



ADDIS ABABA UNIVERSITY
COLLEGE OF NATURAL SCIENCES
SCHOOL OF INFORMATION SCIENCE

**The Role and Impact of Change Management in ERP System
Implementation at Ethio Telecom**

By

Mihiret Gashaw

October, 2017

Addis Ababa, Ethiopia

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**A Thesis Submitted to the School of Information Science College of Natural
Science Addis Ababa University in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Information Science**

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ABSTRACT

In this day, Organizations are continually facing with the need to change their structures, objectives, processes, and technologies to make changes to sustain their competitive advantage. Many have adopted enterprise resource planning (ERP) systems to help do this. The enterprise resource planning (ERP) system is an integrated set of programs and process for all kind of data and information that provides support for core organizational activities such as manufacturing and logistics, finance and accounting, sales and marketing, and human resources. In addition, the success of ERP largely relies on effective change management. Effective change management is vital in reducing resistance and improving the adoption of technology. Thus, the main objective of this study is to assess the role and impact of change management in ERP system implementation at Ethio Telecom. The populations of this study included a total of 116 system users and five ERP project experts.

To meet the purpose of this study mixed method research approach were used which combined both quantitative and qualitative research approaches and the necessary data were collected using questionnaire and interview in order to get the overall picture of change management impact in ERP system implementation at the company. The questionnaires were adapted from previously conducted research works. Therefore, the content of the interview outline has drawn from the subjects of the questionnaire items. Moreover, the use of both quantitative and qualitative approach helped to triangulate the findings and get better output. In addition, Frequency and Percentiles were used for analyzing the quantitative data while the qualitative data were analyzed by using open code narrative.

The finding of the study shows that the influence of change management on the overall success of the project was very high. In addition, the important change management process and tools has found to be awareness, willingness, top management support, communication and training. Finally, based on the findings recommendations are forwarded.

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LIST OF ACRONYMS

| | |
|-------|---|
| ADKAR | Awareness, Desire, Knowledge, Ability and Reinforcement |
| ERP | Enterprise Resource Planning |
| ETC | Ethiopian Telecommunications Corporation |
| HR | Human Resource |
| IS | Information Systems |
| SPSS | Statistical Package for the Social Sciences |

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Nowadays, the environment in which organizations operate has become increasingly complex, turbulent, and uncertain. Only those organizations which are competent and can effectively struggle in the competitive environmental condition can only able to survive. It is held that, there are numerous factors that lead to change in any environmental situation such as: Increased global competition and competitors; Technological innovations; New or different government and international regulations; Financial and social restructuring; Growth; and also the nature of the workforce in the changing situation. Therefore, to remain in business and keep the organizations benefit in a changing competitive environment, managing change needs to be a core competency in which organization and managers are capable of [1].

Moreover, change management strategy is significant in order to require a structured approach and to transform individuals, teams, and organizations from the present state to the expected upcoming state. Also, change management can be defined as an organizational practice which is vital in enabling the workforce to accept, understand and embrace the change in their current business environment. Therefore, having an effective change management process is critical for implementing technology and business process reengineering without proper change management processes, enterprises cannot successfully use the new systems and capitalize on performance gains. Accordingly, ERP implementation failures affected due to various factors such as low emphasis on "the soft issues" such as the business process and change management. As various scholars estimated half of ERP projects failed to succeed the estimated benefits due to companies significantly underestimating the effort involved in change management [2].

Thus, for allowing effective implementation of such applications throughout an enterprise it is crucial to have change management [3]. ERP system permits the

consolidation of business functions as diverse as accounting, finance, human resources, operations, sales, marketing, customer information and even the supply chain and also it allows the consolidation of different functions, divisions of businesses in terms of information interchange and flow [4]. Additionally, it allows facilitating the timely flow of information among different parts of the organization freely which consequently helps the management in making strategic decisions [5]. Also, ERP systems permit companies to implement fully integrated systems and to substitute the legacy systems, which are difficult to maintain due to their age, size, mission-critical status and frequent lack of documentation. As mentioned before, ERP systems are advantageous as they are integrated instead of fragmented, embed allegedly best business practices within software routines and offers direct access to real-time information [6].

1.2. Background of the Organization

Based on 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 RasMekonnen 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 established on November 29th, 2010 with the ambition of supporting the steady

named ERP was introduced with the objective of automating the business processes which offer benefits in terms of productivity improvement, improved customer service, cost reduction and to manage the ever ending transaction of the company business, and to obtain up to date information about the financial position of the company [7].

1.3. Statement of the problem

ERP systems are central to the information systems (IS) strategy of most international companies. With the global economy, there is pressure to implement such applications at a global level, in order to control and manage all the company processes at all sites. However, rolling out a global template in each of the different countries is difficult, thus, to reduce the risk when implementing such application we need to take the local environment into account. Since each country has its own specificities: organizational, cultural, political and economic and these can have significant impact on the potential of the new IS [8].

Though ERP packages are claimed to be generic, off-the- shelf solutions due to the nature of the system the issues arising out of implementation in different country specific cultures often hinder the smooth implementation and there is growing evidence of social and cultural differences not being addressed during implementation, leading to delays and failures in ERP adaptation. Therefore, Change practices would need to be customized, along with precautions and planning on how to deal with the ensuing cultural challenges [9]. However, Cultural changes are the most sophisticated types of changes to identify and manage because culture is complex to grasp. Also, the organizational culture reflects the implicit beliefs, values and assumptions about the behaviors believed to lead to success [10]. Accordingly, the key challenge of ERP implementation relies on, how an organization manages the different components of changes in the organization to attain the desired changes.

As mentioned earlier ERP imposes new logic in the organization and this may cause several cultural conflicts that may enforce additional management power and control rather than introduce organizational empowerment. Thus, Employees may resist the internal power structures introduced by the system. Due to this, a large number of ERP fails to achieve the desired benefits,

because organizations give poor intention to the effort involved in change management [10]. Therefore, Successful and effective ERP project implementation is not simple nor an inexpensive or risk-free venture task. Hence, implementing an ERP system package causes vast changes that should be managed carefully to get the full advantage [3].

Based on the studies which is conducted on change management in the context of developed countries and as findings shows the existing literatures don't have consistent result due to cultural, social and technical factors of the companies and the countries. As Sheu, Hsiuju, and Krumwiede [11] through an exploratory study of four US-Taiwanese manufacturing firms, emphasize national differences as one of the major threats to successful multinational ERP implementation. They suggest the different types of national differences can affect implementation results such as: language, culture, politics, regulations and management style. On the other hand, as mentioned earlier some of the findings show that system implementation is affected because of underestimating the soft issues which is the human side. As Suzan and Paul [12] mentioned 75% of organizational change efforts involving technology fail as a result of people's negative reactions to changes in their work practices, organizational business processes and in the use of the technology leading people to resist the change.

Concerning researches in Ethiopia most of the studies are conducted on ERP implementation and as Sintayehu [13] mentioned change management is one of the major critical success factors in ERP system implementation. And even if, the attention during the beginning of the project were very high, but it didn't continue and was not effective. Therefore, conducting further research on change management from Ethiopian context is important in order to assess the overall organizations change management process, employees or end user's perception towards the system and change management process and tools used in the organizations. Concerning researches on ERP system implementation in Ethiopia some studies are conducted. Tewodros [14] has conducted Design of Enterprise Resource Planning (ERP) Framework and its implementation at Gafat Engineering. Derese [15] has conducted a study on Oracle ERP system at Ethio Telecom, a government company. Sintayehu [13] has conducted a study to review Success Factors for Implementation of Enterprise Resource Planning System at Ethiopian Airlines.

Kibebework [16] have conducted a study on The Challenges and Current Status of ERP Implementation at Mughher and Derba Cement Industries. Elsa [17]has conducted a study to investigate technical, organizational, and operational issues of ERP post-implementation success in the context of Ethiopian airlines. Since there is no research conducted on the impact of change management in relation with ERP implementation from Ethiopian context in Ethiopian company. Thus, this study aims to investigate the role of change management and its impact among Ethio telecom employees during ERP implementation and also to identify the most effective and more useful change management process and tools. Therefore the study attempt to answer the following research questions:-

- What is the impact of change management in the implementation of ERP at Ethio Telecom?
- What are the most useful and significant processes and tools for change management to implement successful ERP system?

1.4. Objective

1.4.1. General objective

The general objective of the study is to investigate and identify the role and impact of change management and the effective change management process and tools in ERP implementation at Ethio Telecom.

1.4.2. Specific objective

In order to accomplish the aforementioned general objective the following specific objectives are listed:

- To assess the impact of change management during ERP implementation at Ethio Telecom.
- To investigate employees perception on the impact of change management during ERP system implementation.
- To examine the existence and effectiveness of awareness, willingness, training, communication and top management factors at the company.

1.5. Significance of the study

- The study will help the organization to evaluate their change management practice, its impact in the organization and it enables them to identify significant change management process and tools.
- Moreover, it has significance for all affected users of the system to make aware of the change. And also to improve Employees' awareness and their understanding towards the system. Since ERP implementation represents more than an incremental change furthermore, it is a radical change of the organizational structure, the role and skills of organizational members.

1.6. Scope and Limitation

The scope of this research is bound to conducting a study to investigate the role and impact of change management in ERP implementation and also to identify the most effective and more useful change management process and tools among Ethio telecom employees. The study is conducted on divisions which fully deploy ERP system (Human Resource, Finance and Sourcing and Facility). Due to the geographical constraint the study focuses on divisions or departments which found at head office of Ethio Telecom.

1.7. Organization of the Study

This study is organized into five chapters. The first chapter is about the background of the study, statement of the problem, objective of the study, significance of the study, scope and limitation of the study. The second chapter presents a review of related literatures on ERP system and change management definition, process models, challenges of change, factors for resistance to change, change management critical success factors, the adopted change model and also discuss related works in that area. The third chapter discusses the methodologies and procedures followed for the data collection, analysis and interpretations. The fourth chapter presents the data analysis, study findings, presentation and discussion of the results. The fifth chapter presents conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 ERP overview

The business environment has become increasingly more complex and the marketplace has changed from the local setting to a global one. Continuous burden is applied to the management in order to improve competitiveness by reducing operating cost and improving logistic. Therefore, organizations have to constantly manipulate their business operations to meet all the challenges by being responsive to the customer and competitors. A useful tool businesses are shifting into and which allows to build strong capabilities, improve performance, undertake better decision-making in order to achieve the competitive benefit is Enterprise Resource Planning (ERP) [2].

ERP system is a software package which enables the integration of various business functions and data into a single system to be shared within a company. While ERP originated from manufacturing and production planning systems used in the manufacturing industry, ERP expanded its scope in the 1990's to other "back-office" functions such as human resources, finance and production. Moreover, in recent years ERP has incorporated other business extensions such as supply chain management and customer relationship management to become more competitive [18]. Once ERP systems are successfully implemented, significant benefits such as improved customer service, better production scheduling and reduced manufacturing costs can be gained [19].



Figure 1: ERP Extension (adopted from: [18])

ERP implementation is not a technology, but a people project so; users' role in the ERP System implementation cannot be ignored. The user involvement at the initial stage of ERP system

implementation is helpful for the user to understand the system and to provide a valuable feedback. The user involvement may lead to better user requirements, achieving better quality system and system usage. The success of ERP system depends on the use of the system after its successful implementation. The participation or involvement may lead to system usage and user satisfaction. User satisfaction is a critical factor for the successful ERP system implementation and also ERP system success is measured in terms of user satisfaction [5].

Depending on various literature findings, there are different reasons for adoption of ERP and we can see from the business side (business reason) and the technical side (technical reason). The business benefits of an ERP implementation can be compelling. A well-planned and managed ERP implementation can boost the organization’s performance significantly across business functions. Considerable savings can be created by making organization’s business processes more efficient and automated. The below table summarizes the technical and business reasons of ERP adoption [20].

| | Small companies & simple structures | Large companies & complex structures |
|-------------------------|---|--|
| Business reasons | <ul style="list-style-type: none"> • Accommodate business growth • Improve informal and/or inefficient business processes • Clean up data and information through standardization • Reduce operating and administrative expenses • Reduce inventory costs • Eliminate delays and errors in customer order fulfillment | <p>In addition to the reasons smaller companies have</p> <ul style="list-style-type: none"> • Integrate IT support function • Standardize different numbering, naming, and coding schemes • Standardize procedures across different locations • Present a single face to the customer • Acquire worldwide “available to promise” capability • Streamline financial consolidations and reporting • Improve company wide decision support |

| | | |
|--------------------------|--|--|
| Technical Reasons | <ul style="list-style-type: none"> • Integrate applications cross functionally • Replace hard-to-maintain interfaces • Eliminate redundant data entries • Improve IT architecture • Ease technology capacity constraints • Decrease computer operating costs | <p>In addition to the reasons smaller companies have</p> <ul style="list-style-type: none"> • Consolidate multiple systems of the same type (e.g. national general ledger packages) |
|--------------------------|--|--|

Table 1:Reasons for adopting an ERP system

2.2 Change management definition

Change is an ongoing process. It is a continuous process and doesn't happen once and then stop. It is a planned work that is based on the discovery of the need for change, which usually occurs as a result of problems with the current system or changes in circumstances or is expected to occur in circumstances that would require a change of plan [21].

In the organization's view, Change is the implementation of new procedures or technologies intended to realign an organization with the changing demands of its business environment, or to capitalize on business opportunities. Moreover, Change Management is a structured process that will cause proposed changes to be reviewed for technical and business readiness in a consistent manner that can be relaxed or tightened to adjust to business needs and experiences [22].

Change management is a structured approach that facilitates the adoption of change by groups and individuals within an organization. The process of how organizations change draws on many disciplines from psychology and behavioral science to engineering and systems thinking. The underlying principle is that change does not happen in isolation. It impacts the whole organization and each individual associated with it [23].

Change management is a primary concern of many organizations involved in ERP project implementation in terms of adopting an ERP system, as activities, processes, and methodologies that support employee understanding and organizational shifts during the implementation of ERP

systems and reengineering initiatives. Moreover, Change management is a process that helps the management for the implementation of appropriate planned change in the development of the organization. It refers to all activities associated with the interaction of technology, processes, and people. Project team and end-user training, the understanding of new processes, communications, and job redesign are some of the main activities that comprise a change management strategy [3].

In the context of organizational change, change management consists of a hard side and a soft side. The hard side refers to the processes, systems, strategies, tactics, and technologies that will help to implement changes and the soft side involves behavioral and attitudinal changes (e.g. persuading, reassuring and communicating, identifying and addressing emotional reactions, influencing and motivating) that will allow the hard changes to be successful [24].

It is important to note that ‘organizations’ are not the ones that change; it is the people within organizations that change. Therefore, the success of the project ultimately is measured by the difference in work done by each individual multiplied by the number of employees impacted by the change. Consequently, effective change management requires an understanding for, and appreciation of how one person makes a change successfully. Without an individual perspective, change management amounts to activities performed without goals or outcomes achieved [23].

2.3 Change Management Process Models

Since the inception of the organizational change management concept several models have been developed and published, describing the process of change, both from individual and organizational perspectives are available to market, developed by different researchers; some of the most widely known change management process models are described and listed below as follows:-

1. ADKAR Model

Managing organizational change starts with understanding how to manage change with a single person. Among the tools available to drive individual change, the ADKAR model developed by Prosci, is commonly used. ADKAR is an acronym for Awareness, Desire, Knowledge, Ability, and Reinforcement. In principle, to make a change successfully, an individual needs:

- Awareness of the need for change

- Desire to participate and support the change
- Knowledge on how to change
- Ability to implement required skills and behaviors
- Reinforcement to sustain the change.

ADKAR describes successful change at the individual level and outlines the goals or outcomes of successful change [23].

This model focuses on principles of change that are effective on an individual level. The focus of this model is on how to change people not things, programs etc. the steps of the model are discussed as follows [25]:

- 1) **Awareness:** to initiate a change, an individual must know what needs to change and why. What are the risks of not changing? How will the change benefit the individual? Without knowing that there is a need for change, an individual will not likely have a desire for change.
- 2) **Desire:** once an individual knows what needs to be changed, it is imperative to help him or her find the desire to support the change. Without this support a lot of resistance may be given to those who are implementing the change. Several tactics may be used, which include utilizing past organizational habits and successes, showing how the change will benefit those affected by the change, drawing on past individual successes with similar changes, intrinsic motivation and extrinsic motivation. Intrinsic motivators are specific to an individual, not a group. Something that motivates one individual to change may not motivate all individuals. Extrinsic motivators can be any type of motivation that comes from anyone or anything other than the individual. For example: bonuses, job security, promotions, or even just encouragement from co-workers or friends.
- 3) **Knowledge-**The information necessary to make a change is given to the individual. This includes information about the new programs, systems or behaviors that will be implemented. Providing the information is important because individuals don't always seek to do things they don't know how to do. For example, someone who doesn't know how to

change the oil in a car will probably be less prone to do so until she or he receives instructions on how to do so

- 4) **Ability-** This is the step where knowledge turns to action and also this is where concepts turn into reality. Knowing how to change the oil and actually changing it are two different things, just like knowing how to swim and actually swimming are two different things. Thus, an individual will need support and help when utilizing the knowledge needed to make a change.
- 5) **Reinforcement-** The individual needs to know when she or he is achieving the desired outcome. Recognizing the progress of an individual who has faced great difficulty in making a change is especially important, because this recognition encourages this individual to keep going. Although group recognition is beneficial, individual recognition by someone the individual respects is even more meaningful.

2. Kotter's 8-Step Change Model

Kotter (1996, 1998), developed a model which should be used at the strategic level of an organization to change its vision and subsequently transform the organization. Studies using this model have shown that the change process goes through a set of phases. Each phase lasts a certain amount of time and mistakes at any phase can impact the success of the change [26]. Kotter's eight step approach to change management is listed as follows:

- 1) **Create a sense of urgency for change:** People typically prefer the status-quo. Change means uncertainty about what the future looks like. Uncertainty makes people uncomfortable. Furthermore, people tend to mistrust things about which they are uncertain. That is why people avoid change. To encourage people to assist with the change, we must create a sense of urgency.
- 2) **Create the guiding coalition:** You can try and battle the resistance to change that people have by yourself, or you can make your life much easier by enlisting the help of others. To

counteract resistance, one option is to form a powerful coalition of managers to work with the most resistant people.

- 3) **Establish a vision and strategy:** While it is not impossible to get things done without a definite plan of action, it is much simpler (and you get more cooperation) if there is a clear plan in place. Since the status quo is more comfortable for most people, they are likely to revert to business as usual and not flow with changes without a plan in place. Creating a vision and the strategies for achieving the vision will help expedite the change.
- 4) **Communicate the change vision:** If people do not know that change is coming or has occurred, they are more likely to resist the change.
- 5) **Empower broad-based action:** Remembering once again that people tend to prefer the status quo and are apprehensive about new experiences, they must be encouraged or inspired to change. Also, if you want them to do something new, you will probably get more cooperation from them if you teach them how first and then give them the new tools necessary to do things the new way. This step empowers others to act on the vision by removing barriers to change and encouraging risk taking and creative problem solving change.
- 6) **Generating short-term wins:** People need to be rewarded when they break away from old behaviors and do something that is new and desirable. Basically it is positive reinforcement. This is the step where you plan for, create and reward short-term wins that move the organization toward the new vision change.
- 7) **Never letting up:** By this step, resistance should be diminishing, but you still need to observe actions. It is that same status quo thing. So, you nurture the change and make adjustments as necessary change.

- 8) **Incorporating changes into the culture:** When it comes to work, you can never tell someone enough about all the good reasons why the things they do make them and the company a success. Otherwise, some people will tend to behave as if they have no reason to do anything differently than they did before. So, to make the changes more permanent, you should reinforce them by demonstrating the relationship between new behaviors and organizational success change.

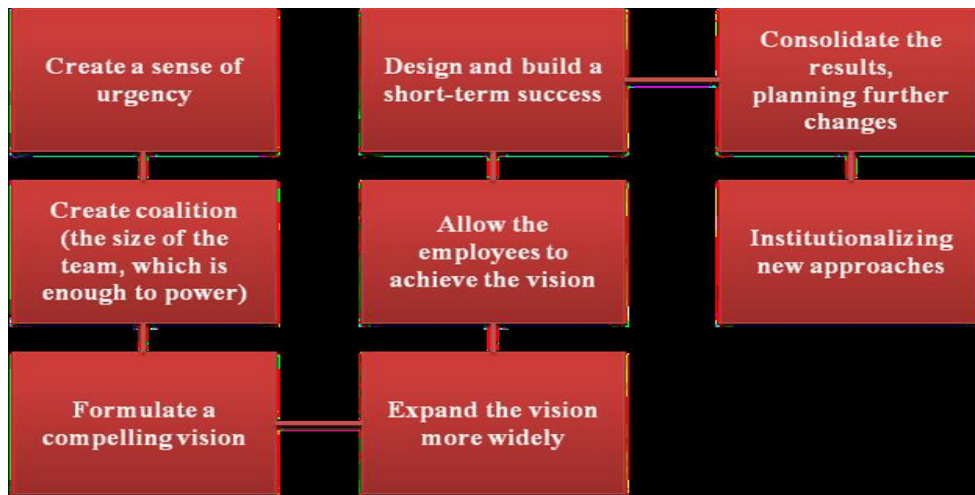


Figure 2Kotter change process model (adopted from: [27])

3. Lewin's 3-Stage Model of Change

Lewin's three stage change management process model which is one of the earliest change management process model which identifies three stages of change that are widely used today – unfreezing, effecting change, and refreezing. He described organizational change using the analogy of the changing shape of a block of ice. It is a simple and easily understood framework for managing change through three distinct stages. The model starts with creating the motivation to change (unfreeze) and moves through the change process by promoting effective communication and empowering people to embrace new ways of working (change). The process ends when the organization returns to a sense of stability (refreeze), which is necessary for creating the confidence to embark on the next, inevitable change. Each of the three phases also proposes specific activities that address motivation, implementation, and adherence to organizational changes.

| | |
|--|--|
| <p>Lewin's(1951) Three stage model</p> | <p>1. 'Unfreezing' Creating a healthy organization, being aware of the need for change, persuasion, top management involvement, and building confidence, communication, identifying stakeholders and managing their expectations.</p> <p>2. 'Moving' Following a comprehensive strategy by setting unambiguous objectives and challenging targets that helps individuals to develop knowledge while moving to a new level.</p> <p>3. 'Refreezing' Making sure that change is a part of organizational culture while changing the attitudes, structure of the organization, spreading the new mindset and information.</p> |
|--|--|

Table 2: Lewin's Change management process models (source: [20])

2.4 Challenges of change

Change usually involves the introduction of new procedures, people or ways of working which have a direct impact on the various stakeholders within an organization. The key to successful change management lies in understanding the potential effects of a change initiative on these stakeholders [22]. Challenges may manifest themselves under different names or other guises, but are essentially the challenges of leadership, focus, commitment and resistance.

Leadership - changing the running of an organization from a command and control nature of management to the nurturing and motivational nature of leadership. Change cannot be accomplished without the Commitment and involvement of the organization's leaders. The role a leader should play during the change process are listed and explained below:

- **Leaders must have a way of thinking about change.** They should have a "model" which will guide analysis of the situation and help him to formulate the process of change to be implemented.
- **Leaders must have clear goals.** They must have a clear idea of what results the change will generate.

- **Leaders should initiate change at the point** where they have the most control and can make reliable predictions about the consequences of their actions.
- **Leaders should recognize that change in any one part of the situation affects the whole.** They must be alert for unanticipated consequences of their actions.

Focus - making business choices to bring alignment and focus to the organization. Without a consistent focus, it becomes incumbent on each member to interpret the environment and to make decisions on which opportunities to explore from his or her own perspective. The likely result is a collection of highly skilled individuals, working extremely hard, and pulling the organization in a number of uncoordinated directions. Hence today's leaders must rely more on the discipline to focus on the right opportunities for the organization to steer the followers in the right direction.

Commitment - creating commitment to the future of the enterprise throughout the organization. Individuals who are asked to make a change are really being asked to make a commitment of personal energy. Company resources must be devoted to help workers understand the impending change, convince them of its value, and manage the resistance that will inevitably surface. As a leader builds understanding and generates commitment, the intense resistance to change, born out of fear of the unknown, is abandoned and replaced by the courage to take new directions and to actively pursue change.

Resistance-Resistance is a complex entity that directly affects the outcomes of change, both positively and negatively.

2.5 Change resistance in an ERP implementation

The implementation of an organization-wide system often involves structural, as well as cultural changes within. Significant change, however, is a disruption in the expectations of the future, which is normally viewed as a loss of control. Resistance to change is, therefore, often the reaction. People are unlikely to change the way they have been executing their tasks, more especially when it is not clear what the real goal of the whole exercise is about; who would benefit from the changes; and how it would impact on an employee [1].

There are three types of resistance: non-destructive, proactively destructive and passively destructive. This categorization and the corresponding behaviors are listed in the below Table [28].

| Resistance type | Resistance behaviors |
|--|--|
| Non-destructive: Eliminate contact with the system | Request job transfer or withdrawal from the job Increased absenteeism or tardiness Communicating negative feelings to coworkers |
| Proactively destructive: Direct damage to the new system | Deliberately sabotage work process Making careless mistakes |
| Passively destructive: Passively damage the new system processes | Refuse to cooperate with other employees Neglect work assignments Waste time and make little effort to improve work related knowledge and skills Accept inferior quality performance Dissonance with consultants |

Table 3: Types of resistance and resistance behaviors in ERP implementation context

2.6. Reasons or factors for resistance to change

Several different reasons or factors behind resistance to change exist. Some factors focus on the outcome of the change and some factors on the change process itself. If the change is perceived as beneficial or detrimental to the individual can be seen as rational factors to resistance to change [29]. As change considered being inevitable so do resistance. Whenever change is introduced it triggers emotional reactions of employees because of the uncertainty. Specifically resistance grouped into two: individual and organizational sources for resistance [30].

2.6.1. Individual sources of resistance

- **Fear of unknown:** many organizations introduce change without disseminating enough information on why and what organization expects from it to the implementers. This creates fear and anxiety to employees who have gain confidence to the systems, structures, and relationship. Any disruption of familiar patterns may cause fear and resistance.
- **Economic factor:** people may fear change will affect their opportunities for future pay increase as it will make their job obsolete or reduce their importance at work. There are employees who operate in comfort positions who cannot easily welcome change to take place avoiding of losing their potential positions and have limited access to the resources.
- **Social factor:** Employees tends to believe that, change will affect their image, prestige and respects from others. This always result to them resist change to protect their status, prestige and image gained from the society, they may react that just because of the fear of what others will think.
- **Security:** Some change accompanied with retrenchment and redundancies. Security of tenure is what matters and very important to the employees. If change seems to be threat to their job there is no way they can allow it to take place smoothly. Different government departments encountered resistance from employees because of the fear of losing their jobs. Performance of the installed reforms becomes poor as people were not able to adopt a new system of work hence affect the whole plan of change in ensuring quality service delivery to the public.
- **Habit:** in this factor people may not be able to adopt a new way of doing job and seem to be Comfortable with the old way of doing work. The introduction of new set of steps may make job more difficult hence resistance can be seen as the only solution called inertia meaning that employees enjoys the old way of doing things and they do not want to change their status quo.

2.6.2. Organizational sources of resistance

- **Over determination:** Any change involves costs, so change in organizational performance systems, structure, rewards systems, recruitment, and others like organizational culture needs

resources especially financial resource called it structural inertia which acts as a threat to the organization due to the overlying costs. The organization therefore may opt to withdraw from change to avoid sunk costs.

- **Threatened inertia:** apart from other factors change introduces new expertise within the public sector. This may threaten the current specialized expertise that organizations developed to its employees over the years. Public sector may find itself into dilemma of introducing change as it may transfer responsibility for a specialized task from the current expertise to another.
- **Poor timing:** mentioned timing as a factor for resistance to change. The change must have specific time limit to be initiated, take over, and stabilize. If otherwise change may not in a position to bring what might be expected to bring.
- **Resources allocation:** this means anything like money, human resources, and equipment like; computer, printers and stationeries. The poor misallocation and inadequate resources may take a face of obstacle towards the implementation of change.
- **Unclear and obstacles to the new vision:** The vision always sketches the organizations perfect future. The unclear and incompatible vision may affect change completely. This is because the organizational structure, pay structure, culture and mindset of employees tend to support the existence vision and act into contrary with the new vision and change expectations. Such structures may give negative results as they are inconsistent with the new vision.

2.7. Methods for dealing with resistance to change

In order to deal with resistance to change in an organization managers have to use various methods to positively influence the individuals and groups during the change process. According to Kotter and Schlesinger, There are various methods used to deal with resistance to change such as, education and communication, participation and involvement, facilitation and support, negotiation and agreement, manipulation and co-optation, explicit and implicit coercion [31].

1) Education and communication

One of the most common ways to overcome resistance to change is to educate people about it beforehand. Communication of ideas helps people see the need for and the logic of a change. The education process can involve one-on-one discussions, presentations to groups, or memos and reports. An education and communication program can be ideal when resistance is based on inadequate or inaccurate information and analysis, especially if the initiators need the resisters' help in implementing the change. But some managers overlook the fact that a program of this sort requires a good relationship between initiators and resisters or that the latter may not believe what they hear. It also requires time and effort, particularly if a lot of people are involved.

2) Participation and involvement

If the initiators involve the potential resisters in some aspect of the design and implementation of the change, they can often forestall resistance. With a participative change effort, the initiators listen to the people the change involves and use their advice. When change initiators believe they do not have all the information they need to design and implement a change, or when they need the wholehearted commitment of others to do so, involving others makes very good sense. Considerable research has demonstrated that, in general, participation leads to commitment, not merely compliance. In some instances, commitment is needed for the change to be a success. Nevertheless, the participation process does have its drawbacks. Not only can it lead to a poor solution if the process is not carefully managed, but also it can be enormously time consuming. When the change must be made immediately, it can take simply too long to involve others.

3) Facilitation and support

Another way that managers can deal with potential resistance to change is by being supportive. This process might include providing training in new skills, or giving employees time off after a demanding period, or simply listening and providing emotional support. Facilitation and support are most helpful when fear and anxiety lie at the heart of resistance. Seasoned, tough managers often overlook or ignore this kind of resistance, as well as the efficacy of facilitative ways of dealing with it. The basic drawback of this approach is that it can be time consuming and expensive and still

fail. If time, money, and patience just are not available, then using supportive methods is not very practical.

4) Negotiation and agreement

Another way to deal with resistance is to offer incentives to active or potential resisters. For instance, management could give a union a higher wage rate in return for a work rule change; it could increase an individual's pension benefits in return for an early retirement. Negotiation is particularly appropriate when it is clear that someone is going to lose out as a result of a change and yet his or her power to resist is significant. Negotiated agreements can be a relatively easy way to avoid major resistance, though, like some other processes, they may become expensive. And once a manager makes it clear that he will negotiate to avoid major resistance, he opens himself up to the possibility of blackmail.

5) Manipulation and co-optation

In some situations, managers also resort to covert attempts to influence others. Manipulation, in this context, normally involves the very selective use of information and the conscious structuring of events.

6) Explicit and implicit coercion

Finally, managers often deal with resistance coercively. Here they essentially force people to accept a change by explicitly or implicitly threatening them (with the loss of jobs, promotion possibilities, and so forth) or by actually firing or transferring them. As with manipulation, using coercion is a risky process.

| Approach | Commonly used in situations | Advantages | Drawbacks |
|---------------------------|--|---|---|
| Education + communication | Where there is a lack of information or inaccurate information and analysis. | Once persuaded, people will often help with the implementation of the change. | Can be very time consuming, if lots of people are involved. |

| Approach | Commonly used in situations | Advantages | Drawbacks |
|------------------------------|--|--|---|
| Participation + involvement | Where the initiators do not have all the information they need to design the change, and where others have considerable power to resist. | People who participate will be committed to implementing change, and any relevant information they have will be integrated into the change plan. | Can be very time consuming, if participators design an inappropriate change. |
| Facilitation + support | Where people are resisting because of adjustment problems. | No other approach works as well with adjustment problems. | Can be time consuming, expensive and still fail. |
| Negotiation + agreement | Where someone or some group will clearly lose out in a change, and where that group has considerable power to resist. | Sometimes it is a relatively easy way to avoid major resistance. | Can be too expensive in many cases if it alerts others to negotiate for compliance. |
| Manipulation + co-optation | Where other tactics will not work or are too expensive. | It can be a relatively quick and inexpensive solution to resistance problems. | Can lead to future problems if people feel manipulated. |
| Explicit + implicit coercion | Where speed is essential and the change initiators possess considerable power. | It is speedy and can overcome any kind of resistance. | Can be risky if it leaves people mad at the initiators. |

Table 4: Summary of methods for dealing with resistance to change

2.8 Change Management Critical Success Factors

There are some key issues that needed to be taken into consideration while managing change because they trigger a high performance. Many companies tend to focus on the change process rather than the key factors of success behind it [20].Some of change management success factors are listed below as follows:

1) Communication

Change introduces a high degree of uncertainty and the degree of uncertainty is even higher when the change is radical. Communication, as a significant instrument, can help to diminish the Uncertainty, decrease the level of resistance, increase commitment and stakeholder participation.

2) Participation

Participation is expected to have a higher positive effect on people's emotions and paves the way to accept the change because it leads to commitment and attenuation of resistance. Participation can either involve representatives of groups or all group members. On one hand there is higher productivity when all group members are involved instead of only one representative, because for people who are not involved, it is harder to understand and endorse the new practices. However, on the other hand involving many people can be time consuming and expensive.

3) Motivation

Although motivation depends on the strength of human being's character, it is closely associated with 'communication', 'information-sharing' and 'consultation'

4) Commitment

Organizational commitment plays a significant role in achieving the desired change such that if there is low "psychological commitment" within the organization the adjustment to change will be noticeably slow even if not completely rejected.

5) Leadership

Today's dynamic organizations require equipped leaders with good communication and planning skills to supervise the interaction between strategy, people and systems. The required change cannot be achieved unless there is strong leadership. Top managers can adopt change by exemplifying it in their own behavior and efficient leadership is required to blend system, employees and procedures. It should be noted that leadership is not same with management, but both are needed to realize the change. Managers tend to focus more

on strategy, structures and the systems, whereas leaders give more attention to ‘soft’ issues such as people issues, shared purpose, communication and motivation.

6) Training

Training has high effect on successful implementation of a system and acceptance of change. Training can even augment commitment in short period of time. If organizational change comes from an enterprise system training user is imperative in spite of its high costs, because if people do not know how to use the system they cannot benefit from it.

2.9 Research Model

Successful implementation of ERP systems is a considerable challenge to organizations, since ERP system has significant intervention that affects organization, people, processes, and technology. Implementation of ERP is often said to be more organizational development than technological development, and it is more about people than about processes and technology.

The study is focusing on the role and impact of change management in ERP implementation at ethio telecom. The research model was adapted from improvised Leavitt’s diamond model which is an integrated approach and is widely used for managing organizational change. The model comprises organization, people, processes, and technology and also these four variables are highly interdependent and a change in one variable will result in changes in the others. The model views an organization as a multivariate system of the four interacting and aligned components such as organization, people, processes, and technology that builds up the technological, the social, the organizational or the strategic task cores of the organization.

Before we bring about change in any one of the four components, we should evaluate the impact on the three components. And also to implement change successfully, we need to find the right balance between all of constructs. Therefore, a change in technology means that people need to change too they will need training to use the new technology. Thus, this may affect the organizational structure because people might demand higher pay and better position.

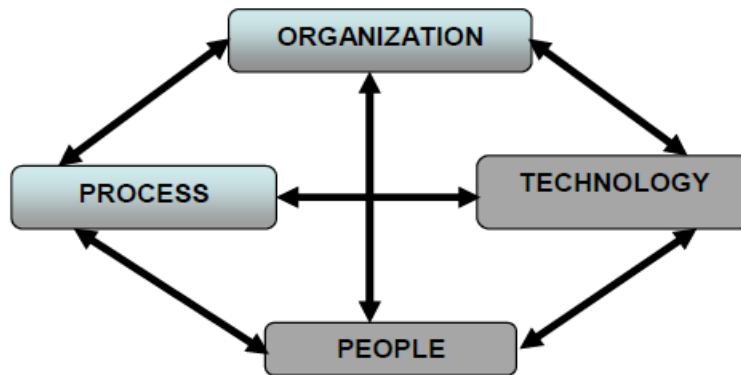


Figure 3: Improvised Leavitt's Model for ERP Performance Analysis (source: [32])

Discussion of constructs in the new Leavitt's framework model

People (Actors): the employees in the corporation responsible for carrying out the daily tasks of the company associated with organizational goals. Such as: Top management, project champion, steering committee, and empowered implementation team or project team, are some of the players who need to work in cohesion to the ERP performance.

According to this research the people construct contains top management support, end users awareness and willingness which is inclusive of their beliefs, skills, values, knowledge and needs. In addition Employees have to gain new and complex skills (e.g. self-organization, confrontation with unexpected tasks) and knowledge. And also leaders must be able to combine their ICT knowledge and skills with their understanding of the process dimension leaders must be able to develop a strategic vision and comprehensive human resource management, project management and user orientation strategies

Technology: is the computer hardware and software, techniques, methods, tools and manufacturing used in the execution of the tasks to produce products and services. Technology like all the other components of the Leavitt's diamond will need to be changed when modifications are made to any other component. For instance, in order to change the old tools and equipment to take full advantage of the manpower we need to change the technology in accordance with the

change in the knowledge, qualifications and skills of the workforce. The technological variable in this research includes ERP characteristics and its features

Process: A business process is defined as a set of logically related tasks that use the resources of an organization to achieve a defined business outcome. Additionally it is the way work gets done in an organization and is affected by events occurring in the external world or in other processes such as: changes to the entire process, significantly accelerated process execution and changes to the rules which determine the process (trust, safety, maintenance and integrity).

Organization: Definitive factors that act in synergy to achieve stated performance measures through technologies, social structures, cultures and physical structures that exist within and respond to an environment. The organizational structure component includes the hierarchical structure, the relationships, communication patterns and coordination between different management levels, departments and employees. This would also include how authority and responsibility flow within the organization. The organizational structure needs to be altered, when changes are made to any other component of the diamond [33].

2.10 Related Works

Al-Shamlan and Al medmth [3] have studied change management strategies and implementation of successful Enterprise resource planning system (ERP) applied to Madar Company with the purpose of investigating the effective and more useful change management strategies, and what are the more useful and significant processes and tools for change management to implement successful ERP system. The study was conducted using case study approach and discusses about successful strategies for managing change and operations. Finally, the study concludes that there should be a system application change management and operational activities, such as top management commitment, training, communications, involvement, and awareness.

Al-nafjan and Al-mudimigh [34] have studied change management impact in ERP system applied to Madar Company, this study discusses the reasons for resistance to diffusion and why individuals within an organization resist the changes. The study was conducted using case study approach

through interview and questionnaire. And also as the study conclude it is important that all affected users of the ERP system must be made aware of the changes and why they will have to occur. And also it is important to have the top management commitment and understanding the change in order to convince others about the change.

Liviu Tudor [35] have studied Change management challenge and Opportunity for sustainable development of Romanian Companies, the study tried to identify national industries that could benefit the most from well managed change processes and used theoretical models for change management. The result of the study found out that the effective management of organizational change would benefit not only individual organizations by raising competitiveness, but also by reducing the economic and development gap between Romania and the rest of EU countries.

Othman Al-Mobaideen [21] have studied the impact of change management on the application of Enterprise resource planning system (ERP) effectiveness in the Jordan Bromine Company, the necessary data were collected through questionnaire and the result of the study found out that the effective application of the Enterprise resource planning system (ERP) is significantly affected by staff training and spreading knowledge between staff.

Concerning researches on ERP system implementation in Ethiopia some studies are conducted. Tewodros [14] has conducted Design of Enterprise Resource Planning (ERP) Frame work and its implementation at Gafat Engineering. The researcher tried to provide a conceptual model that explains the Enterprise Resource Planning system. The result of the research found out that ERP is more than just software. Unless a clear understanding exists of the different components and their integration, ERP projects will continue to be plagued by failure.

Sintayehu [13] has conducted to review Success Factors for Implementation of Enterprise Resource Planning System at Ethiopian Airlines. The researcher takes the case of SAP ERP system implementation project and qualitative type case study method was used which has mainly used interviews, observations and an online survey questionnaire. The result of the research found out twenty critical success factors for success of ERP systems. Factors such as project planning, top

management support, project management and leadership, capability of consultants, change management and communication, organizational readiness and overall knowledge transfer are among the factors found to be critical for ERP system implementation in the Ethiopian context.

Kibebework [16] has conducted a study on The Challenges and Current Status of ERP Implementation at Mughher and Derba Cement Industries. Both quantitative and qualitative research methods were used and the necessary data was collected using questionnaire, interview and focus group discussion. As the research finding shows the successful implementation of ERP system was greatly affected by ignoring critical success factors in each ERP implementation stages. Disregarding organizational, people and strategy factors that encompass top management support, users training and education, effective project management, user involvement, suitability of software and hardware communication and data accuracy creates a great challenge for the success of an ERP implementation.

Elsa [17] has conducted a study to investigate technical, organizational, and operational issues of ERP post-implementation success in the context of Ethiopian airlines and design a solution framework to address those issues. The researcher used a case study approach and the necessary data were collected through questionnaire and interview and also the questionnaire and interview contents were prepared based on the defined research model by partially adapting from existing literature and developed her own. Finally, the researcher has developed a high-level ERP post implementation management framework.

| Author, Year | Objective/purpose | Approaches/Methodologies | Key findings |
|-------------------------------|---|---------------------------------|--|
| Al-Shamlan and Almedmth, 2011 | Investigating the effective and more useful change management strategies and what are the more useful and significant processes and tools for change management to implement successful ERP system. | Case study approach | The study concludes that there should be a system application change management and operational activities, such as top management commitment, |

| | | | |
|------------------------------------|--|---|---|
| | | | training, communication, involvement, and awareness. |
| Al-nafjanand and Al-mudimigh, 2011 | The paper targeted to investigate and identify the reasons for resistance to diffusion and why individuals within an organization resist the changes and also suggests strategies to minimize the resistance if not overcome completely. | Case study approach through interview and questionnaire | The study states that all affected users of the ERP system must be made aware of the changes and why they will have to occur. And also it is important to have the top management commitment and understanding the change in order to convince others about the change. |
| Liviu Tudor, 2014 | The paper aimed to identify the Romanian industries and sub-industries that could benefit the most from change management. | Theoretical model | The effective management of organizational change would benefit not only individual organizations by raising competitiveness, but also by reducing the economic and development gap between Romania and the rest of EU countries. |
| Othman Al Mobai n, 2014 | The study aimed to identify the impact of change management on the application of Enterprise Resource planning system (ERP) effectiveness in the Jordan Bromine company. | Questionnaire were distributed | The effective application of the Enterprise resource planning system (ERP) is significantly affected by staff training and spreading knowledge between staff. |
| Tewodros G.rufael,2007 | The purpose is to provide a high level conceptual frame work that will assist in understanding what ERP is and how to go about implementing it. | Survey Questionnaire were distribute | The result of the research found out that ERP is more than just software. Unless a clear understanding exists of the different components and |

| | | | |
|-------------------------------|--|--|---|
| | | | their integration ERP projects will continue to be plagued by failure |
| Sintayehu, 2014 Demeke | The aim of the study was to identify ERP implementation critical success factors | Case study through questionnaire as the main source of data collection used. | The result of the research found out twenty critical success factors for success of ERP systems. Factors such as project planning, top management support, project management and leadership, capability of consultants, change management and communication, organizational readiness and overall knowledge transfer are among the factors found to be critical for ERP system implementation in the Ethiopian context |
| Kibebewor k Asrat, 2015 | The purpose of the study were to investigate and identify the challenges and current status of ERP software implementation in some Ethiopian Cement industries exhaustively the Mughher Cement Factory | Both quantitative and qualitative methods | The successful implementation of ERP system was greatly affected by ignoring critical success factors in each ERP implementation stages. Disregarding organizational, people and strategy factors that encompass top management support, users training and education, effective project management, user involvement, suitability of software and hardware communication and data accuracy creates great challenge for |

| | | | |
|--------------------|--|-----------------------|---|
| | | | the success of an ERP implementation. |
| Elsa Taddele, 2015 | To investigate technical, organizational and operational issues of ERP post-implementation management and design a solution framework. | A case study approach | The framework presents core issues/ activities from four perspectives (Management, People/users, Process and Technology). |

Table 5: Summary of related works according to objective, methodologies and key findings

The above table shows related works which are conducted on change management in ERP implementation and all research findings are country and organization dependent this shows that change management practice and impact in each organization is not same because the way of change and how to implement it can differ from one organization to the other. Concerning local researches since there is no research conducted on change management in relation with ERP implementation and most of them focus on the technical perspective which is on ERP system implementation. ERP systems could be implemented successfully from a technical perspective however, success is also depend on employees being willing to use the delivered system. Therefore, this study attempts to assess the role and impact of change management in ERP implementation at Ethio Telecom which is a government company.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the research design and methodology. This includes the research design, sample size and sampling technique, data source and collection method and data analysis. At the end the validity and reliability test is presented.

3.1. Research Design

A research design is simply the framework or plan for a study that is used as a guide in collecting and analyzing the data. It is the blue print for collection measurement and analysis of data [36]. 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 [37].

3.2. Research Approach

In order to achieve objective of the study and also to address the research questions. Mixed method approach is used. It is an approach which combined both the qualitative and quantitative research approach in any stages of the research involving conceptualization, data collection and data analysis, for the purpose of breadth and depth of understanding and corroboration, in a single study, or in a series of studies that investigate the same underlying phenomenon [38].

Quantitative research approach is based on the measurement of quantity or amount. It is applicable to phenomena that can be expressed in terms of quantity. Also, it is the processes of collecting, analyzing, interpreting, and writing the results of a study and generates statistics through the use of large scale survey research, using methods such as questionnaires or structured interviews [39].

Qualitative research approach, on the other hand, is concerned with qualitative phenomenon relating to or involving quality or kind [37]. The essence of qualitative research is to identify the characteristics and structure of phenomena and events examined in their natural context. Subsequently, these characteristics are brought together to form a mini theory or a conceptual mode [40].

In addition, the term Mixed method refers to an emergent methodology of research that advances the systematic integration or mixing of quantitative and qualitative data within a single investigation or continuous program of inquiry. The main premise of this methodology is that such integration permits a more complete and synergistic utilization of data than either the quantitative or qualitative data [41].

The goal of mixed research methods is not to replace any of the previous methods, but to maximize the strengths and minimize the weaknesses of both methods either in a single research study or across studies. This method takes a pragmatic approach to help improve communication of researchers from different paradigms and find ways that the mixing of these research approaches can offer the best opportunities in answering the research questions [38].

Rational or benefits of using mixed method research according to various researcher [42] [43]

- 1) **Triangulation of evaluation findings:** enhancing the validity or credibility of evaluation findings by comparing information obtained from different means of data collection (for example comparing responses to survey questions with what the interviewer observes directly).
- 2) **Development:** using results of one method to help develop the sample or instrumentation for another.
- 3) **Complementarity:** extending the comprehensiveness of evaluation findings through results from different methods that broaden and deepen the understanding reached
- 4) **Initiation:** generating new insights into evaluation findings through results from the different methods that diverge and thus call for reconciliation through further analysis, reframing or a shift in perspective.
- 5) **Value diversity:** incorporating a wider diversity of values through the use of different methods that themselves advance difference values. This encourages greater consciousness about the value dimensions of the evaluation.

3.3. Research Method

There are five strategies to collect data and get results such as, experiment, survey, archival analysis, history and case study. In addition, there are three criteria to determine the research strategy: types of research questions, control over behavioral events, and focus on present events [44]. This study uses survey method which is an activity that collects information in an organized and systematic manner about characteristics of interest from some or all units of a population using well-defined concepts, methods and procedures and compiles such information into a useful summary [45]. In addition, survey method focuses on “what” questions such as, what is the impact of change management among employees in ERP implementation and also what are the effective

and more useful change management process and tools. The purpose is to generalize from a sample to a population so that inferences can be made about some characteristic, attitude, or behavior of this population and it has an advantage of identifying attributes of a large population from a small group of individuals [46]. In this study a primary data collection methods such as questionnaire (quantitative) and interview (qualitative) are used in order to answer the research questions. The interview is used as supplementary to the questionnaire and it enables to get detail information from ERP project experts.

3.4. Data source and sampling

3.4.1 Target Population

The target populations for this study involves ERP Project managers and active/core system users which are employees who use the ERP system in their daily tasks and who have found in those divisions in which ERP system is fully deployed such as human resource, finance, Sourcing and Facility.

3.4.2 Sampling Design and Size

In this study stratified sampling technique were used for the purpose of conducting the survey questionnaire (quantitative data) in order to select system users based on their divisions or department where ERP system is fully deployed. For the purpose of conducting an interview (qualitative data) the Purposive sampling technique were used. It is a non-probability sampling technique used for the purpose of selecting key informants of ERP project experts. Purposive sampling technique is a technique widely used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources. This involves identifying and selecting individuals or groups of individuals that are especially knowledgeable about or experienced with a phenomenon of interest [47].

3.4.2 Determining Sample Size Formula

There are 13,597 employees who have ERP account and registered as system users for specific activities and use other IT systems for their core day to day business activities. On the other hand, there are 4971 employees who work in HR, finance and sourcing and facility who use the ERP system for their main day to day business activities. Such as in HR (employee level management,

employee transfer management and employee personnel management), Finance (creating an invoice, create customer, create new shops, create receipt, create journal, Iexpense user, control asset transaction, budget allocation and revenue control), sourcing and facility (raise material requisition from ware house, raise purchase requisition from supplier, material movement from shop to shop/warehouse, raise purchase orders and SIM card and voucher card resource entry to main warehouse). Therefore, the study uses 4971core ERP system users as effective target population of the study. Therefore, the target population for the quantitative study embraces 4971ERP core users (N=4971).

Cochran [48] developed the equation to yield a representative sample for proportions of large sample.

Equation

$$n_0 = \frac{(Z_{\alpha/2})^2 pq}{e^2}$$

- n_0 = Sample size
- n = Calculated/Actual sample size
- e = the desired level of precision, (taken confidence level = 95% where by $\alpha = 0.05$, $e = 0.08$)
- P = is estimated proportion of an attribute in the population (taken as 0.5 and $q = 1 - P = 0.5$; for conservative estimate)
- Z = normal curve that cuts an area α (the value read from statistical table)

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

$$n = n_0 / [1 + \{(n_0 - 1) / N\}]$$

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

The given population size ($N = 4971$) and the sample size is ($n = 146$) with 95% confidence level and 5% confidence interval.

As listed in the below table, the sample size for HR users is determined to be 73, finance users is 18, and sourcing and facility users are 55.

| Strata/division | Total population | Percentage of each strata from the target population size | Sample size |
|------------------------|------------------|---|-------------|
| Human resource | 2489 | 50% | 73 |
| Finance | 584 | 12% | 18 |
| Sourcing and facility | 1898 | 38% | 55 |
| Total | 4971 | 100% | 146 |

Table 6 sample size of each division /strata

For the qualitative study purposive sampling technique is used for the purpose of selecting key informants of ERP project experts. Therefore, the sample size for the qualitative study (interview) is determined based on the researcher's subjective judgment thus, from 30 ERP project experts the sample size for the qualitative study is initially determined to be 5.

3.5 Data collection

In order to achieve the specific objectives both primary and secondary data collection methods were used. The primary data are those which are collected afresh and for the first time, and thus happen to be original in character. The secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process [37].

This study uses both primary and secondary data collection method. Regarding the primary data the researcher distribute self-administered survey questionnaire (quantitative) to relevant participants or ERP system users. On the other hand face-to-face interview (qualitative) were prepared for selected key informants of ERP project managers who have detail knowledge on the area.

3.5.1 Questionnaire

A questionnaire is a group or sequence of questions designed to obtain information on a subject from a respondent and plays a central role in the data collection process. The questionnaire was adopted from Boikhutso [1] and Güler [20]. It has two parts which are part one has demographic information of respondents and part two has a five point likert scale questions which enables

respondents to indicate their level of agreement ranging from 5 = Strongly Agree to 1= Strongly Disagree.

3.5.2 Interview

In regards to interview the researcher prepared structured interview. Which is used as supplementary to the questionnaire and it enables to gather detail information on the overall ERP system implementation, users' perception and the change management process and tools. The interview process has been started by contacting the selected informants, briefly describing the objective of the study and also sharing the interview outline through company e-mail. Based on the first briefing, an interview appointment was set at the interviewees' convenient time. The interviews were conducted at the normal office hours in the interviewees' respective offices. The interviews were conducted with in the span of 2 weeks and each interview took between 30-35 minutes. Finally, the interview has been conducted based on the prepared outline and the responses organized and analyzed to summarize the required information for the study.

3.6. Data Analysis Technique

The analysis of data requires a number of closely related operations such as establishment of categories, the application of these categories to raw data through coding, tabulation and then drawing statistical inference [36].

The data collected from the respondent were presented by using tables which is expressed and analyzed using the form of frequency and percentage. To manipulate the organized data descriptive analysis technique were applied. The quantitative data from the survey questionnaire were analyzed using the Statistical Package for Social Sciences (SPSS). Whereas the qualitative data were analyzed by using open coding with narrative form.

3.7. Validity and Reliability

3.7.1 Reliability of the research

The test of data reliability is another important test of sound measurement. A measuring instrument is reliable if it provides consistent results [37]. Moreover, a reliable measuring instrument does contribute for validity .The questionnaire for this research well designed and tested since it was

adopted from another research and gave a good result, so there is no need for the researcher to make a pilot test before use. However, the researcher needs to conduct a reliability test in order to measure the internal consistency of the questionnaire. The method of determining the reliability of a test by internal consistency is Cronbach's alpha. It is a single correlation coefficient that is an estimate of the average of all the correlation coefficients of the items within a test. If alpha is high (0.70 or higher), then this suggests that all of the items are reliable and the entire test is internally consistent [49].

3.7.2 Validity of the research

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. Furthermore, validity is the extent to which differences found with a measuring instrument reflect true differences among those being tested [37]. There are several types of validity tests are used to test the goodness of measures such as: **content validity, criterion-related validity, and construct validity** [49].

Therefore, in this study the validity is carried out by using content validity and in order to assess the content validity of this study the researcher gave the chance for ERP subject matter experts to evaluate the items of the survey questionnaire and also the interview.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

This chapter presents, analyze and discuss the data obtained from the data collection instruments. Questionnaires are distributed to employees at each division and the responses obtained through questionnaires are supplemented with interview. The first section presents quantitative data analysis using SPSS version 20.0. Accordingly, for data summarization Frequency and percentage is used. The second section presents the qualitative data Analysis and discussion.

As shown below in Table 4.1 the total number of questioners distributed and collected from each divisions and the number of questionnaire distributed were depends on the number of ERP users in each divisions.

| Division | Number of Questioners | | |
|-----------------------|-----------------------|------------|----------------|
| | Distributed | Collected | Percentage (%) |
| Human resource | 73 | 57 | 79% |
| Finance | 18 | 13 | 72% |
| Sourcing and Facility | 55 | 46 | 84% |
| Total | 146 | 116 | 79.45% |

Table 4.1: Number of distributed and collected questionnaire

In general, the total number of questionnaires distributed was 146 and the returned questionnaires are 116 with a response rate of 79.45%.

4.1. Quantitative Data Presentation, Analysis and Discussion

4.1.1 Demographic distributions of respondents

Demographic information needs background of the respondents to understand the employees or respondents who participated in filling the questionnaire for this study. The following demographic variables are used Gender, Age, Level of Education, Job Position and division of respondents and these are shown in the tables below.

4.1.1.1 Gender

Distribution of respondent based on gender the majority of respondents 56.9% (66) are males while 43.1% (50) of the respondents are females. This shows that more of the respondents are male.

| | | Frequency | Percent |
|-------|--------|-----------|---------|
| Valid | Male | 66 | 56.9 |
| | Female | 50 | 43.1 |

| | | |
|-------|-----|-------|
| Total | 116 | 100.0 |
|-------|-----|-------|

Table 4.2: Gender of respondents

4.1.1.2.Age

Distribution of respondents based on age range 42.2% (49) respondents are categorized in age range between 21 - 30 years, 43.1% (50) in the age range 31 – 40. 14.7% (17) of the respondents are found in the age range of 41-50 years. This shows that more than 85.3% of the respondents are below the age range of 41 years.

| | Frequency | Percent |
|-------------|-----------|---------|
| Valid 21-30 | 49 | 42.2 |
| 31-40 | 50 | 43.1 |
| 41-50 | 17 | 14.7 |
| Total | 116 | 100.0 |

Table 4.3: Age of respondents

4.1.1.3Division

The sample size for each division was determined based on the number of ERP users in each division. As indicated in the below table 4.4 majority of the respondent 49.1% (57) were from HR followed by sourcing and facility respectively 39.7% (46) and finance 11.2% (13).

| | Frequency | Percent |
|-----------------------|-----------|---------|
| Valid Human Resource | 57 | 49.1 |
| Finance | 13 | 11.2 |
| Sourcing and Facility | 46 | 39.7 |
| Total | 116 | 100.0 |

Table 4.4: Division of respondents

4.1.1.4. Job Position

As we look from the table 4.5 below: The distribution of the respondents with respect to their current job position, the majority of the respondents are comprised from employees in different

positions categorized as “others” on the questionnaire which accounts 50.9% (59). Whereas 36.2% (42) of the samples are from technical staffs of the organizations, 11.2% (13) of the respondents account for supervisory position whereas 1.7% (2) of the respondents are middle class managers. This shows that most of the respondents are in others category followed by technical staffs. This indicates that the survey incorporates employees with different levels of positions to ensure the representation of the sample and also to investigate the impact of the position of an employee on the role and impact of change management in ERP implementation.

| | | Frequency | Percent |
|-------|-------------------|-----------|---------|
| Valid | technical | 42 | 36.2 |
| | Supervisory | 13 | 11.2 |
| | Middle management | 2 | 1.7 |
| | other | 59 | 50.9 |
| | Total | 116 | 100.0 |

Table 4.5 Job Position of respondent

4.1.1.5 Level of Education

As we look from the table 4.6 below, the distribution of respondents by the level of education showed that 94% (109) of the respondents are first-degree and 5.2% (6) are master’s degree holders. Only 0.9% (1) of respondents is diploma holder. This shows that the majority of the staffs of the organization participated in this study are first-degree holders followed by master’s degree holders.

| | | Frequency | Percent |
|-------|---------|-----------|---------|
| Valid | diploma | 1 | .9 |
| | degree | 109 | 94.0 |
| | masters | 6 | 5.2 |
| | Total | 116 | 100.0 |

Table 4.6: Educational level of respondents

4.1.2. Characteristics of ERP system

ERP system has various characteristics such as: data unification, lower costs, improved efficiency, improved reporting and planning, lower inventory and production costs, improved customer satisfaction, simplified business, superior scalability, improved data quality, and improved data accessibility. Thus, investigating technical characteristics of the system enables to know employees attitude towards the impact of change management in using ERP system.

❖ ERP System Reduces Errors

Regarding reducing error, based on the data in the below table majority of the respondents 48.3% (56) and 44.8% (52) strongly agreed and agreed respectively whereas the remaining 6% (7) of respondents have normal attitude. From this, we can say that most of the employees of the organization believe the current system reduces errors in relation with performing their day to day work operation and helps them to be more clear and effective on their job operation.

| | Frequency | Percent |
|-------------------------|-----------|---------|
| Valid Strongly disagree | 1 | .9 |
| Normal | 7 | 6.0 |
| Valid Agree | 52 | 44.8 |
| Strongly agree | 56 | 48.3 |
| Total | 116 | 100.0 |

Table 4.7: ERP reduces error

❖ Better adherence to policies and procedures

Regarding better adherence to policies and procedures: as we can see in the below table 4.8, 90.5% (105) of respondents agreed with the idea while 6.9% (8) of respondents have normal attitude and also 2.6% (3) of the respondents don't agree with the idea. From this, we can conclude that the system is highly perceived to be compatible and help the employees of the organization in performing their job.

| | Frequency | Percent |
|-------------------------|-----------|---------|
| Valid strongly Disagree | 1 | .9 |
| Disagree | 2 | 1.7 |

| | | | |
|--|----------------|-----|-------|
| | Normal | 8 | 6.9 |
| | Agree | 60 | 51.7 |
| | Strongly Agree | 45 | 38.8 |
| | Total | 116 | 100.0 |

Table 4.8: Adherence to policies and procedures

❖ **using ERP system takes a lot more time than the old way of doing things**

| | | Frequency | Percent |
|-------|-------------------|-----------|---------|
| Valid | Strongly Disagree | 38 | 32.8 |
| | Disagree | 45 | 38.8 |
| | Normal | 7 | 6.0 |
| | Agree | 14 | 12.1 |
| | Strongly Agree | 12 | 10.3 |
| | Total | 116 | 100.0 |

Table 4.9: Using ERP system takes a lot more time than the old way of doing things

As we can see from the above table majority of respondents 38.8%(45) disagreed and 32.8% (38) strongly disagreed about using the ERP system takes a lot more time than the old way of doing things. While 6% (7) of respondents have normal attitude and 12% (14) and 10.3% (12) of respondents are agreed and strongly agreed respectively. From this we can conclude that even if majority of the employees have positive attitude on the ERP system while some of the respondents agreed or have normal attitude and they believe that using ERP system takes more time than the old way of doing things.

❖ **ERP system is more efficient than the old way of doing things**

| | | Frequency | Percent |
|-------|-------------------|-----------|---------|
| Valid | Strongly Disagree | 1 | .9 |

| | | |
|----------------|-----|-------|
| Normal | 7 | 6.0 |
| Agree | 49 | 42.2 |
| Strongly Agree | 59 | 50.9 |
| Total | 116 | 100.0 |

Table 4.10: ERP is efficient than the old way of doing things

Regarding efficiency of the ERP system majority of respondents 50.9% (59) and 42.2% (49) strongly agreed and agreed respectively whereas 6% (7) of respondents have normal attitude about the efficiency of the ERP system than the old way of doing things. From this we can conclude that majority of the respondents believe that ERP system is efficient than the previous or old way of doing things.

Generally, our finding on characteristics of ERP system (regarding characteristics of reducing error, adherence to policies and procedure, reducing time and improved efficiency) found out that majority of the respondents were satisfied with the technical characteristics of the system. As mentioned earlier, hence investigating technical characteristics of the system enables to know employees attitude towards the impact of change management in using ERP system.

4.1.3. Important change management process and tools

4.1.3.1 Awareness

❖ Awareness about the project

| | Frequency | Percent |
|-------|----------------|---------|
| Valid | Disagree | 1.7 |
| | Normal | 7.8 |
| | Agree | 62.9 |
| | Strongly Agree | 27.6 |

| | | |
|-------|-----|-------|
| Total | 116 | 100.0 |
|-------|-----|-------|

Table 4.10: Awareness about the project

As we can see from the above table 4.10 majority of the respondents 62.9 % (73) and 27.6% (32) of respondents agreed and strongly agreed about being aware of the ERP project while 7.8% (9) respondents have normal attitude and 1.7% (2) of disagreed on being aware of the project. From this we can conclude that majority of the respondents were aware of the ERP project. Prior research has recommended that it is important that all affected users of the ERP system must be made aware of these changes and why they will have to occur [34].

❖ **The messages i have heard about ERP make me feel comfortable what the project will mean to me**

| | Frequency | Percent | |
|-------|----------------|---------|-------|
| Valid | Normal | 12 | 10.3 |
| | Agree | 74 | 63.8 |
| | Strongly Agree | 30 | 25.9 |
| | Total | 116 | 100.0 |

Table 4.11: The messages about ERP make me feel comfortable

As we can see from the above table majority of the respondents 63.8% (74) agreed and 25.9% (30) are strongly agreed whereas, 10.3% (12) have normal attitude. From this we can say that majority of the employees are comfortable with the message they heard about ERP system.

❖ **I understand the scope and objectives of the ERP project**

| | Frequency | Percent | |
|-------|----------------|---------|-------|
| Valid | Normal | 20 | 17.2 |
| | Agree | 71 | 61.2 |
| | Strongly Agree | 25 | 21.6 |
| | Total | 116 | 100.0 |

Table 4.12: understanding about the scope and objectives

Majority of the respondents 61.2% (71) and 21.6% (25) are agreed and strongly agreed respectively about the scope and benefit of ERP project whereas 17.2% (20) of the respondents have normal attitude. From this we can conclude that majority of the employees are aware of the project and have understanding on the scope and the benefit of ERP project.

❖ I understand the benefits that the project will bring about

| | | Frequency | Percent |
|-------|----------------|-----------|---------|
| Valid | Normal | 20 | 17.2 |
| | Agree | 62 | 53.4 |
| | Strongly Agree | 34 | 29.3 |
| | Total | 116 | 100.0 |

Table 4.13: understanding about Benefits of the project

Majority of the respondents 82.7% (96) have understanding about the benefit that bring about on their job activities either by reducing the time and effort required to carry out their daily activities and improving organizational efficiency and effectiveness on performing tasks.

❖ I am informed about the progress being made

| | | Frequency | Percent |
|-------|-------------------|-----------|---------|
| Valid | Strongly Disagree | 7 | 6.0 |
| | Disagree | 3 | 2.6 |
| | Normal | 38 | 32.8 |
| | Agree | 48 | 41.4 |
| | Strongly Agree | 20 | 17.2 |
| | Total | 116 | 100.0 |

Table 4.14: being informed about the Progress

As we look from the above table majority of the respondents 41.4% (48) agreed and 17.2% (20) are strongly agreed, about the progress of the project being made whereas 32.8% (38) of the respondents have normal attitude and 2.6% (3) of the respondents are disagreed and 6% (7) are strongly disagreed to the idea. From this we can conclude that majority of the respondents were aware of the progress of the project being madewhile, most of the respondents have normal attitude towards the progress being made followed by respondents who are disagreed to this idea.

Based on our finding majority of the respondent were aware of the project (90.5%),and comfortable with the messages about ERP (89.7%), understood the scope and objectives (82.8%), understood benefit of the project (82.7%) and being informed about the progress being made (68%) while more than 40% of the respondent have normal attitude and disagreed on the progress being made during the project and this shows that the communication regarding the progress of the project were not adequate. As various researches recommended that change needs awareness, so before anything managers should educate employees about the importance of having change and what objectives are going to be achieved. Thus, this helps to clear doubt about change and make employee to relax [30].

4.1.3.2 Willingness

Willingness is a key factor in change management and also success is depend on employees being willing to use the delivered system. Additionally, Employee’s willingness for change is highly dependent on knowing and acknowledging the reasons and benefits of the change. Only after understanding these factors an employee will accept to consider the new responsibilities that change brings. Well informed employees give credibility even to the reactions of a company faced with serious adverse publicity [50].

❖ I believe in the added value and efficiency of the ERP project

| | | Frequency | Percent |
|-------|----------|-----------|---------|
| Valid | Disagree | 1 | .9 |
| | Normal | 20 | 17.2 |
| | Agree | 60 | 51.7 |

| | | |
|----------------|-----|-------|
| Strongly Agree | 35 | 30.2 |
| Total | 116 | 100.0 |

Table 4.15: Added Value and Efficiency of the ERP

As we can see from the above table majority of the respondents 51.7% (60) are agreed and 30.2% (35) are strongly agreed to the added value and efficiency of ERP project while, 17.2% (20) of respondent have normal attitude and 0.9% (1) disagreed to the idea. From this we can conclude that most of the respondents have positive attitude towards the added value and efficiency of the project.

❖ I intend to use ERP system for performing my job as often as i need to

| | Frequency | Percent |
|----------------|-----------|---------|
| Disagree | 2 | 1.7 |
| Normal | 16 | 13.8 |
| Valid Agree | 59 | 50.9 |
| Strongly Agree | 39 | 33.6 |
| Total | 116 | 100.0 |

Table 4.16: Using ERP system to perform Job

As we look from the above table most of the respondents 50.9% (59) are agreed and 33.6% (39) are strongly agreed on intend to use the system for performing their job as often as they need to. While 13.8% (16) of the respondents have normal attitude and 1.7% (2) of respondents are disagreed. From this we can conclude that majority of the respondents accept and believe that using ERP system enables them to effectively perform their job as they need to.

❖ The change that comes with ERP can enhance my career

| | Frequency | Percent |
|----------------|-----------|---------|
| Valid Disagree | 2 | 1.7 |
| Normal | 22 | 19.0 |

| | | |
|----------------|-----|-------|
| Agree | 59 | 50.9 |
| Strongly Agree | 33 | 28.4 |
| Total | 116 | 100.0 |

Table 4.17: Change that Comes with ERP enhance career

As we look in the above table majority of the respondents 50.9% (59) were agreed and 28.4% (33) strongly agreed that the change can enhance their career. Whereas 19% (22) of respondents have normal attitude and 1.7% (2) of respondents are disagreed with the idea. From this we can conclude that most of the respondents did not find using ERP as a threat to their job or using ERP can improve and increase their performance in performing their job (only 1.7% think it can threat their performance in performing their job) as well.

❖ I am encouraged to take part in the change management initiatives

| | Frequency | Percent |
|----------------------|-----------|---------|
| Valid Normal | 31 | 26.7 |
| Valid Agree | 57 | 49.1 |
| Valid Strongly Agree | 28 | 24.1 |
| Valid Total | 116 | 100.0 |

Table 4.18: Encourage to Take Part in the Change Management Initiatives

As we can see from the above table majority of respondents 49.1% (57) were agreed and 24.1% (28) strongly agreed with the idea of not forced to accept the change where as 26.7% (31) have normal attitude. From this we can say that majority of the respondents are encouraged to take part in the change instead of being forced to comply with or accept it.

❖ I feel confident that I received required support

| | Frequency | Percent |
|----------------|-----------|---------|
| Valid Disagree | 3 | 2.6 |
| Valid Normal | 28 | 24.1 |

| | | |
|----------------|-----|-------|
| Agree | 56 | 48.3 |
| Strongly Agree | 29 | 25.0 |
| Total | 116 | 100.0 |

Table 4.19: efficiency of management Support

As we look from the above table 48.3% (56) of respondent are agreed and 25% (29) of them strongly agreed about the adequacy of the support they got whereas, 24.1% (28) of them have normal attitude and 2.6% (3) of respondents are disagreed to the idea. From this, we can conclude that most of the respondents believe that they got adequate support that enables them to fulfill their job operation effectively while some of them believe that the support is not enough to perform their job effectively.

❖ **The manager that he or her will support us and take the best course of action**

| | Frequency | Percent |
|----------------|-----------|---------|
| Disagree | 8 | 6.9 |
| Normal | 27 | 23.3 |
| Valid Agree | 47 | 40.5 |
| Strongly Agree | 34 | 29.3 |
| Total | 116 | 100.0 |

Table 4.20: Manager Support

Regarding manager support majority of respondents 40.5% (47) are agreed and 29.3% (34) are strongly agreed about the support from their manager while 23.3% (27) of them have normal attitude and 6.9% (8) are disagreed to the idea of manager support. From this, we can conclude that most of the respondents agreed on manager support while some of them disagreed with the support from their manager or they believe the manager support is not adequate.

Based on our finding, concerning willingness of respondents to use the system for performing their job as often as they need to (84.5%) reflected that the change can enhance their career (79.3%) and they were encouraged to take part in the change management initiatives (73.2%) and also in

addition management support were adequate (73.3%) and enable them to took the best course of action(69.8%). As we can see from the result still there is disagreement and normal attitude on manager support and efficiency.

4.1.3.3 Training

Training is one of change management important factorthat can be used to facilitate individual change management perspective. Employees need training to understand how the system will change business processes. It offers a good opportunity to help users adjust to the change that has been introduced by the ERP system, and helps to build positive attitudes toward the system. Furthermore, training provides hands-on experience for the users they appreciate the quality attributes of the system and its potential benefits [3].

❖ **The training received during ERP project was adequate**

| | Frequency | Percent |
|-------------------------|-----------|---------|
| Valid Strongly Disagree | 6 | 5.2 |
| Disagree | 25 | 21.6 |
| Normal | 33 | 28.4 |
| Agree | 37 | 31.9 |
| Strongly Agree | 15 | 12.9 |
| Total | 116 | 100.0 |

Table 4.21: sufficiency of training

Regarding the sufficiency of the training majority of the respondents 31.9% (37) are agreed and 12.9% (15) are strongly agreed while 28.4% have normal attitude and 21.6% (25) and 5.2% (6) of respondents disagreed and strongly disagreed on the received training respectively. From this we can conclude most of them believe the training were adequate while above 25% of respondents disagreed with the adequacy of the training offered.

❖ **Adequate resource were available to assist users during the training**

| | | Frequency | Percent |
|-------|-------------------|-----------|---------|
| Valid | Strongly Disagree | 5 | 4.3 |
| | Disagree | 22 | 19.0 |
| | Normal | 30 | 25.9 |
| | Agree | 40 | 34.5 |
| | Strongly Agree | 19 | 16.4 |
| | Total | 116 | 100.0 |

Table 4.22:adequacy of training resources

As we look from the above table 4.22. 34.5% (40) of respondents agreed and 16.4% (19) of respondents strongly agreed with adequacy of training resources while 25.9% (30) of respondents have normal attitude and 19% (22) and 4.3% (5) of respondents disagreed and strongly disagreed with availability of training materials respectively. From this we can conclude that more than (20%) of the respondents disagreed to the sufficiency of training material.

❖ **Adequate support from management was given during the training**

| | | Frequency | Percent |
|-------|-------------------|-----------|---------|
| Valid | Strongly Disagree | 9 | 7.8 |
| | Disagree | 15 | 12.9 |
| | Normal | 38 | 32.8 |
| | Agree | 31 | 26.7 |
| | Strongly Agree | 23 | 19.8 |
| | Total | 116 | 100.0 |

Table 4.23: adequacy of management support

Regarding management support most of the respondents 32.8% (38) have normal attitude and 26.7% (31) of respondents agreed and 19.8% (23) are strongly agreed while 12.9% (15) and 7.8% (9) of respondents are disagreed and strongly disagreed respectively. From this, we can say that Management support were not enough or adequate.

❖ **The contents of the training were relevant to the job**

| | | Frequency | Percent |
|-------|-------------------|-----------|---------|
| Valid | Strongly Disagree | 2 | 1.7 |
| | Disagree | 4 | 3.4 |
| | Normal | 26 | 22.4 |
| | Agree | 47 | 40.5 |
| | Strongly Agree | 37 | 31.9 |
| | Total | 116 | 100.0 |

Table 4.24: relevancy of the training content

Regarding contents of the training majority of the respondents 40.5% (47) and 31.9% (37) of them agreed and strongly agreed respectively about the relevancy of the contents of the training while 22.4% (26) of them have normal attitude and 1.7% (2) of them disagreed with the idea. Even if, the adequacy of training materials in addition to management support were not enough but the contents of the training were relevant and fit with their job or the business environment and context.

Regarding the training respondents were asked about ERP system training with respect to adequacy of the training, adequacy of training resources, adequacy of management support and relevancy of the training content. As we can see from the result, significant number of respondents were disagreed and have normal attitude towards the overall training process. On the other hand, several scholars stated that training needs not only to cover how to use the new system, but also the new processes and understanding the integration of those processes within the system. Lack of adequate training makes users invent their processes and ways to use the part of the system they can operate.

4.1.3.4 Communication

The key to successful implementation of the change lies in effective communication. Effective communication has been seen as a two-way communication that serves several functions such as, information sharing, participation, compliance, and feedback. Furthermore, it is regarded as a key issue in the successful implementation of change because it is used as a tool for announcing, explaining or preparing people for change. It is an effective way to minimize this negative feeling and making the change process more efficient [51].

❖ **The communication regarding the ERP implementation was sufficient**

| | Frequency | Percent |
|-------------------------|-----------|---------|
| Valid Strongly Disagree | 5 | 4.3 |
| Disagree | 11 | 9.5 |
| Normal | 40 | 34.5 |
| Agree | 38 | 32.8 |
| Strongly Agree | 22 | 19.0 |
| Total | 116 | 100.0 |

Table 4.25: *sufficiency of communication*

Regarding the adequacy of communication, significant number of the respondents 34.5% (40) have normal attitude about the sufficiency of the communication. More than half 51.8% (60) of them accept the sufficiency of the communication while 13.8% (16) of them disagreed to the efficiency of the communication. Even though half of the respondents accept the adequacy of the communication while, as we can see from the result some of the respondents don't agreed with the idea. As number of recent researches indicate that insufficient communication generates confusion, uncertainty, rumors, and lack of awareness because of this many organizational change initiatives fail due to shortcoming in the internal communication.

❖ **The Reason for the Decision to Implement ERP were Communicated**

| | Frequency | Percent | |
|-------|-------------------|---------|-------|
| Valid | Strongly Disagree | 8 | 6.9 |
| | Disagree | 11 | 9.5 |
| | Normal | 37 | 31.9 |
| | Agree | 37 | 31.9 |
| | Strongly Agree | 23 | 19.8 |
| | Total | 116 | 100.0 |

Table 4.26: The Reason to Implement ERP were Communicated

Regarding the reason to implement ERP whether end-users know what led to the decision to implement. More than half 51.7% (60) of respondents agreed with the reason to implement the system while 16.4% (19) of them do not agree with the idea of communicating the reason of implementing the system. As previous research finding recommended that, effective communication with employees will reduce resistance because they will be aware of ERP benefits. Knowing about how ERP improve their work can build anticipation to system.

❖ A shared vision of the system was established and communicated

| | Frequency | Percent | |
|-------|-------------------|---------|-------|
| Valid | Strongly Disagree | 5 | 4.3 |
| | Disagree | 9 | 7.8 |
| | Normal | 31 | 26.7 |
| | Agree | 46 | 39.7 |
| | Strongly Agree | 25 | 21.6 |
| | Total | 116 | 100.0 |

Table 4.27: communication regarding shared Vision of the System

Regarding communication about the vision and mission, goals and objectives of an organization whether a shared vision of the ERP system were established and communicated. Significant number of respondents 61.3% (71) are agreed with the communication while 26.7% (31) of

respondents have normal attitude and 12.1% (14) of respondents are not accepted the communication regarding a shared vision of the ERP implementation.

❖ **The communication medium used during ERP implementation was effective**

| | Frequency | Percent | |
|-------|-------------------|---------|-------|
| Valid | Strongly Disagree | 5 | 4.3 |
| | Disagree | 2 | 1.7 |
| | Normal | 45 | 38.8 |
| | Agree | 42 | 36.2 |
| | Strongly Agree | 22 | 19.0 |
| | Total | 116 | 100.0 |

Table 4.28: Effectiveness of communication medium

Regarding effectiveness of the communication medium such as: by using e-mail, meeting, written documents and workshop sections. More than half 55.2% (64) of respondents are agreed with effectiveness of the communication medium while significant number of respondents have normal attitude and 6% (7) of them disagreed with the idea. From this we can say that the sufficient and effective communication through various medium plays a major role in ensuring that end-users understand the vision and strategy for change.

❖ **Communication regarding ERP system is open**

| | Frequency | Percent | |
|-------|-------------------|---------|------|
| Valid | Strongly Disagree | 5 | 4.3 |
| | Disagree | 12 | 10.3 |
| | Normal | 44 | 37.9 |
| | Agree | 34 | 29.3 |
| | Strongly Agree | 21 | 18.1 |

| | | |
|-------|-----|-------|
| Total | 116 | 100.0 |
|-------|-----|-------|

Table 4.29: Communication Regarding ERP system is Open

Top management commitment is critical for the success of the whole ERP implementation process and it is the ultimate strategy that secures the necessary conditions for successfully introducing the change brought by ERP into the organization. Regarding the openness, commitment and support from management and the project team 47.4% (55) of respondent agreed with the openness of the communication while significant number of respondents 37.9% (44) have normal attitude and also 14.6% (17) of respondents disagreed with the idea. Even though the result shows that below half of respondents agreed on the openness of the communication however most of the respondents were not agreed or have normal attitude towards openness of the communication.

4.1.3. Perceptions on the impact of change management during the ERP system-implementation

❖ More change management activities are made during ERP implementation

| | Frequency | Percent |
|-------------------|-----------|---------|
| Strongly Disagree | 6 | 5.2 |
| Disagree | 4 | 3.4 |
| Normal | 43 | 37.1 |
| Agree | 41 | 35.3 |
| Strongly Agree | 22 | 19.0 |
| Total | 116 | 100.0 |

Table 4.30: Extent of Change Management Activities made

Regarding the overall change management activities more than half 54.3% (63) of respondents accept and believe with the importance of change management activities made during the implementation whereas 37.1% (43) of respondents have normal attitude and 8.6% (10) of respondents don't agreed with the offered change management activities.

❖ **The important factors of change management are given adequate time**

| | Frequency | Percent |
|-------------------------|-----------|---------|
| Valid Strongly Disagree | 6 | 5.2 |
| Disagree | 8 | 6.9 |
| Normal | 32 | 27.6 |
| Agree | 52 | 44.8 |
| Strongly Agree | 18 | 15.5 |
| Total | 116 | 100.0 |

Table 4.31: adequacy of time given to change management factors

More than half 60.3% (70) of the respondents are accept the efficiency of the time given to the training, communication and top management support while 27.6% (32) of respondents have normal attitude and 12.1% (14) of respondents don not accept with efficiency of the time given to the change management factors.

❖ **The satisfaction level on the overall success of ERP implementation is high**

| | Frequency | Percent |
|-------------------------|-----------|---------|
| Valid Strongly Disagree | 6 | 5.2 |
| Disagree | 11 | 9.5 |
| Normal | 24 | 20.7 |
| Agree | 52 | 44.8 |
| Strongly Agree | 23 | 19.8 |
| Total | 116 | 100.0 |

Table 4.32: Satisfaction Level on the Overall Success of ERP Implementation

Employees were asked about the extent of the overall success of the ERP system implementation, as shown on the above table most of the respondents 64.6% (75) are agreed and satisfied with the overall success of the ERP system implementation. While 20.7% (24) have normal attitude and

14.7% (17) are not satisfied with the overall system implementation. From this we can say that majority of the respondents are interested and accept the overall system implementation as satisfactory both from the technical side and also from the human side.

4.2. Qualitative Data Analysis and Discussion of Findings

In addition to the quantitative study, qualitative data analysis is conducted to supplement and enrich the findings obtained from the survey. Interviews have been conducted with five ERP project experts to gather data on the overall change management process and end users resistance to wards the change management process and the ERP system implementation.

The interviewees were asked about the intensions and objectives of the company to implement the ERP system and all of the interviewees replied that the reason of implementing ERP system is broad but the basics are to reduce or abolish the manual working process, time saving in relation with reducing paper work, to generate financial statements easily, to generate reports easily and quickly, to manage the ever ending transaction of the company business and to obtain up to date information about the financial position of the company. In general, the reason of implementing is to facilitate business/operations, obtain reports for Managerial Decision and determine budgets for future trends.

The respondents were also requested to respond on change management factors that have an impact on the implementation of an ERP system. Several change management factors are found to have an important role in the success of ERP implementation. Such as: top management support, training and communication. They said *“Top management support is a very crucial factor however at the pre-implementation phase it was very difficult for some managers to accept the system benefit and added value in the company. conversely, after implementation or at the implementation phase majority of the managers become aware of the benefit of the ERP system and they become totally committed through providing facilities and initiating other staffs in order to accept the system by creating awareness and supporting them.* As various researches recommended, it is important to have the top management commitment and understanding the change because they cannot convince others about the change if they do not understand it.

Regarding the training factor the intentions of the training were to get the end users to know and understand the benefit and functionalities of the system. However, two of respondents replied that *“before introducing the system to end users there were super users training (for those who were selected and who knows the business very well). in order to test the system before reaching to end users UAT (user acceptance test) were made and finally end users training is given for those who use the system in their daily work operations or who have more attachment in using the system (HR, Finance and sourcing and facility employees)”*.

Concerning communication all of respondents replied that *“every change is communicated with project team, operation team and also with managers in each division at a weekly meeting which is called change advisory board meeting (CAB)”*. In line with this, one of the respondent replied that *“for the purpose of supporting ERP users there were teams which give support in dealing with the system either through email, phone and direct contact (face to face contact) with users”*. As another respondent replied *“there were IS support system which intends to support or help ERP users to deal with complexities or problems at the time of using the system”*. By using these system users can solve the issue that happened at the time of using the system through the organized manual or the module. However, as the interviewee mentioned majority of end users were not or don't use this system.

As prior research has recommended Successful ERP implementation projects are less about technology and more about people and processes. In fact, resistance to change can take many forms and many causes of resistance are listed in enterprise resource planning research. In addition, when implementing an ERP system, top management commonly faces an unwanted attitude from potential users for one reason or another, they resist the implementation process [34]. According to several studies published in the past two decades by professionals in the field of organizational change management, most of the change projects fail (approx. 70%) the main responsible factor is represented by resistance to change coming from people involved in the process, employees and managers [35].

The interviewees were requested regarding change resistance, commitment and acceptance. One of the interviewee replied that ERP were introduced at the time of company transition (from Ethio France to ETC or ethio telecom) at the time of transition many employees were reduced and

following the transition the company introduce ERP system in order to automate overall operations of the company. Regarding resistance *“some or few of employees who have more work experience were resisting due to afraid of the new system however, majority of them have an intention to use the new system due to the pressure and also in order to survive in the environment or in the company”*. Another respondent replied that *“there are situations that create an intention or lead users to use the manual system such as the time of upgrade and also when the PC got busy”*.

4.3. Discussion of Findings

As the study shows the role of change management were high and also it has positive impact in the implementation of ERP system in the company in relation with either users' acceptance or the project success.

As quantitative finding shows the change management role were high in relation with creating awareness about the project benefit, scope, and objective. This can create or help employees to have an intention to use the system and believe in the added value and efficiency of the project. Concerning training as the finding shows adequacy of training, adequacy of training resources and relevancy of training content were high. On the other hand, management supports during training session were not appreciable. However, concerning communication as the result indicates sufficiency of communication regarding implementation, effectiveness of communication, openness of communication, shared vision of the system were communicated and accepted. On the other hand the overall Employee's perceptions on the impact of change management during the ERP system implementation indicates that majority of respondents are interested and accept the overall system implementation as satisfactory.

Regarding the qualitative finding which was conducted from ERP project experts as mentioned in the qualitative analysis part the intensions and objectives of the company to implement the ERP system were to automate the company's business process in terms of productivity improvement, improved customer service, cost reduction, and quality improvement. The respondents were asked about the most effective and critical change management factors which were stated by several

researchers and also that are found to have an important role in the success of ERP implementation. Such as: top management support, training and communication as mentioned before majority of the respondents or the interviewees were agreed with these factors. In addition, the success of ERP implementation in the company become due to the strong intention of the company's change process such as the strong top managers intention and their awareness on the importance of the system and also attention to help others to use the system by creating awareness in order to become willing to use the system. Even though there were a pressure to use the system beyond the willingness of the users but the resistance to use the system were not that much difficult to handle in the company due to the communication made and the training given.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

This chapter deals about the conclusion and recommendation part of the study according the conducted survey.

5.1. Conclusions

The objective of study was to investigate the role of change management and its impact among ethio telecom employees in ERP implementation and also to identify the effective and more useful change management process and tools. The overall change management process has positive impact on the ERP system implementation at the company, which is the influence of change management on the overall success of the project were very high. Thus, as the result showed

regarding awareness majority of respondents were aware of the project and understood the objective, scope and benefit.

- Regarding willingness, the respondents showed their willingness to use the system and they believe on the added value and efficiency of the project that the change can enhance their career and they were encouraged to take part in the change management initiatives, In addition, management support were adequate and enable them to take the best course of action.
- Concerning Training, as various scholars and researchers recommended user training and education as an important factor of successful ERP implementation. It is also one of the effective change management process and tool at the company. However, even though majority of respondents agreed on the training issues still there are some issues need to be improved such as: the adequacy of training, training resources, management support and relevancy of the training content.
- Communication is also one of the most effective change management tool at the company, as the result shows users' attitude towards the overall communication process is high and also every change were communicated with the project team, the operation team and also with managers through using different communication media either through using e-mail or weekly board meeting.
- The overall perceptions on the impact of change management during ERP system implementation were high. furthermore, even though the company effectively apply the above change management process and tools still there are some issues need to be reconsidered such as (extent of change management activities made ,openness of communication regarding ERP system, effectiveness of communication medium, communication regarding the reason to implement ERP, sufficiency of communication and adequacy of top management support).

Generally, the findings of the study revealed that the overall change management process has positive impact on the ERP system implementation in Ethio Telecom. In addition, the change management process and tools, such as awareness, willingness, top management support, communication and training were emphasized by the respondents as important factors to implement ERP system at the company.

5.2 Recommendations

Based on the findings of this study and the conclusions drawn, the following recommendations are forwarded.

5.2.1 Recommendation for Practice

Even though, role and impact of change management on the overall success of the project in the company were very high still there are issues (openness of communication regarding ERP system, effectiveness of communication medium, communication regarding the reason to implement ERP, sufficiency of communication and adequacy of top management support) which need to be reconsidered and improved when implementing ERP system to other division other than HR, finance, sourcing and facility. And also the study can be used as a feedback for the company when implementing other systems other than ERP.

- Regarding awareness, Even though majority of respondent are satisfied with being informed about the project progress. However, significant numbers of users were not satisfied as well. Thus, more effort should be made to inform users about project progress and to ensure that users understand the need and impact of the change.
- Concerning communication, the communication regarding ERP system need to be open and effective which is all users of the system should get appropriate information on the vision, objectives and reason to implement ERP system.
- Concerning Sufficiency of communication medium such as (e-mail, meeting, written documents and workshop sections) as the qualitative finding showed that meeting and e-mail are used as effective communication medium. However, still there are some implications on the efficiency of the communication medium. Hence, using various communication medium is vital for supporting change processes.
- The support of top management during implementing ERP system considered as the most significant and vital success factor. However, even though, as the qualitative finding showed that top management support is high. On the other hand, still there is some dissatisfaction on the overall process. Thus, top management process need to be reconsidered and revised.

5.2.2 Recommendation for future research

- The finding can be used as an input for other companies which want to implement ERP system through considering their organizational and cultural issues.
- The study can be used as an input and also as reference for other researchers who have an interest on this area. they can conduct research on change management on other sectors, multiple organizations and other ERP system products and also on other systems

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APPENDICES

Appendix A: Letter of Request

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የኢንፎርሜሽን ሳይንስ ት/ቤት



ADDIS ABABA UNIVERSITY
College of Natural Science
School of Information
Science

Date April 21, 2017

Ref: -SIS/47/2017

HDP
24/4/17

To: ~~Ethio~~ Telecom: Information Systems Division

Student Mihiret Gashaw (ID. No. GSR/1458/07) is a graduate student at the School of Information Science, Addis Ababa University. She is currently conducting a MSc. thesis research under the title "The Role & impact of change management in ERP system implementation".

HR | 603/2017
24/4/17

I would like to thank you in advance for all the assistance that you would provide to the student.

With Regards,

Martha Yifru (PhD)
Head, School of Information Science



☒: 1176

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Appendix B: Questionnaire Survey

Dear Respondent,

I am a post-graduate student in the School of Information Science at Addis Ababa University, currently working on a thesis research on the topic “the role and impact of change management in ERP implementation: the case of Ethio Telecom” in partial fulfillment of the requirements for the Master’s degree.

The purpose of this self-administered questionnaire is to collect data from Ethio Telecom ERP system users, in order to investigate the role of change management and its impact among ethio telecom employees in ERP system implementation.

Your responses will not be identified with you personally and all responses that you provide will be treated confidentially.

I would, therefore, like to request you to fill this questionnaire carefully. The information that you provide me through the questionnaire would be of paramount importance to the research I am undertaking.

The information provided will be used for the purpose of research **ONLY** and will be treated with utmost confidentiality.

Thank you in advance for taking some of your precious time in completing the questionnaire.

Sincerely,
Mihiret Gashaw
School of Information Science
College of natural science
Addis Ababa University,
Addis Ababa, Ethiopia
Mihiretgashaw1@gmail.com

Please kindly provide responses to the following questions to the best of your knowledge. This questionnaire consists of two parts; kindly answer all the questions by marking **X** for **Part one** in the appropriate box and **circle the number that best represents your opinion for Part Two**.

PART ONE: Demographics Profile of the Respondent

| | | | | | |
|-----------------------|---|--|--|------------------------------------|--------------------------------|
| 1. Gender : | <input type="checkbox"/> male | <input type="checkbox"/> female | | | |
| 2. Level of education | <input type="checkbox"/> Masters/Higher | <input type="checkbox"/> Degree | <input type="checkbox"/> Diploma | | |
| 3. Age | <input type="checkbox"/> 21-30 | <input type="checkbox"/> 31-40 | <input type="checkbox"/> 41-50 | <input type="checkbox"/> > 50 | |
| 4. Position | <input type="checkbox"/> top management | <input type="checkbox"/> Middle management | <input type="checkbox"/> Supervisory | <input type="checkbox"/> Technical | <input type="checkbox"/> Other |
| 5. Division | <input type="checkbox"/> Human Resource | <input type="checkbox"/> Finance | <input type="checkbox"/> Sourcing and Facility | | |

PART TWO: Please rate your degree of agreement with the following statements: For each item, circle the number that best represents your opinion, “Strongly agree” = 5, “Agree” = 4, “Normal” = 3, “Disagree” = 2 and “Strongly disagree” = 1

| Questions | Strongly agree = 5 | Agree = 4 | Normal = 3 | Disagree = 2 | Strongly disagree = 1 |
|--|--------------------|-----------|------------|--------------|-----------------------|
| Characteristics of the ERP system | | | | | |
| 1. ERP system reduces errors. | 5 | 4 | 3 | 2 | 1 |
| 2. ERP system leads to better adherence to policies and procedures. | 5 | 4 | 3 | 2 | 1 |
| 3. Using ERP system takes a lot more time than the old way of doing things | 5 | 4 | 3 | 2 | 1 |
| 4. ERP system is more efficient than the old way of doing things. | 5 | 4 | 3 | 2 | 1 |
| Important change management process and tools | | | | | |
| Awareness | | | | | |
| 5. I am aware of the ERP project | 5 | 4 | 3 | 2 | 1 |
| 6. The messages I have heard about ERP make me feel comfortable what the project will mean to me | 5 | 4 | 3 | 2 | 1 |
| 7. I understand the scope and objectives of the ERP project | 5 | 4 | 3 | 2 | 1 |
| 8. I understand the benefits that the project will bring about | 5 | 4 | 3 | 2 | 1 |
| 9. I am informed about the progress being made | 5 | 4 | 3 | 2 | 1 |

| Willingness | | | | | |
|--|---|---|---|---|---|
| 10. I believe in the added value and efficiency of the ERP project | 5 | 4 | 3 | 2 | 1 |
| 11. I intend to use ERP project for performing my job as often as I need to. | 5 | 4 | 3 | 2 | 1 |
| 12. The change that comes with ERP project can enhance my career | 5 | 4 | 3 | 2 | 1 |
| 13. I am encouraged to take part in the change initiatives instead of being forced to comply with. | 5 | 4 | 3 | 2 | 1 |
| 14. I feel confident that I received required support that enables me to fulfill the activities effectively within the project | 5 | 4 | 3 | 2 | 1 |
| 15. I trust my manager that he/she will support us and take the best course of actions | 5 | 4 | 3 | 2 | 1 |
| Change management strategies that have an impact on the implementation of an ERP system | | | | | |
| Training | | | | | |
| 16. The training received during the ERP project was adequate. | 5 | 4 | 3 | 2 | 1 |
| 17. Adequate resources were available to assist users during ERP training | 5 | 4 | 3 | 2 | 1 |
| 18. Adequate support from management was given during the training on the ERP system | 5 | 4 | 3 | 2 | 1 |
| 19. The contents of the training were relevant to the job | 5 | 4 | 3 | 2 | 1 |

| Communication | | | | | |
|---|---|---|---|---|---|
| 20. The communication regarding the ERP system implementation was sufficient. | 5 | 4 | 3 | 2 | 1 |
| 21. The reasons for the decision to implement ERP system were communicated | 5 | 4 | 3 | 2 | 1 |
| 22. A shared vision of the new system was established and communicated. | 5 | 4 | 3 | 2 | 1 |
| 23. The communication medium used during the ERP implementation project was effective. | 5 | 4 | 3 | 2 | 1 |
| 24. Communication regarding the ERP system is open. | 5 | 4 | 3 | 2 | 1 |
| Employee's perceptions on the impact of change management during the ERP system-implementation | | | | | |
| 25. More change management activities are made during ERP system implementation. | 5 | 4 | 3 | 2 | 1 |
| 26. The important factors of change management are given adequate time on the project. | 5 | 4 | 3 | 2 | 1 |
| 27. The satisfaction level on the overall success of the ERP implementation is high | 5 | 4 | 3 | 2 | 1 |

Appendix C: Interview Outline

A. Opening

My name is Mihiret Gashaw, a postgraduate student of University of Addis Ababa. I am carrying out a research on the title of “**the role and impact of change management in ERP implementation**” and I thought it would be a good idea to interview you.

B. (Purpose)

I would like to ask you some questions about your background, your job title, some experiences you have had, and some information about this institution.

The interview should take about **30 minutes**. Are you available to respond to some questions at this time?

1. In your understanding, what are the intensions and objectives of the company to implement the ERP system?
2. What are the change management factors that have an impact on the implementation of an ERP system?
3. What are the end-users’ perceptions on the impact of change management during the system implementation of the project?
4. How about change resistance, commitment and acceptance?

DECLARATION

I declare that the thesis is my original work and has not been presented for a degree in any other university.

Mihiret Gashaw

October, 2017

This thesis has been submitted for examination with my approval as university advisor.

Tibebe Beshah (PhD)

October, 2017

