the project to show how the business processes, are mapped onto system functionality. Requests for additional functionality (an increase to the baseline requirements) have been handled as part of the scope management process within the project.

CRP – 3:- During CRP 3 most converted data has been available by the team for review in CRP environment. In addition some detail requirements like reports issue, Interfaces, Conversions, Enhancements / Extensions components has been reviewed and any gap identified during CRP 2 has been addressed here. After the completion of this phase the system beloved that it can be fully integrated with the company work process and after the final testing process it goes for go-live.

UAT: - User Acceptance Testing (UAT) is the last phase of the software testing process. During UAT, actual software users test the software to make sure it can handle required tasks in real world scenarios, according to specifications. Once the CRP sessions has been completed, the users came together with the consultants and run through a series of routines, setup according to the methodology utilized by the team in creating the testing scenarios. Each scenario is run by the user and acceptance test has been signed to move toward go-live. This

way, the team can be able to review the entire project and ensure that someone has signed off that they have tested their scenarios and verified that the system is functioning as expected.

IV. Team Training

After completion of the mentioned steps employees who will work on the system has been trained for their own respective module. This training delivery was handled by grouping the participants in to two named super user and end users. The super users are those team members who are highly involved since the requirements gathering and they attend this training regardless of their work unit since they will have a significant role in assisting the end users from the company side. Whereas, the end users are those employee of the company who trained focusing on their specific work units in supporting the daily routine.

V. Going Live

The work is complete, data conversion is done, databases are up and running, the configuration is complete & testing is done. The system is officially proclaimed. Once the system is live, there was an intention that the old system (manual working system) shall be totally swapped, but what has been done in reality will be addressed during data analysis and presentation part.

VI. Post Implementation

At this phase vendors as well as super users assist the end users in any difficulty they face, in the case of ethio telecom in addition to the super users a dedicated system experts from the vendor side has been assigned, the main responsibility of the expert is to support the functional units assessing the emerged new but very critical requirements.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

This chapter presents the research methods. It deals specifically on the research design, sampling procedure, data collection methods, procedures of data collection and method of data analysis in order to develop methodology to address research questions and at the end some ethical issue and validity and reliability issue explained.

3.1. Research Design

The objective of the research is to assess and describe the practice and challenges of implementing ERP in ethio-telecom, so for the research which has the above mentioned objective descriptive type of research is better. The research design of this study is Descriptive. Descriptive researches are those studies which are concerned with describing the characteristics of a particular individual, or of group and it includes surveys and fact-findings enquire of different kinds (Sakaran, 2003).

Due to the nature of the research and to achieve the specific and general objectives of the study, a mixed quantitative and qualitative method used to analyze the collected data. According to Creswell (2003) the use of both approaches is tandem so that the overall strength of the study is greater than either qualitative or quantitative research. Thus, this design is selected to express the current phenomenon of a situation and gives prediction depending on the finding of the research and to describe the basic questions stated in the research. This research study was an academic research, which had to be completed with limited available resources: both time and money. Therefore Survey strategy used to collect large amount of data using a questionnaire and semi-structured interview from a sample population in a highly economical way.

3.2. Data Collection

In order to achieve its objectives the research has been based on both primary and secondary data. The secondary data were collected from the company's work processes, policies,

procedures, forms and other documents which are linked with the ERP implementation and also from different literatures on the area.

The primary data were collected through questionnaire. It includes open ended and close ended questions. According to Kothari, (2004), this instrument of data collection is quite popular, particularly in case of big enquiries.

3.3. Sample Design and Size

Based on the company's headcount report as of February 07, 2014, it has **9,849** Permanent employees and among these 6,428 employees was assigned in Addis Ababa and the rest are working in regions.

Generally representatives of the total population has 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, Finance & Sourcing and Facility divisions are major source of information.

The organization has five hierarchical levels. They are 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, to be representative the sampling considered both groups. 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.

Therefore, out of the 6,428 Addis Ababa employees, 1,402 were staffed under those three divisions (strata) in which ERP is fully deployed. Because of the geographical 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, 1,402 employees were taken as a population for this study.

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

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

Equation 1

This is valid where:

n_0 = 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.

*The value for Z is found in statistical tables which contain the area under the normal curve.

Then, the sample size determined for the large population have been used to determine sample size for a finite population. Therefore, the following formula is derived from equation 1:

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

Equation 2

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

Hence, the sample size for the given population (1,402) at e = ±5%, confidence level = 95%, and p = 0.5 (maximum variability)

Equation 1:

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

Finally, the sample size is determined using equation 2:-

$$n = \frac{385}{1 + \frac{(385-1)}{1402}} = \textbf{302 Sample size}$$

Table 3.1 - Questionnaire distribution and response rate

Strata/Division	Total Population			Distributed			Collected
	Management	Non-Management	Total	Management	Non-Management	Total	
Finance	22	329	351	9	65	74	61
Sourcing & Facility	26	892	918	14	162	176	117
Human Resources	17	116	133	17	34	51	43
Total	**65**	**1337**	**1402**	**40**	**261**	**301**	**221**

3.4. Data Presentation and Analysis

The collected data are clearly presented by using tables and charts which have been expressed in the form of frequency, percentage and mean. Then, descriptive analysis technique has been applied to manipulate the organized data. Meanwhile, SPSS V-20 was used as the main tool to manipulate the data.

3.5. Validity

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.

Therefore, to assure validity of the instrument the researcher has given a chance for professionals on the area to review the questionnaire and it was finally validated by the advisor.

3.6. Reliability

The test of data reliability is another important test of sound measurement. A measuring instrument is reliable if it provides consistent results, (Kothari, 2004). Moreover, reliable measuring instrument does contribute for validity. Hence, to prove reliability of the instrument, the researcher has distributed some questionnaires as a pilot test and then make some adjustments accordingly.

3.7. Ethical Issues

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

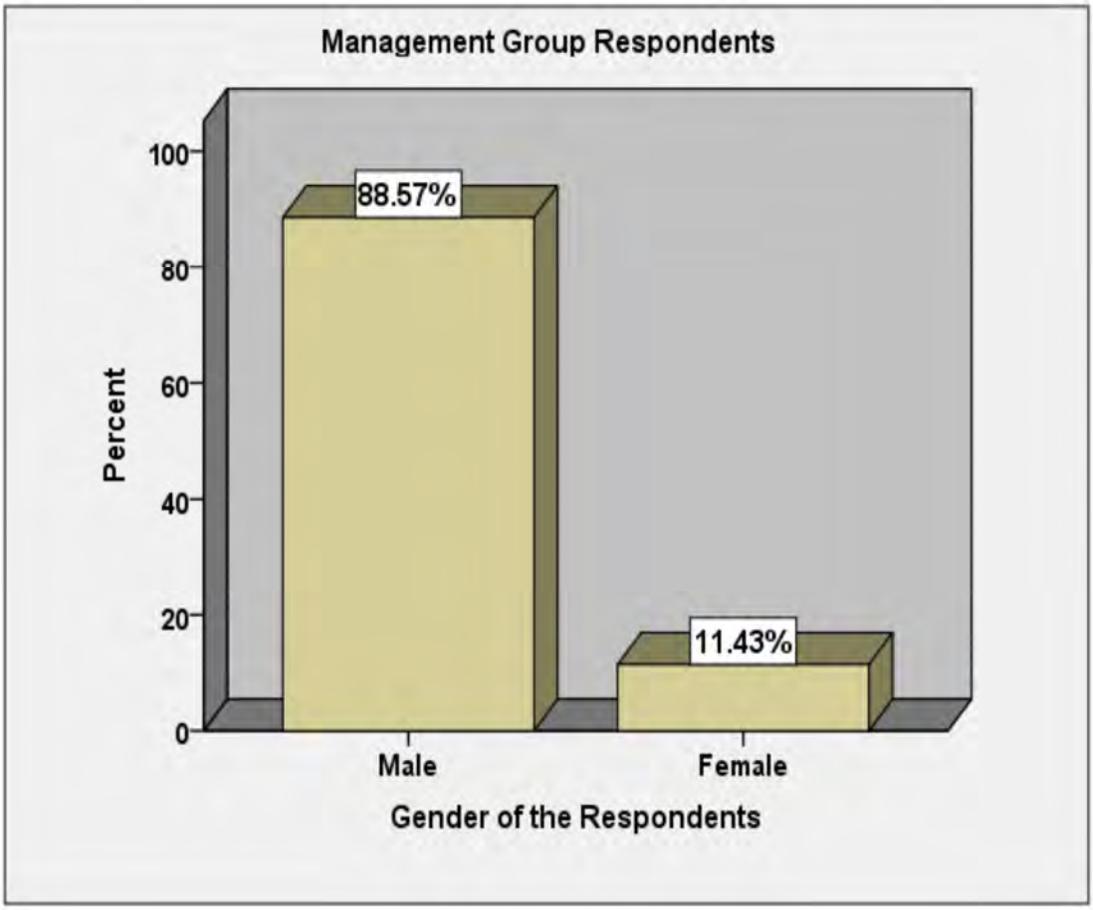
CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

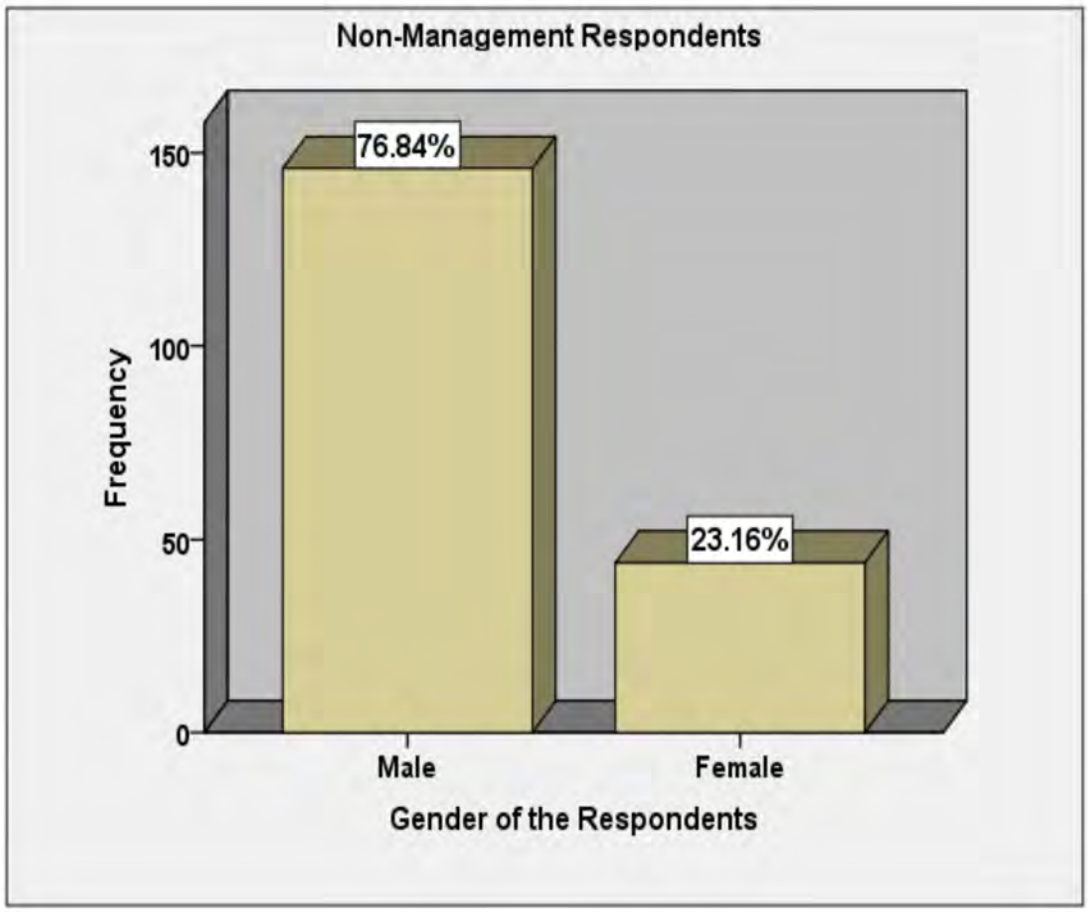
This chapter presents the results of the study and interpretation of the findings. The chapter comprised of two sections. The first part presents the profile of respondents showing gender, age group, level of education, work experience, and position of respondents using cross tabulation. The second section presents analysis of the study variables by using bar chart, tables and consisting of percentages and mean. And it has also contains the discussion of results and overall responses.

4.1. Demographic Information of the Respondents

N = 34



N = 187



Sources: SPSS Survey, 2014

Figure 4.1 - Gender proportion based on employee category

Based on the collected data, the overall staffing composition of the company is highly dominated by male employees, especially when it comes to the managerial position the proportion of female employees are very law and its counted as 11.4% of the total managerial group of the company and the remaining 88.57% is covered by male employees. Moreover; in the non-managerial position of the company female employees cover 23.16% of the employment from the total population, whereas the remaining 76.84% is covered by male employees. Therefore, from the investigated fact, we can deduce that even if the proportion of female employees in the non-managerial position is a bit better compared to the managerial position, the general sex composition of ethio telecom's human resource is highly dominated by male employees.

Table 4.1:– Age, Educational Status, Employee Category, Service Year and Work Unit of the respondents.

Demographic Information	Classification	Frequency	Valid Percent
Age	≤ 25	14	6%
	26 - 35	135	61%
	36 - 40	39	18%
	41 and above	33	15%
	Total	221	100%
Educational Status	Below Diploma	0	0%
	Diploma	10	5%
	BA/BSC	180	81%
	Masters & Above	30	14%
	Other	0	0%
	Total	220	100%
Employee Category	Management	34	15%
	Non - Management	187	85%
	Total	221	100%
Service Year	≤ 5	9	4%
	6 - 10	103	47%
	11 - 15	65	29%
	16 - 20	20	9%
	21 & above	24	11%
	Total	221	100%
Work Unit	Finance	61	28%
	S & F	117	53%
	Human Resources	43	19%
	Total	221	100%

Concerning age status, 61% of the employees are between the age 26 and 35, and the other 18% are between 36 and 40. Furthermore, 15 % of the employees are at the age of 40 or above, and the remaining 6% of the employees are either they are on the age of 25 or below that. This indicates that the company is staffed with young and energetic employees. In other words, most of the employees are belonging in the productive age group.

Regarding educational level of employees of the company, 81% of the employees are first degree holders and the other 14% of the employees have specialization at a master's degree level and above, whereas the remaining 5% is covered by diploma holders. Therefore, majority of the employees have at least a first degree and we can say that human resource profile of the company in terms of educational background is in a good status.

Based on the collected data, 15% of the respondents hold managerial positions whereas the remaining 85% of the respondents are non-management employees. Based on the company's headcount report as of February 07, 2014 (which was taken for the sample determination) management category covers 11% of the total population and the rest (89%) are non-management employees. By this we can infer that the response rate of management category was higher than the non-management category (Response rate table 3.1).

As depicted on table 4.1, majority of the employees have relatively shorter existence in the company. And to be specific, 47% of the respondents have been working with the company for at least 6 up to 10 years, whereas 4% of the respondents have an experience 5 years or less. Moreover, the other 29% of the respondents have an experience which spans from 11 up to 15 years while 9% of the respondents have been working with the company for at least 16 up to 20 years and the remaining 4% have longer experience (which is 21 years and above) in the company.

As it is already explained in the research design and methodology part, the researcher has focused on three divisions considering ERP implementation, and these divisions are considered as strata. Accordingly, out of the 221 employees who returned the questionnaire, 53% of the respondents belong to Sourcing and Facilities division while Finance Division covers 28% and the remaining 19% of respondents are from Human resources division.

4.2. Deployment of ERP System in Achieving the Business Requirement of the Company

This part covers the data presentation and analysis on how much the deployed ERP system meets the business requirements of the company in achieving the goal of making the business process fully automated.

Table 4.2 – Deployment of ERP system in achieving the business requirement of the company - I

Items	% Within Category	Ratings (Likert Scale)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
ERP implementation makes the working process of ethio telecom fully automated (in the area it's deployed)	Managerial	3%	41%	21%	21%	15%	100%
	Non-Managerial	5%	42%	19%	32%	2%	100%
The organization is obtaining the benefits expected from ERP implementation	Managerial	3%	53%	29%	15%	0%	100%
	Non-Managerial	4%	51%	30%	12%	3%	100%
The system has been supporting the transformational activity conducted in the company	Managerial	0%	18%	6%	65%	12%	100%
	Non-Managerial	2%	7%	19%	66%	5%	100%
ERP has improved your efficiency in the organization	Managerial	0%	18%	12%	44%	26%	100%
	Non-Managerial	3%	12%	25%	50%	10%	100%
ERP implementation has highly contributed in achieving company's vision (being world class telecom service provider)	Managerial	0%	15%	15%	32%	38%	100%
	Non-Managerial	3%	12%	27%	42%	16%	100%

Sources: primary data, May - 2014

For the question which asked employees whether the ERP implementation makes the working process fully automated, especially on the area it is deployed, 44% of the respondents from the management category replied that the deployed ERP system doesn't fully automate the business process of the company in the area it is fully deployed. Similarly, 47% of non-management respondents also reflected the same viewpoint. On the contrary, 36% of the respondents from management and 34% among non-management employees 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). The remaining 32% of non-management respondents and 21% of management members are neither of the two sides. 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.

Concerning the benefits realized by the company with that of the stated expectation, 56% of the respondents from management category and 54% from non-management group respond that the system is not providing the expected benefits, this could be due to the high expectation of employees from the company side or it's because the company doesn't have experts that can fully exploit the entire system feature to meet the expectation of the employees in this regard. On the other hand, 15% of both respondents have agreed that the system has been providing the benefits expected from it and they are fully satisfied with the outcomes. The rest 30% respondents from non-management and 29% among the management officials are at the middle of the road; they neither agree nor disagree. From this interpretation we can comprehend that most of the respondents from both side believe that the system has not been providing the intended result or the expected benefits by all levels of the company employees.

Regarding contribution of the ERP system in transformational activities conducted within the company, 18% of management respondents and 9% from the non-management group replied that the deployed system contributed nothing in supporting the transformational activity of the company undertaken back in 2010. In contrast, majority of the respondents from both side believe that ERP implementation has a significant contribution for the transformational activities; among the respondents who respond in favor of this idea are 76% from the

management side and 71% from the non-management side. The remaining 19 % of non-management respondents are on the midway; they are neutral like that of 6% of the respondents from the management classification. As a result, it is possible to say the system has given an important contribution in transforming Ethiopian Telecommunication Corporation to ethio telecom.

For the question asked about the contribution of the system in enhancing the efficiency of individuals who are specifically working on it, 18% of the respondents from management and 15% from non-management employees answered that their efficiency has not been improved due to ERP implementation, whereas 70% of management respondents, like that of 60% of non-management employees, replied that their efficiency have been enhanced following the implementation of ERP system. The other 25% of the respondents from non-management and 12% of management respondents declared that they neither agreed nor disagree about the improvement of their efficiency due to the system intervention. By the same fact for the question raised about contribution of ERP implementation in achieving company vision (being a world class telecom service provider), 15% of the management and 18% of the non-management respondents believe that ERP deployment will not have any contribution in achieving the company vision; on the other hand 51% of the non-management and 70% of the management respondents believe that the system will have a significant contribution in making ethio telecom a world class telecommunication service provider especially on the support function of the company working process. The other 15% of the management and 27% of the non-management respondents neither agree nor disagree on the contribution of the system in achieving company vision. Form the fact; we can infer that the deployed ERP system has its own contribution in enhancing or improving the efficiency of employees at individual level who are doing their daily routing using the system as a major working tool, and it has also a significant contribution in achieving company vision of being a world class telecommunication service provider in Ethiopia.

In addition to the main question raised above the researcher also forwarded additional and relevant questions to triangulate the employee's response regarding whether the deployed of ERP system meets the business requirements of the company in achieving the goal of making the business process fully automated. These questions mainly focuses on the mixed utilization

of working methods, exhaustive utilization of all the system features and its contribution for the cross-functional integrations, and accordingly the analysis has been presented based on the collected data from each respondent (both managerial and non-managerial).

Table 4.3 – Deployment of ERP system in achieving the business requirement of the company - II

Items	% Within Category	Ratings (Likert Scale)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
ERP implementation in the company has served as the best solution in satisfying the customer demand (Internal & External)	Managerial	0%	24%	29%	38%	9%	100%
	Non-Managerial	5%	16%	36%	37%	6%	100%
Non-value adding jobs and processes are reduced after ERP implementation	Managerial	0%	9%	35%	41%	15%	100%
	Non-Managerial	2%	7%	25%	56%	10%	100%
There are some functional areas still using both the manual and automated working system	Managerial	3%	6%	6%	56%	29%	100%
	Non-Managerial	1%	4%	5%	65%	24%	100%
A mix-up usage of both systems (manual & automation) has been hampering the company efficiency in the area	Managerial	9%	15%	15%	41%	21%	100%
	Non-Managerial	3%	17%	29%	37%	14%	100%
ERP implementation has enhanced cross-functional integration	Managerial	0%	6%	12%	59%	24%	100%
	Non-Managerial	2%	7%	17%	64%	10%	100%
The company applies and utilizes all the features of ERP system	Managerial	15%	32%	29%	9%	15%	100%
	Non-Managerial	17%	37%	31%	11%	4%	100%

Sources: primary data, May - 2014

So one of the issues raised in this part is concerning the perception of employees whether ERP implementation in the company is the best solution in satisfying the customer demand or not,

24% of the respondents from the management category have asserted that ERP is not the best solution in satisfying customer demand. Similarly, 21% of non-management employees also reflected the same view on the issue. On the other side, 47% of the respondents from the management group, like that of 43% of non-management employees, agreed that ERP implementation is the best solution in satisfying customer demand as long as it's properly implemented and understood by all employees who are working on it. The remaining 29% of the respondents from management and 36% from the non-management categories didn't take either of the two sides. Generally, on average, majority of the employees believe that ERP is the best solution in satisfying customer demand. Therefore, we can reach on consensus that the deployed ERP system is considered to be a preferable solution to meet the expectation of both internal and external customers but it requires the attention of both stakeholders in making it properly and fully implemented and all employees shall be on the same page in this regard.

Related with the contribution of ERP in reducing non-value adding jobs/processes, 9% of both management and non-management respondent's non-management respondents stated that the system doesn't reduce non-value adding jobs or processes. In the contrary, 56% of the respondents from the management and 66% from the non-management believe that ERP implementation minimizes non value adding activities, jobs and processes as well. The other 35% of the management and 25% of the non-management respondents neither agree nor disagree on this idea. From this fact we can conclude that non value adding processes and jobs has been minimized due to the implementation of the system hoping that more benefits will be realized if related implementation and utilization issues have been alleviated.

Concerning the question which was raised about whether functional areas are using both manual and automated working system even if ERP is already deployed, 85% of the respondents from the management employees and 89% of non-management employees said that the company is still using both the manual and automated systems in the area ERP is already implemented. On the other side, 9% of the respondents from the management category argued that the company is not utilizing both working method in the area ERP is already implemented. Similarly, 5% of non-management employees also have the same perception. Moreover, the remaining 5% from the non-management group goes to those who neither agree

nor disagree on the mix up of working methods like that of 6% of management representatives. Hence, from this fact, we can understand that even though the company deployed a big IT solution to make the working environment automated but there are areas who are utilizing the manual working method parallel with the automation.

By the same manner for the question arises related with drawback of utilizing both the working method in relation to affecting the company efficiency, 62% of the management group believe that a mix up usage of both manual and automated working systems is now affecting the efficiency of the company since it's obvious that the automated working system is more efficiencies than using a mix up method, similarly 51% of the non-management respondents has the same view. On the other hand, 20% of the non-management respondents and 24% of the management respondents believe that utilization of both the manual and automated working methods is not affecting the efficiency of the company. In addition, the remaining 15% of management respondents and 29% from non-management respondents are neither of the two sides. By this, we can say that utilization of a mix-up working methods (manual & automated) is affecting the efficiency of the company due to the fact that manual working methods are a bit time consuming, energy taking, not easily retrieved and so on.

Regarding the contribution of ERP in enhancing cross-functional integration among divisions, departments and section, 6% of management group respondents have agreed that the cross functional integration has not been enhanced due to ERP implementation and 9% of non-management respondents also share this feeling. To the contrary, 82% of management category respondents believed that the cross-functional integration among divisions, departments and sections has been significantly increased after ERP implementation while 74% of non-management category respondents have also the same perception. Moreover, 12% of the management and 17% of the non-management respondents have stated that they are neither of the two sides. Form this fact, we can infer that majority of the employees, from both categories, agreed that the cross functional integration of divisions, departments and sections has been enhanced.

Employees were also asked whether the company utilizes all the features of ERP system and 47% of management respondents have asserted that the company is not exhaustively utilizing

all the features of ERP while 54% respondents from the non-management side have also the same standing. On the other hand, 24% of management members have agreed that the company exploit all the features of the system whereas 15% percent of non-management employees have the same feeling. In addition, the remaining 29% of management respondents didn't take either of the two sides where 31% of non-management representatives have the same view on the matter. Based on the presented fact, larger proportion of the employees from both side believe that the company is not exhaustively utilizing all the features of ERP system even if the package is already procured by huge investment.

Generally, as indicated on table 4.2 & table 4.3, from the formulated 11 questions raised by the researcher to assess Deployment of ERP system in achieving the business requirement of the company (i.e. making the business process automated) largest proportion of the respondents from both groups have reflected that the deployed ERP system doesn't fully meet the requirements of the company in achieving the goal of making the working process fully automated, due to different factors the company is currently utilizing both the manual and system based working methods on the area the ERP system is already deployed.

4.3. Customization of ERP System in Line with Companies/Countries Regulatory Activity

This part covers the data presentation and analysis to what extent the deployed ERP system customized in line with the companies/countries regulatory activity.

Table 4.4 – Requirement defining and system customization - I

Items	% Within Category	Ratings (Likert Scale)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
The system is fully customized in line with the companies policy and procedure	Managerial	9%	44%	24%	18%	6%	100%
	Non-Managerial	5%	44%	19%	29%	4%	100%
Country's regulatory/ compliance procedures are fully supported and integrated	Managerial	18%	38%	9%	26%	9%	100%
	Non-Managerial	2%	35%	41%	17%	5%	100%

The company's business requirement is fully considered and integrated	Managerial	9%	38%	18%	35%	0%	100%
	Non-Managerial	2%	42%	29%	22%	5%	100%
System customization has been done considering the long term strategic objective of the company	Managerial	3%	35%	29%	26%	6%	100%
	Non-Managerial	4%	36%	33%	23%	4%	100%

Sources: primary data, May - 2014

Concerning the question which was raised about whether the ERP system is fully customized in line with the companies policy and procedure, 53% of the respondents from the management employees and 49% of non-management incumbents said that the system doesn't fully customized in line with the companies policy and procedure rather some policies have been changed for meeting the functionality of the system. On the other side, 24% of the respondents from the management category argued that the system has been fully customized considering the existing company policy and procedure. Similarly, 33% of non-management employees also have the same perception. Moreover, the remaining 19% from the non-management group goes to those who neither agree nor disagree on the presence of clear objectives like that of 24% of management representatives. Even though some proportion of employee believe that the system has been customized in line with the company policy and procedure majority of the respondents from both side agreed that the system is not fully customized considering the existing company policy and procedures and we can say that the company have been forced to change some policies and procedures in order to align the system functionality and company policy and procedure. By the same fashion employees were asked if the countries regulatory/compliance procedure are fully supported and integrated and as a result 56% of the respondents from management members replied that the countries regulatory/compliance procedures are not fully supported and integrated. Similarly, 37% of non-management members reflected the same viewpoint. On the other dimension, 35% of the respondents from management and 22% from non-management believed that the countries

regulatory procedures are fully integrated with the system. In addition, the remaining 9% of management respondents and 41% from non-management respondents are neither of the two sides. In other words, it indicates that some proportion of employees especially from the management side believe that the countries regulatory procedure have been fully integrated with the system; but as reflected by the majority of the respondents the countries regulatory/compliance procedure is not fully integrated with the system as a result there might be some manual work intervention is there in this regard. Hence, from this fact, we can understand that efficiency of the company's activity has been hampered as a result of the manual work intervention due to systems incapability to support some regulatory procedures.

Regarding the observation of employees about whether the company's business requirement is fully considered and integrated, 47% of the respondents from the management group replied that the business requirements defined by the company are not fully considered and integrated. Likewise, 44% from the non-management also supported this reflection. On the contrary, 35% of the respondents from the management employees and 27% from the non-management group asserted that all the defined business requirements of the company have been fully considered and integrated with the system. Finally, the remaining 18% of the management members and 29% from non-management category goes to those who belong to neither of the two sides. By this, we can say that the business requirements defined by the company has not been considered and integrated, and this is mainly due to lack of expertise from ethio telecom side to make an intensive follow up about whether the pre-defined requirements are fully integrated or not.

As far as the companies long term strategic objective concerned, a question which deals about whether customization has been done considering the long term strategic objective of the company. Consequently, 38% of the management respondents have stated that the customization has not been done considering the long term strategic objective of the company similarly 40% of the respondents from the non-management side has the same feeling in this regard. On the other dimension, 32% of management respondents reflected that the companies long term strategic objective has been considered while integrating the system and doing the customization activity. And by the same token 27% of non-management incumbents have taken similar stand. Apart from these two sides, 29% of management members have chosen

putting themselves neutral just like that of 33% of non-management respondents. Having this evidence in mind, it is possible to say that a proration of the management groups support believe that the strategic objectives has been considered and the others don't believe that it's considered even those who disagree with this issue are slightly exceeds with those who agreed on it; but considering the commutative effect of the respondents we can conclude that the long term business expansion, customer base, additional employment and other related long term strategic objectives has not been considered while integrating and customizing the ERP system.

As an addition for the above raised facts regarding system customization questioner was raised to check whether some requirements were dropped in the name of system incapability (whereas the reason could be lack of full customization) and obtaining of additional features beyond the pre-defined requirements and accordingly the response rate has been analyzed here under:-

Table 4.5 – Requirement defining and system customization - II

Items	% Within Category	Ratings (Likert Scale)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
There are requirements dropped (left aside) due to system incapability	Managerial	0%	15%	44%	35%	6%	100%
	Non-Managerial	2%	11%	49%	34%	5%	100%
Additional features obtained from the system beyond the pre-defined requirements	Managerial	3%	47%	35%	6%	9%	100%
	Non-Managerial	2%	39%	48%	5%	6%	100%

Sources: primary data, May - 2014

With similar manner a question was raised about whether the business requirements are dropped or not with the name of system incapability, 41% of the respondents from the management side agreed that there are requirements dropped because the system cannot be able to support it. Similarly 39% of the respondents from the non-management side have the same feeling with that of the management respondents. On the other hand, 15% of the

management and 13% of the non-management respondents believe that no requirement has been dropped due to system incapability. In addition, the remaining 44% of management respondents didn't take either of the two sides where 49% of non-management representatives have the same view on this matter. Based on the presented fact, larger proportion of the employees from both side believe that there are requirements dropped due to system incapability, these could be mainly the procured solution might not be the best on to incorporate all the business requirements defined by the company or it could be due to lack of proper customization.

Regarding the question raised if there are additional features obtained from the system on top of the pre-defined parameters, 50% of the respondents from the management group replied that there is no additional feature obtained apart from the already defined business requirements. Likewise, 41% from the non-management also supported this reflection. On the contrary, 15% of the respondents from the management employees and 11% from the non-management group asserted that the company has benefited from the additional features of the system which has not been articulated on the business requirement. Finally, the remaining 35% of the management members and 48% from non-management category goes to those who belong to neither of the two sides. By this, we can say that apart from the pre-defined business requirements the company has got nothing additional feature from the system, in addition to what has been said here some questionnaire from Table 4.2 indicated that the already defined business requirements are not being integrated due to lack of expertise from the company sided and with the name of system incapability.

In General, as explained by Gargeya and Brady, 2005 the ability to implement ERP with minimum customization requires assistance from several other factors, primarily streamlining operations and re-engineering the business – both of which will help the organization to run in a more straightforward manner. But as indicated on table 4.3, in all of the six questions raised by the researcher to assess the customization of the system, larger proportion of the respondents believe that the system has not been properly customized considering the companies process, policy and procedure in particular and countries regulatory procedure in general. Apart from these as indicated by majority of the respondents a number of requirements has been dropped with the name of system incapability and lack of expertise

from the company side to make a strong follow up to ensure all the requirements defined by the company has been incorporated or not.

4.4. The level of Capacity Building Done on the System.

This part's data presentation and analysis deals about the level of capacity building done on employees, and it covers from the direct training delivery point of view and the knowledge transfer activity held by the integrators through on the job support. Hence; in this section this capacity building efficiency has been assessed in two ways, one considering the directly imparted training programs in two consideration and the other is the level of knowledge transfer obtained from the integrators though their day to day operational activity and support.

Table 4.6 – The level of capacity building done on the system

Items	% Within Category	Ratings (Likert Scale)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Training was given exhaustively for all users.	Managerial	15%	41%	6%	24%	15%	100%
	Non-Managerial	20%	34%	10%	28%	8%	100%
The training given on the system was adequate and useful to your functional module	Managerial	9%	44%	6%	24%	15%	100%
	Non-Managerial	10%	41%	16%	22%	11%	100%
Further enhancement training is required on the system	Managerial	0%	0%	6%	56%	38%	100%
	Non-Managerial	3%	3%	13%	39%	42%	100%
There was a gap b/n the imparted training and ethio telecom business requirements	Managerial	0%	9%	41%	50%	0%	100%
	Non-Managerial	2%	4%	39%	50%	5%	100%
Ethio telecom super users are trained in way that can fully replace the integrators support activity	Managerial	12%	41%	35%	9%	3%	100%
	Non-Managerial	10%	32%	45%	10%	4%	100%

Sources: primary data, May - 2014

For the question raised to assess if employees have got a training on ERP system interface and it's functionality exhaustively for all users, majority of the respondents from both of the categories (56% from management and 54% from non-management) have indicated that all users of the company has not been trained on the system rather few employees were trained considering that the already trained employees will expand their knowledge across other users. On the other end, some proportion of the respondents who represent 39% from management members and 36% from non-management respondents have agreed that training has been given for all target groups who are expected to work on the system. Moreover, the other 6% from management group and 10% from non-management respondents have taken neither of the two sides. Hence, it indicates that the company doesn't deploy an intensive training program in order to equip those employees who are expected to work on the system as a main tool.

In addition to what has been raised just before, the respondents were asked if the given training given for those small groups of employees was adequate and useful for their respective functional module, 53% of from the management group replied that the training given for some part of system users is not adequate to run the day to day activities of the company. Likewise, 51% from the non-management respondents also supported this reflection. On the other hand, 39% of the respondents from the management employees and 33% from the non-management group asserted that the training given was adequate and very much useful for employee's day-to-day operation. At last, the remaining 8% of the management members and 16% from non-management category goes to those who belong to neither of the two sides. In addition to this, to check the validity of the respondents a triangulated question was raised regarding if there was a gap between the imparted training and ethio telecom business requirement, 50% of the respondents from the management side agreed that there is a gap between the given training and the actual business requirement and system functionality. Similarly, 55% of the respondents from the non-management group are in favor of this idea. On the other hand, 9% of management and 6% of non-management respondents believe that there is no gap between the training delivered and the actual system functionality and business requirement. Finally, the remaining respondents are neither of the two sides and which represents 41% and 39% from the management and non-management group respectively. By

this, we can conclude that from the given training employees are not benefited in doing their day-to-day activities from the training quality and quantity point of view. In addition, what has been delivered as training doesn't match with the existing business requirement or customized system interface.

In addition to the adequacy and usefulness of the imparted training employees were asked if further enhancement training is required on the system, 94% of the respondents from the management group agreed that additional enhancement training is highly required to cop up with the detail feature of ERP system in order to make the company as well as the employees of the company beneficiary from it (i.e. to be efficient on every aspect of the day-to-day operation).. Likewise, 81% from the non-management also supported this reflection. On the contrary, proportionally very little number of employees from the non-management category representing 6% of the respondents asserted that the already imparted training program is enough, hence additional enhancement training is not required and employees can perform their job with the existing skill they posses on the system; but no one from the management angle believe that additional enhancement training is not required for the employees. Finally, the remaining 6% of the management members and 13% from non-management category goes to those who belong to neither of the two sides. By this, we can say that more than ¾ of the respondents believe that on top of the already imparted training program (even if it doesn't consider the actual business requirement) addition enhancement training is highly required to enable employees of the company who are working on the system capable of performing their day to day business operation in a professional and expertise manner.

Still focusing on the training; in addition to the larger group of the employees who are doing the daily routine using the system there are some group of selected professionals named "Supper User" who are expected to support the entire employee of the company in any ERP related issues. Hence, considering this fact employees were asked if ethio telecom supper users were trained in a way that can fully replace the integrators support activity and 53% of management respondents believe that ethio telecom supper users are not trained and prepared in a way that can fully replace the integrators support activity where 42% of non-management respondents have also the same stance. From the other angle, 12% of management and 14% the non-management respondents have agreed that all super users are capable of doing the

integrators support activity and they were trained and prepared in a manner that can perform every support activity expected from them. Apart from these two sides, 35% of management members have chosen putting themselves neutral just like that of 45% of non-management respondents. Having this evidence in mind, it is possible to say that ethio telecom supper user are not trained in a manner that can fully support any technical and functional issues raised by the end-users; as a result the company will become highly dependent on the integrators which might expose the company in different risks in addition to the costs incurred due to the extended dependability on them.

On top of the directly imparted training programs the researcher also focused on some issues related to the capacity building achieved through the integrators direct support activity has been assessed and analyzed as follows:-

Table 4.7 – The level of integrators support activity

Items	% Within Category	Ratings (Likert Scale)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
The support exerted by integrators make the users familiar with the system	Managerial	3%	35%	26%	32%	3%	100%
	Non-Managerial	5%	39%	34%	19%	3%	100%
The level of dependency on integrates are still high	Managerial	0%	9%	12%	65%	15%	100%
	Non-Managerial	4%	5%	30%	56%	5%	100%
The functional and technical support of integrators are successful in relation to knowledge transfer	Managerial	15%	26%	29%	29%	0%	100%
	Non-Managerial	11%	31%	33%	23%	3%	100%

Sources: primary data, May - 2014

Concerning the support exerted by the integrators in making the end-users familiar with the system, employees were asked whether the efforts exerted by the integrator makes the employees familiar with the system or not and as a result 44% of non-management respondents replied as integrators support activity were not that much helpful in making end-users familiar with the system. Similarly, 38% of management members have stipulated the

same view. From the other perspective, 35% of the management respondents have agreed that the support exerted by the integrators are helpful in making the end-users familiar with the system while 22% of non-management employees have also taken the same stand. In addition, 26% from management and 34% from non-management did support neither of the two sides. From these all facts, even if nearly close proportional number of participants from the management group lied on the two side the larger proportion of large proportion of the non-management respondents believe that the support activity of integrators doesn't add that much value in making the end-users familiar with the system, and we can say that integrators support activity has not been properly monitored and examined by the company.

As a supplement for the above mentioned idea related with ERP integrators a question was asked concerning whether the functional and technical support of integrators are successful or not in relation to knowledge transfer, 41% of management respondents have asserted that the technical as well as functional support of integrators was not successful in relation with knowledge transfer for all users (Super Users & End Users). Likewise, 42% of non-management respondents reflected the same observation. On the other side, 29% of management members replied that the integrators were successful in transferring the required technical and functional knowledge for system users where 26% of non-management respondents have the same viewpoint. Furthermore, 33% of non-management respondents have taken neither of the two sides like that of 29% of management incumbents. Based on these facts, it can be inferred that the expected knowledge transfer was not achieved as a result company employees are forced to consult the integrators expertise whenever difficulty they face regardless of the level and complexity of the problem.

To strengthen the above mentioned concept the researcher has raised a question whether the level of dependency on integrators are still high on not. Thus, 80% of respondents from the management category have advocated the high dependability of the company on integrators while 62% of non-management people have also repeated this response. On the contrary, the same proportion of respondents (i.e. 8%) from both management and non-management argued that there is no as such high dependency on integrators so that employees are capable of doing their jobs on the system by themselves. Lastly, 12% of management respondents are at middle-of-the-road; they neither agree nor disagree on the issue like 30% of the non-management

respondents. From this fact, we can understand that the level of dependency on integrators are still high and employees of the company (both super and end users) are not capable of doing their jobs on the system and not capable of assisting others and this will cost the company a huge amount of foreign exchange and it has also a risk of losing some confidential information as long as the integrators are there for undefined period of time, in addition employee might feel that they are not capable of doing their task which will led then to losing confidence.

As a conclusion of this part, Welti N. (1999) indicated that training and change management are matters that affect all the phases of the ERP implementation project similarly O'Leary D. E. (2000) stresses that by saying 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; but the company doesn't exhaustively exert its effort to enhance the knowledge of its employees through different means (i.e. class room training, on the job training, coaching, mentoring and so on) as a result the company is employing the integrators beyond their stated time frame since employees are not capable of handling it with their own way.

4.5. User Friendliness (Easiness) of the System Interface and Navigation Panels.

In this part data related with the easiness or user friendliness of the system has been presented, analyzed and interpreted, and focuses on the general user interface, navigation panel and related step & it's easiness and the reporting formats of the system in relation with decision making.

Table 4.8 – User friendliness (easiness) of the system

Items	% Within Category	Ratings (Likert Scale)					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
Users interface of the system is easily understandable	Managerial	0%	9%	9%	79%	3%	100%
	Non-Managerial	1%	13%	25%	56%	5%	100%

Users can work on the system without any challenge	Managerial	3%	44%	21%	32%	0%	100%
	Non-Managerial	6%	35%	36%	20%	2%	100%
The reporting formats are easily understandable by external users and decision makers	Managerial	15%	48%	17%	13%	6%	100%
	Non-Managerial	8%	46%	32%	12%	2%	100%

Sources: primary data, May - 2014

The researcher has raised a question to assess whether the systems user is easily understandable or not and a s a result 82% of management respondents replied as it is easily understandable to work on the user interface of the system and not that much complex to understand while 61% of non-management respondents have the same reflection on the issue. On the contrary, 14% of non-management employees argued that the existing system interface is complex and it's not easily understandable to work on it. Likewise, 9% have taken the same viewpoint. Apart from these perspectives, 25% from non-management and 9% from management have preferred to be neutral. This all figures indicates that the user interface of the system is easily understandable to work on it, hence if the employee of the company are properly supported through different capacity development programs they can efficiently work on the system from this the company will realize significant amount of benefits.

Having all the issue raised above the researcher raised a question concerning whether users are working on the system without any challenge. Therefore, 32% of management respondents responded as there is no challenge while working on the system by all users. Similarly, 22% of non-management respondents reinforced the absence of challenge on working on the system. On the other perspective, 42% of non-management believes even if the navigation panels & user interfaces are easily understandable and the steps are short that there is still a challenges in doing the day to day operation of the company on the system, these could be due to the less support from the integrators, lack of training, Mismatch between the delivered training and the business requirement and other related reasons already rained on the other part of the research where the other 47% of management incumbents have taken the same viewpoint. In the meantime, 36% of non-management and 21% management respondents

have taken neither of the sides. Having this fact in hand, system users are working on the system with lots of challenges and this implies that even if the system by itself is not complex in doing daily routines, the company is not materializing these benefits by giving appropriate trainings are related supports in order to make employees capable of doing their business on the system.

Respondents were also asked whether the reporting formats are easily understandable by external stakeholders and internal decision makers and subsequently 64% of management officials have argued that the reporting formats are not easily understandable for any external stakeholders and decision makers (both internal and external). Similarly, 54% of non-management employees have alike response given by the management. On the contrary, 14% of non-management employees advocated the existing reporting formats are not complex and are easily understandable by any external stakeholder and decision maker. By the same token, 19% of management members have also supported this perspective. Furthermore, 17% of management and 32% of non-management respondents neither agree nor disagree on the matter. From this fact we can conclude that there are still things that need to be done on the reporting formats of the system, it's because any external stakeholders or in-company decision makers need to understand what exactly every generated report says in order to make a genuine and professional decision.

4.6. Over all Assesement About the Impact of Oracle ERP Implementation

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

Table 4.9 – Overall assessment of the system

Items	% Within Category	Ratings					
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Total
It reduced the financial cycle closing time	Managerial	0%	6%	12%	65%	18%	100%
	Non-Managerial	1%	5%	32%	51%	11%	100%
It reduced cycle time for decision making	Managerial	0%	9%	18%	58%	15%	100%
	Non-Managerial	1%	6%	28%	55%	10%	100%

It reduced procurement cycle lead time	Managerial	0%	12%	12%	41%	35%	100%
	Non-Managerial	1%	10%	17%	54%	19%	100%
It reduced time for pay slip generation	Managerial	0%	12%	15%	53%	21%	100%
	Non-Managerial	1%	7%	26%	55%	12%	100%
There is improvement in tracing detail of employees (information)	Managerial	0%	15%	24%	44%	18%	100%
	Non-Managerial	0%	11%	37%	44%	9%	100%

Sources: SPSS Survey, 2014

To have an overall view about the system the researcher raised the above mentioned questions, and regarding whether EP implementation reduces the financial cycle closing time or not, 82% of management respondents have agreed that deployed ERP system reduces the financial cycle closing time. Likewise, 62% of non-management employees have also taken the same viewpoint. On the other side, 6% of management as well as the non-management representatives have argued that there no reduction in the financial cycle closing time after the deployment of ERP system. Apart from this, 32% of non-management employees have taken neither of the two sides like that of 12% of management respondents. Having these all facts in mind, we can deduce that majority of the employees are just feeling that the financial cycle closing time has been reduced after ERP implementation when it compared to the time that there was not ERP system.

With similar fashion, the researcher has raised a question whether the decision making cycle time has been reduced or not. Thus, 73% of management respondents replied that the decision cycle time has been reduced after ERP implementation and also 65% of non-management respondents reflected the same observation. On the other hand, 9% percent of management and 7% of the non-management respondents believe that there is no time reduction in the decision making even if the system has been deployed. Furthermore, 28% of non-management officials preferred to stay neutral on the matter while 18% of non-management employees have also taken the same stance. Considering these all facts, it is possible to say that largest proportion of the employees believed that there is a time reduction in the decision making cycle time even fret the implementation of ERP system.

In addition, employees were requested to indicate that whether the procurement cycle time is reduced or not and similarly a question related to the pay slip generation has also been raised. Hence, for the procurement cycle time related question 73% of non-management employees believed that there is a reduction in the procurement cycle time after ERP implementation as that of 76% of management incumbents. On the contrary, 11% and 12% form non-management and management categories respectively argue that the existing ERP system has reduced no time. Finally, 12% of management officials did support neither of the two sides like that of 17% of non-management employees. Similarly; 67% of the non-management and 74% of the management respondents also believe that there is time reduction on employees pay slip generation. On the other hand; 12 % of the management respondents argue that there is no time reduction in employees pay slip generation even is the system is already there, by the same token 8% of the respondents from non-management has also the same view. And the remaining 15% and 26% of the respondents from the management and non-management respectively want to choose neither of these sides. Therefore, as shown from two angels' majority of the respondents reflected there is a time reduction in procurement cycle and also there is a time reduction in employees pay slip generation.

Finally, a question was raised about if there is an improvement in tracing employees' detail (employment history and other related records). Hence, 62% of management employees agreed that there is an improvement in tracing different employment related records of the employee. Similarly, 53% of non-management members have taken the same stance. Apart from this, 15% of management employees argued that there is no improvement on the employee detail tracing from the system and 11% of the non- management also has similar view. In addition, 37% from non-management and 24% from management categories have taken neither of the two viewpoints, rather they prefer to be neutral. From this and the already mentioned system efficiency and overall rating facts we can conclude that the system helps the company to easily retrieve the detail of employees whenever required.

To let employees add on whatever additions they have about the system additional question was placed at the last part of the questionnaire for the respondents, but only few respondents from finance and Human resources division has reacted on it and their response is now summarized as below:-

- ✓ The system lacks some integration with the existing commercial system named Z-smart. Hence employees are forced to work on two separate systems to know the financial position of the company
- ✓ Furthermore, Management of the company are not giving due attention for the proper implementation of the system and they are not conducting periodic review to check the efficiency of the system and employees who are working on it.
- ✓ Finally, luck of expertise from the company side is still a challenge for the system utilization, in addition the company not yet considering the lessons obtained from the first phase deployment

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary of Findings

- Nearly 50% of the respondents believed that the deployed ERP system doesn't make the working process fully automated, especially in the area it's deployed
- Concerning the benefits realized by the company, more than 50% of the respondents asserted that ERP system is not providing the expected benefits for the company and employees as well
- Regarding the contribution of ERP for the transformational activity of the company held in 2010, more than three fourth of the respondents from the management and non-management category believes that ERP contributes its part for the transformation of the company.
- Larger proportion of the respondents 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.
- 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. Similar with this one employees were asked if this mixed usage of both working methods are affecting the efficiency of the company and significant proportion of the respondents also replied that the companies efficiency has been affected due to this mix up usage of different working methods.
- Related with the contribution of the system in enhancing the cross-functional integration among the divisions, nearly three fourth of the respondents believe that the cross functional integration of divisions has been increased due to ERP implementation.

- Regarding the system utilization point of view larger share 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.
- As far as the customization of the system concerned, majority of the respondents have advocated that the system is not fully customized considering the companies process, policy & procedure and the countries regulatory activity, in addition most of the respondents also believe that the system implementation has not been vied from the companies long term strategic objective (ex:- customer base, additional employment, similar system based software's to be implemented in the near future and so on).
- And another finding indicated that the capacity building program has not been properly implemented in relation to ERP system, apart from this a higher proportion of respondents indicated that there is still a high dependency on integrator support activity, it's because the company supper users are not trained and prepared in a way that can fully replace the functional as well as technical support of integrators.
- From the user friendliness point of view majority of the respondents asserted that he system interface, the navigation panels and the navigations steps are simple and understandable to work on the system. But on the contrary the reporting formats are somehow difficult to understand for both internal decision makers and external stakeholders.

5.2. Conclusion

The finding revealed as majority of the respondents believed that the deployed ERP system is not help the company to fully automate the back office working area and is not getting the expecting benefits from the system as well. Hence, even though the company has already mentioned on paper as an objective to fully automate the working environment, it is not as such practiced yet.

Majority of the respondents believed that there are some functional areas that are utilizing both the manual as well as system based working methods. On top of this, majority of the employees also believe that the existence of both working methods is highly affecting the efficiency of the company. This may be because the time consuming and energy taking nature of the manual working methods.

Apart from the mix up usage of the system the company efficiency has been hampered due to not utilizing the entire feature of the system even if the system license has been fully procured. This means that, the company is not able to utilize all the features of the system due to different factors, but the major reason for this underutilization could be lack of expertise on the area.

Based on the finding, most of the employees respond that the system has not been fully customized in line with the process, policy and procedure and countries regulatory framework as well. And this also contributes a lot for the mix-up utilization of both the manual intervention of a manual working process while the system is already there. In addition some of the customization activities have not been performed considering the long term strategic objective of the company.

The finding indicates, as majority of the respondents replied that there is no enough training intervention to capacitate employees on the system. Therefore, even though the company has awareness on the role training for employees on the newly introduced IT solution valuable effort has not been exerted in this regard. In addition to the training for end-users, super users who are expected to perform all the functional as well as technical support are not trained in a way that can fully replace the integrators role during post-implementation phase. Hence, the dependency of the company on integrators is still high due to the above mentioned reason. And nearly 80% of the respondents from the management and 61% of the respondents from

the non-management believe that there is high dependency on integrators, and which will lead to the additional cost to be incurred by the company (in USD), and it may expose some confidential information due to the integrators intervention in every detail of the company day to day activity, which may also lead the employees in a frustration mood.

From the system user friendliness perspective, majority 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.

Finally as an overall observation of the system, ERP implementation has supports 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.

5.3. Limitation and Further Research

- The study was carried out using a particular type of technological innovation which is ERP System. As such, the research needs to be replicated to examine the robustness of the findings across a wider range of technological solutions and samples.
- Other limitation is the static nature of the study, that is, the study is based on the existing scenario of the level and usage of ERP; but ERP can be further enhanced in future. Therefore Research should be conducted in future to know whether ERP is improving with changing time or not within the company.
- Questionnaires were not returned 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.
- Finally, there are some possibilities of measurement errors. The study focused on perception of the respondents and the instrument relied on self-reports and perceptions of the respondents alone. This could have resulted in some degree of perceptual inflation of self-assessment scores. Those who enjoyed great satisfaction with new technology may have inflated their response with respect to their intention to continue to use the system.

5.4. Recommendation

- To realize all the benefits expected from the system, Ethio telecom has to exert all its effort to utilize all the features of the system from the already procured license, so that the intervention of manual working methods can be highly minimized and efficiency of employees and company in general can be enhanced accordingly.

- From the customization pint of view, on top the standard feature of the system all the required company rules and regulation and countries regulatory procedures need to be integrated in the system through change request (customization), otherwise some operational activities will be handled through system interface and the other will require manual intervention and this will lead to inefficiency. In addition the company need to assess all the requirements defined and point out which requirement is already integrated and which one is not yet incorporated, then the company has to work on how the remaining business requirements can be integrated.

- Since the major purpose of Enterprise resource planning (ERP) system implementation is to reinforce the efforts and performance of employees towards the achievement of organizations goals and objectives, Ethio Telecom has to do a lot by delivering the required training programs for both end-user as well as super users to bring the required level of skills on the system. To do so, a competency assessment has to be implemented to examine the required skill level and the actual system functionality, so that the right training for the right target group can be delivered for the better utilization of the system. Moreover, super users of the company has to be properly identified and trained in a manner that can fully handle the post-implementation support as a result the extended dependency of the company can be minimized, and which will lead to a high cost saving apart from the other benefits. And as indicated by O'Leary (2000: 41), training 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.

- In addition, ethio telecom need to examine whether the integrators are doing what is expected from them. As a newly introduced IT technology the company has to focus on the knowledge transfer of its employee from the integrators through check and balance system, otherwise the integrators will not worry about this knowledge transfer since their vested interest is to stay

on the company as a post-implementation support and get lots of forex from the company and the country as well. So by defining some parameters the companies need to check how far the knowledge transfer has been achieved.

- And finally Ethio telecom need to revisit the reporting formats already defined in the system, this is mainly because any individuals need to understand what exactly the report is saying without the support of others, but currently defined reporting formats are somehow complex and difficult to understand for decision makers and external stakeholders, and they requested some who is already familiar with the system to interpret what each generated reports mean. And this approach block the decision making cycle time, so easily understandable reporting formats have to be designed and integrated in the system so that anyone can read and interpret what exactly it mean.

Reference

Abré Pienaar et al. (2002): Thinking about ERP 3rd ed.: the executives guide to setting strategy for selecting, implementing and operating ERP.

Akermans H., Helden van K. (2002): Vicious and virtuous cycles in ERP implementation: a case study of interrelations between critical success factors. *European Journal of Information Systems*, Vol. 11, pp. 35-46

Aladwani A. M. (2001): Change management strategies for successful ERP implementation. *Business Process Management Journal*, Vol. 6, No. 3, pp. 266- 275

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).

Botta, N. Genoulaz, C. Millet, & Garbot (2005): Training for IS/IT project managers: a way forward. International Journal of Project Management, Vol. 15, No. 5, p. 283-288

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.

Creswell, J. (2003). Research Design: Qualitative, Quantitative and Mixed Method. Thousand Oaks, London and New Delhi: Sage Publications.

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

Clemmons S., Simon S. J. (2001): Control and coordination in global ERP configuration. *Business Process Management Journal*, Vol. 7, No. 3, pp. 205-215

Clouther S. (2002): ERP market to rebound. *Transportation and Distribution*, Vol. 42, Iss. 2, p. 18

Ethio-telecom annual magazine (2013).

Evans R. (1994): The human side of business process re-engineering. *Management Development Review*, Vol. 7, No. 6, pp. 10-12

Fiona Fui-Hoon (2002): Enterprise Resource Planning Solutions and Management: Vol. 83, pp. 615-33.

Gargeya U., Brandy F. (2005): On the challenges of the business modeling in large-scale reengineering projects. Norwegian University of Science and Technology

Graeme S. & Peter B. (2002): Enterprise Resource Planning Systems: Implementing for effectiveness. Upper Saddle River, New Jersey: Prentice-Hall.

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

Hawa M., Ortiz A., Lario F., Ros L. (2002): Improving the role played by humans in the development of enterprise engineering and integration projects through training based on multimedia. *International Journal of Computer Integrated Manufacturing*, Vol. 15, No. 4, pp. 335-344

Henry S., (2002) Basic Principles for ERP implementation. 4th ed. New York: Homeland international limited.

Holland, Light and Gibson (1999): A critical success factors model for enterprise resource planning implementation. *Proceedings of the 7th European Conference on Information Systems*, Copenhagen Business School, Copenhagen pp. 273-287

Hong K-K., Kim Y-G (2002): the critical success factors for ERP implementation: an organisational fit perspective. *Information and Management*, Vol. 40, pp. 25-40

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

Israel, G. (1992). Determining Sample Size. Florida: Florida Cooperative Extension Service.

Jose M. Esteves and Joan A. P. (1999) : Overview on ERP Life-cycle , Vol. 3, , pp. 23-29

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

Kumar V., Maheshwari B., Kumar U. (2003): An investigation of critical management issues in ERP implementation: empirical evidence from Canadian organizations. *Technovation,* Vol. 23, Iss. 10, p. 793-807

Liaquat Hossain and Mohammad A. Rashid (2002): The Evolution of ERP Systems: A Historical Perspective.

L. Raymond (2002): Essential Characteristics Of An ERP System :Conceptualization And Operationalization, pp. 95-114

Marjanovic O. (2000): Supporting the "soft" side of business process reengineering. *Business Process Management Journal*, Vol. 6, Iss. 1, p. 43

Markus M. L., Axline S., 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

Markus M. L., Tanis C. (1999): *The Enterprise System Experience- From Adaption to Success* (Claremont Graduate University, California)

May D., Kettelhut M. C. (1996): Managing human issues in re-engineering projects: a case review of implementation issues. *Journal of Systems Management*, Vol. 47, no. 1, pp. 5-11

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

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

Olson D. L. (2004): *Managerial Issues of Enterprise Resource Planning Systems*. McGraw-Hill/Irwin

Olliver C., Romm (2002): The role of the CIO and IT function in ERP: asleep or at a wheel. *Communications of the ACM*, Vol. 43. No. 4, pp. 22-28

Parr A., Shanks G. (2000): A model of ERP project implementation. *Journal of Information Technology*, Vol. 15, pp. 289-303

Poston R., Grabski S. (2001): Financial impacts on enterprise resource planning implementations. *International Journal of Accounting Information Systems*, Vol. 2, pp. 271-294

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.

Shiri, S. (2012). Effectiveness of Human Resource Information System on HR Functions of the Organization: A Cross Sectional Study. US-China Education Review (pp. 830-839). David Publishing.

Skok W., Legge M. (2002): Evaluating enterprise resource planning systems using an interpretive approach. *Knowledge and Process Management*, Vol. 9,No. 2, pp. 72-82

Somers T. M., Nelson K. G. (2001): The impact of the critical success factors across the stages of enterprise resource planning implementations. *Proceedings of the 34th Hawaii International Conference on Systems Sciences*, January 3-6, Maui, Hawaii

Somers T. M., Nelson K. G. (2004): taxonomy of players and activities across the ERP project life cycle. *Information and Management*, Vol. 41, pp. 257-278

Stewart G., Milford M., Jewels T., Hunter T., Hunter B. (2000): Organizational readiness for ERP implementation. Information Systems Management Research Centre, Queensland University of Technology, *Americas Conference in Information Systems (AMCIS)*

Sumner M. (2000): Risk factors in enterprise wide/ERP projects. *Journal of Information Technology*, Vol. 15, pp. 317-327

Sutcliffe N. (1999): Leadership behavior and business process reengineering (BPR) outcomes: an empirical analysis of 30 BPR projects. *Information and Management*, Vol. 36, No. 5, pp. 273-286

1. Thomas F. (2001): ERP making it happen: the implementers guide to success with Enterprise Resources Planning. Vol. 18, no.2, pp 321-352.

Umble E. J., Haft R. R., Umble M. M. (2003): Enterprise resource planning: implementation procedures and critical success factors. *European Journal of Operational Research*, Vol. 146, No. 2, pp. 241-257

2. Wallace F. (2001:6): Leadership behavior and business process reengineering (BPR) outcomes: an empirical analysis of 30 BPR projects. *Information and Management*, Vol. 36, No. 5, pp. 16 – 21

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

Appendix

ADDIS ABABA UNIVERSITY

Master of Public Administration & Development Management

Researcher: Engidayehu Getachew

Dear Respondents

The main purpose of this questionnaire is to gather information about the practice and challenges of oracle ERP (Enterprise Resources Planning) implementation in ethio telecom for the partial fulfillment of the requirements for Masters of Public Administration & Development Management 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:

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Thank you in advance for your unreserved cooperation!

Appendix

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 _____

Part II: Issues Related with the study area

Please **circle** the alternative of your choice, the numbers below has been defined with their respective equivalent meaning to ease the questionnaire for each respondent. Hence;

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

1. Do you think the currently deployed ERP system meets the business requirements of the company in achieving the goal of making the working process automated?

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

   Where: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Ser. No.	STATEMENT	Scale				
1.1	ERP implementation makes the working process of ethio telecom fully automated (in the area it's deployed)	1	2	3	4	5
1.2	The organization is obtaining the benefits expected from ERP implementation	1	2	3	4	5
1.3	The system has been supporting the transformational activity held in the company	1	2	3	4	5
1.4	ERP improves your efficiency in the organization	1	2	3	4	5
1.5	ERP implementation highly contribute in achieving company's vision (being world class telecom service provider)	1	2	3	4	5
1.6	ERP implementation in the company is the best solution in satisfying the customer demand	1	2	3	4	5
1.7	Non-value adding jobs and processes are reduced after ERP implementation	1	2	3	4	5
1.8	There are some functional areas still using both the manual and automated working system	1	2	3	4	5
1.9	A mix-up usage of both systems (manual & automation) has been	1	2	3	4	5

	hampering the company efficiency in the area					
1.10	ERP implementation enhances cross-functional integration	1	2	3	4	5
1.11	The company apply and utilize all the features of ERP system	1	2	3	4	5

2. Items about customization of the system in line with companies/countries regulatory activities.

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

   Where: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Ser. No.	STATEMENT	**Scale**				
2.1	The system is fully customized in line with the companies policy and procedure	1	2	3	4	5
2.2	Country's regulatory/compliance procedures are fully supported and integrated	1	2	3	4	5
2.3	The company's business requirement is fully considered and integrated	1	2	3	4	5
2.4	System customization has been done considering the long term strategic objective of the company	1	2	3	4	5
2.5	There are requirements dropped due to system incapability	1	2	3	4	5
2.6	Additional features obtained from the system beyond the pre defined requirements	1	2	3	4	5

3. The level of capacity building done on the system

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

   Where: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Ser. No.	STATEMENT	Scale				
3.1	Training was given exhaustively for all users.	1	2	3	4	5
3.2	The training given on the system was adequate and useful to your functional module	1	2	3	4	5
3.3	Further enhancement training is required on the system	1	2	3	4	5
3.4	There was a gap between the imparted training and ethio telecom business requirements	1	2	3	4	5
3.5	The support exerted by integrators make the users familiar with the system	1	2	3	4	5
3.6	Ethio telecom super users are trained in a way that can fully replace the integrators support activity	1	2	3	4	5
3.7	The level of dependency on integrates are still high	1	2	3	4	5
3.8	The functional and technical support of integrators are successful in relation to knowledge transfer	1	2	3	4	5

4. Items about the systems easiness (User friendliness)

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

Where: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Ser. No.	STATEMENT	Scale				
4.1	Users interface of the system is easily understandable	1	2	3	4	5

4.2	Users can work on the system without any challenge	1	2	3	4	5
4.3	The reporting formats are easily understandable by external users and decision makers	1	2	3	4	5

5. Items about overall impact of Oracle ERP implementation

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

Where: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Ser. No.	STATEMENT	**Scale**				
5.1	It reduced the financial cycle closing time	1	2	3	4	5
5.2	It reduced cycle time for decision making	1	2	3	4	5
5.3	It reduced procurement cycle lead time	1	2	3	4	5
5.4	It reduced time for pay slip generation	1	2	3	4	5
5.5	There is improvement in tracing detail of employees	1	2	3	4	5

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

……
……
……
……

Thank You Again!