



**ADDIS ABABA UNIVERSITY**

**DEPARTEMENT OF PUBLIC ADMINISTRATION AND  
DEVELOPMENT MANAGEMENT**

**MASTERS OF PUBLIC MANAGEMENT AND POLICY**

**ENTERPRISE RESOURCE PLANNING IMPLEMENTATION  
IN IMPROVING THE EFFICIENCY OF HUMAN RESOURCE  
MANAGEMENT IN PUBLIC ENTERPRISES: THE CASE OF  
ETHIO TELECOM**

**BY**

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**OCT, 2020**

**ADDIS ABABA, ETHIOPIA**

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**A THESIS SUBMITTED TO PUBLIC ADMINISTRATION  
AND DEVELOPMENT MANAGEMENT OF ADDISABABA  
UNIVERSITY IN PARTIAL FULFILMENT OF THE  
REQUIREMENTS FOR THE DEGREE OF MASTER OF  
PUBLIC MANAGEMENT AND POLICY**

**OCT, 2020**

**ADDIS ABABA, ETHIOPIA**

## DECLARATION

I, **AGERMAS SHAYLE AKISHA** declare that this thesis is my original work and that all sources of the materials in the research paper have been duly acknowledged. The matter embodied in this research paper has not been submitted earlier for award of any master degree best of my knowledge and belief.

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\_\_\_\_\_

October, 2020

Name

Sign

Date

I, -----, confirm that this research project has been submitted for examination with my approval as the University Supervisor.

**TARIKU ATOMSA (PhD)**

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October, 2020

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This is to certify that the senior essay prepared by **AGERMAS SHAYLE AKISHA**, entitled; “Enterprise Resource Planning Implementation in Improving the Efficiency of Human Resource Management in Public Enterprises: the Case of Ethio Telecomm” and submitted in partial fulfilment of the requirements for MA Degree in public management and policy complies with the regulations of the university and meets the accepted standard with respect to originality and quality.

**Signed by the Examining Committee:**

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**Department Head**

## **ACKNOWLEDGEMENT**

My first and foremost gratitude is forwarded to my advisor **Dr. Tariku Atomsa (Associate prof.)** for his critical comments, corrections, assistance and encouragement in the preparation of this research paper. Next, my heart full thanks goes to Ato Gashaw Kifle assist me during the field work in data collection.

As an aspiring researcher, I looked for clues about research writing process from the adviser who helped me to become thesis writer one day. That day as it turns out, has been over six months in the making, now it is my turn to acknowledge the adviser, **TARIKU ATOMSA (PHD)**, for his unreserved effort in providing me all the necessary guidance and encouragements to the successful completion of this thesis.

## ABBREVIATIONS/ACRONYMS

AMOS	Analysis of Moment Structures
EI	Employee Innovation
EP	Employee Productivity
ERP	Enterprise Resource Planning
ERPO	Organization's enterprise Resource Planning
ERPOI	Enterprise Resource Planning Organization Impact
ERPU	Enterprise Resource Planning Users
ERPUS	Enterprise Resource Planning User Satisfaction
HRME	Human Resource Management Efficiency
HRMEI	Human Resource Management Efficiency Improvement
ITU	International Telecommunications Union
MRP	Material Requirement Planning
MVST	Mediation Variables in Scientific Theory
PCMM	People Capability Maturity Model
SAP	System Application and Product
SQ	Service Quality
TOM	Enhanced Telecom Operating Map

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## **ABSTRACT**

*The study aimed at investigating HRM efficiency improvement in context of ERP in reference to Ethio telecom. And with central objectives of the research in mind, the researcher applied descriptive survey research design to enable the researcher to see the current status of ERP implementation in improving HRM efficiency in Ethio telecom. In addition the study used sampling technique probability sampling – simple random sampling for ensuring the resulting sample was representative. As of the data presentation, analysis and discussion showing us concerning of ensuring the availability of employee data at any given time 164 (53.4%) % of the respondents were in the agreement level, while 55 (17.9%) were neutral. More over the median distribution of the response was found 4, which both value show the value of “agree”. This implies that after ERP implementation HR an administrative process ensures the availability of employee data at any given time. Concerning of user-friendly and improve the efficiency of the HR processes 21 (6.85%) of the respondents were neutral; meanwhile, 286 (93.15%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP system is still yet in being user-friendly and improves the efficiency of the HR processes. There is statistically significant association between ERPUS and HRMEI median values & SQ and HRMEI median values. There is also statistically significant association between ERPOI and HRMEI median values. Based on the above findings, the following conclusions are made: Ethio telecom is still too far in automating HR operations in its ERP installation. It is not at satisfactory level in realizing ERP implementation for efficient utilization of HRM. HRMEI has mediating role to correlate over the relation between ERPUS and EP. HRMEI has mediating role to correlate over the relation between ERPUS and SQ.*

**Key words:** *Ethio telecom, HRMEI and SQ*

# CHAPTER ONE

## INTRODUCTION

### 1.1. Background of the study

Human capital is one of the four types of assets (physical, financial, human and intangible assets) managed in organizations (Osibanjo & Adeniji, 2012). These assets are essential and vital at varying degrees in the operations of any organization; however, human asset operates at the pivot of the operations. Human assets in organizations control, guides, and manage the use of other assets in order to achieve organizational goals. So, this asset needs to be managed. Basically, HRM is the process of managing people in organizations in a structured and thorough manner (Geet & Deshpande , 2009). Nowadays, HRM is being renewed in organizations and becoming one of the fundamental functions of the project management (Helena, 2005).

It means HRM has changed from an inactive and problem-solving role to a strategic, focusing on the retention and development of the best human resources (Singh, Darwish , Costa , & Anderson , 2012).Actually, traditional HR practices consisted of activities such as payroll, hiring activities, records management, reporting, and termination activities. Meanwhile, today, HRM takes more of a full service role providing employee support beyond pension planning and career development. Even further this day the debate has shifted towards a more integrated management approach of how the overall set of HRM practices may ultimately contribute to the competitive advantage of the organizations (Osibanjo & Adeniji, 2012).

This transition reflects not only the importance of human capital in terms of gaining competitive advantage and achieving organizational performance, but also an evolving belief that, in order to survive and compete in the present-day

knowledge-based global economy, organizations need to acquire and develop world-class human resource competencies (Geet & Deshpande , 2009). Especially with the arrival of Enterprise Resource Planning systems, HR functions became fully integrated with the operations side of the business (Helena, 2005). Enterprise Resource Planning (ERP) is a computer-based system designed to place companies' major activity areas: planning, production and customer service under an umbrella (Enderas, 2017). According to the American Production and Inventory Control Society (2001) ERP is defined as a method for the effective planning and controlling of all resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service organization (Madanhirea & Mbohwb , 2016).

Basically, organizations benefited a lot from ERP implementation. As summarized by Olson (2004), expected benefits of ERP systems include, for instance, quicker information response time, increased interaction across the enterprise, improved order management cycle, reduced financial and operating costs, improved interaction with customers and suppliers, improved on-time delivery and cash-management, and so forth(Helena, 2005).

Especially, with developments which have led to the new ERP II, it is now possible for service providers and their customers to share information by integrating their systems into one single database leading to more organizations recognizing the huge benefits from successful implementation of ERP systems (Shahzadi , Shoaib , & Lodhi, 2014). Starting in the late 1990s there has been growing use of ERPs in many of the larger businesses and organizations. The extensive use of ERP reflects the need of businesses and organizations to replace older software systems and achieve integration of different organizational functions and processes (Maguire , Ojiako , & Said , 2010).

Moreover, in developing countries ERP has been irreplaceable for traditional service industries in achieving the required efficiency level (Hintsch , 2013). From among these traditional service industries Ethiopian Telecommunications Corporation is the one. Actually, in Ethiopian Telecommunication the

implementation of the ERP is a recent phenomenon. However, Ethiopian Telecommunication is investing huge amount of money in expanding telecom services. In addition, Ethiopia as the nation to realize its Growth and Transformation Plan regarding telecom services it depends on this sole telecom services provider in Ethiopia (Enderas, 2017). Ethio telecom, previously known as the Ethiopian Telecommunications Corporation (ETC), is an integrated telecommunication service provider in Ethiopia, for internet and telephone services (Abdulahi , Aychilum , Dawit , Ermyas, & Kidane , 2013) (JICA, 2002). Ethio telecom envisions also being world class telecommunication service provider. As it goes in its mission statement, Ethio telecom has a mission to connect every Ethiopian through information communication technology, provide telecommunication services and products that enhance the development of the nation and build reputable known its customers' consideration. And since, December 01/2011 Ethio telecom has decided to use a more sophisticated automation tool so that its internal work process are shifted from routine tasks to strategic ones (Enderas, 2017). However, till this day there was no any evaluation work so far done on ERP implementation in respect of improving HRM efficiency for HR operation to be transformed from purely transactional entities to more strategic and high-value parts of the business. So, this study decided to investigate HRM efficiency improvement in context of ERP in reference to Ethiopian Telecommunications Corporation

## **1.2. Statement of the problem**

In today's world of Globalization, it's knowledge, commitment, skills, and training that provides the competitive advantage for world class companies. And it is HR's job to build that competitive advantage. It means an upgrading of HR's traditional role in to fully integrated with the operations side of the business (Bansal and Narula, 2014). And currently, a popular approach to the development of an integrated enterprise-wide system is the implementation of an enterprise resource planning (ERP) system (Aktharsha & Kalaivani , 2015).

It is obvious ERP system can successfully integrate the processes of each department, decrease costs, improve effectiveness, increase clients' level of satisfaction and immediately share information with the whole enterprise (Singh, Darwish , Costa , & Anderson , 2012). And it promotes employees to work confidently while reducing errors, lets them reach the project deadlines so that every task is done in a disciplined manner (Maguire , Ojiako , & Said , 2010). Actually high expectation of achieving all-round cost savings and service improvements is very much dependent on how good the chosen ERP system fits to the organizational functionalities and how well the tailoring and configuration process of the system matched with the business culture, strategy and structure of the organization(Enderas, 2017).On the other hand the more an ERP system's core code is customized, the greater the cost of its upgrade, since at each upgrade the customizations have to be made again. So, the organizations investing in ERP systems increasingly recognize the importance of improving the methods for evaluating the outcome of ERP implementation in terms of improved efficiency (Callejas & Terzi , 2012).

Especially HRM efficiency improvement is in question to those organizations which are exposed to the more an ERP system's core code customization and in turn lead to the greater the cost of its upgrade. So, it is must to evaluate long-term efficiency gains from HRM in the context of ERP. Actually, the research on this issue is relatively new and not many studies have been done on the topic(Helena, 2005).Any way in align with this among scholars Shahzadi, Shoaib & Lodhi (2014) assessed the impact of ERP on improving HRM practices and revealed that recruitment and selection was not showing relationship with ERP and organizational productivity. In addition ERP has no relation with compensation and benefits. But ERP implementation shows positive relation with training and development. Although this study reported interesting results, meanwhile employee productivity and service quality were not considered as of dependent variables.

In previous studies also Qutaishat, Khattab, Abu Zaid & Al-Manasra (2012) measured ERP implementation via two dimensions user satisfaction and organizational impact which were considered as of independent variables by considering HR as mediating variable. Although this study also reported interesting results, the findings seem somehow spurious and illusory, because reported results were confined to limited research design which suffers from, at least with acute shortcomings: parsimony, rationality problems and external validity threats.

As the problem is the inability of research design in identifying the true relationship which is dominated between independent variables-ERP Implementation Impacts dimensions (ERP users' satisfaction and ERP organizational impact) & dependent variables (employee productivity, service quality and employee innovation) in terms of HRM efficiency improvement. It is obvious in correlation business research; mediating variables may be identified to explain the kind and effects of the relationship between independent and dependent variables in an attempt to determine the nature of the study more accurately and functionally (Namazia & Namazi, 2015).

In this case HRM efficiency improvement is mediator variable that can cause mediation in the relationship between the dependent variables (called outcomes) and the independent variable. So, still there is gap in revealing HRM efficiency improvement by paying attention to explaining the kind and effects of the relationship between independent variables-ERP Implementation Impacts dimensions (ERP users' satisfaction and ERP organizational impact) & dependent variables (employee productivity, service quality and employee innovation). And issues under basic research questions are still unanswerable.

Moreover, geographical coverage of empirical studies on this issue is one of the identified gaps particularly for Ethiopian Telecommunications Corporation. So, this study was designed to investigate HRM efficiency improvement in context of ERP in reference to Ethiopian Telecommunications Corporation

### **1.3. Basic Research question**

1. To what extent ERP implementation improved HRM efficiency in Ethio Telecomm?
2. To what extent efficient management of human resources correlates over the relationship between ERP implementation impact dimensions and employee productivity?
3. To what extent efficient management of human resources correlates over the relationship between ERP implementation impact dimensions and service quality?
4. What could be the possible solutions in enhancing ERP implementation for efficient HRM?

### **1.4. Objective of the study**

#### **1.4.1. General objective**

The main objective of the study was to investigate HRM efficiency improvement in context of ERP in reference to Ethio Telecomm.

#### **1.4.2. Specific objective**

1. Evaluate HRM efficiency improvement in ERP context
2. Investigate the mediating role of HRM efficiency improvement over the relationship between ERP implementation impact dimensions and employee productivity
3. Investigate the mediating role of HRM efficiency improvement over the relationship between ERP implementation impact dimensions and service quality
4. Investigate the possible solutions in enhancing ERP implementation for efficient HRM

## **1.5. Significance of study**

It is believed that this paper will contribute to the body of existing knowledge and as well make up for the paucity of scholarly paper in Ethiopia on efficient management of human resources and its correlation over the relationship between ERP implementation impact dimensions & employee productivity, service quality and employee innovation.

It is obvious most organizations investing in ERP systems increasingly recognize the importance of improving the methods for evaluating the outcome of ERP implementation in terms of improved efficiency (Callejas & Terzi , 2012). Unless otherwise due to slackness in evaluating long-term efficiency gains from HRM in the context of ERP they are exposed to the more an ERP system's core code customization and in turn lead to the greater the cost of its upgrade. Hence, investigating HRM efficiency improvement in context of ERP is an important factor to be realized as it has the main role on measuring ERP implementation impact dimensions.

So this study was important to bridge this gap for instance Ethiopian Telecommunications Corporation will be well informed about its ERP implementation process. In addition Ethiopian Telecommunications Corporation would be well informed about its HRM efficiency in the context of ERP. Moreover, empirical findings contributed from this study would initiate the organization to recognize the importance of improving the methods for evaluating the outcome of ERP implementation in terms of improved efficiency. Lastly the study would serve as the source to empirical literature review for the futuristic researcher in this area of research.

## **1.6. Scope of the study**

HRM efficiency improvement in ERP context is a broad concept, which consists of numerous interactions but the scope of this study is restricted to the particular topical and spatial areas. Having objective of investigating HRM efficiency

improvement in context of ERP, the spatial scope of the study was delimited to the boundary of Ethiopian Telecommunications Corporation situated at Addis Ababa. Besides, the study covered the time period November, 2019 to June, 2020.

This study used descriptive research design aiming at gathering information without environmental manipulation since it is not an experimental research but there is correlational study by describing, analyzing and reporting data so as to appropriately answer research questions. The unit of observation of the study was the employees in divisions of human resources, finance & sourcing and facility divisions of Ethiopian Telecommunications Corporation.

### **1.7. Limitation of the study**

The study approached the participants with closed ended questionnaires. However, the study would not embrace interview so that the findings in the future might not include employees' deep insight (attitudes/beliefs /think/know/feel about). It is obvious also survey often suffers the limitation of forcing respondents in to particular response categories there by limiting the range of responses. Unlike an interview where respondents can ask identifying questions, respondents are usually limited to the next in survey itself for direction about how to complete it and where to respond. Thus the study may not know whether the findings may generalize to the participants of the study.

### **1.8. Organization of the study**

This study was organized in to five chapters. Chapter one was dedicated for introduction. Under this chapter, background of the study, statement of the problem, objective of the study, scope of the study, limitation of the study are discussed. Chapter two was dedicated for review of related literature. This chapter embarks on reviewing conceptual, theoretical and empirical reviews & carry out research gap analysis till the study leads towards analysis of frame work.

Under conceptual review the study reviewed on such topics as the concept and definition of ERP, HRM and HRM Efficiency. Further, for the consumption of theoretical review the study reviewed on such topics as the origin of ERP, Ethiopian Telecommunications Corporation in ERP context, ERP implementation process, human resource management efficiency improvement and theories for this Study.

In addition under empirical reviews such topics as empirical evidence on ERP implementation in Ethiopian Telecommunication and ERP implementation and HRM Practices Improvement. Lastly the study identified research gap. Research design and methodology were embedded in chapter three. Chapter four was dedicates for data presentation, analysis and discussion.

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

#### 2.1. Introduction

This chapter embarks on reviewing conceptual, theoretical and empirical reviews & carry out research gap analysis till the study leads towards analysis of frame work. Under conceptual review the study reviewed on such topics as the concept and definition of ERP, HRM and HRM Efficiency. Further, for the consumption of theoretical review the study reviewed on such topics as the origin of ERP, Ethiopian Telecommunications Corporation in ERP context, ERP implementation process, human resource management efficiency improvement and theories for this Study. In addition under empirical reviews such topics as empirical evidence on ERP implementation in Ethiopian Telecommunication and ERP implementation and HRM Practices Improvement. Lastly the study identified research gap

#### 2.2. Theoretical Literature Review

##### 2.2.1. Conceptual Review

###### *2.2.1.1 The Concept and Definition of ERP*

The ERP concept can be viewed from a variety of perspectives. First, and most obviously, ERP is a commodity, a product in the form of computer software. Second, and fundamentally, ERP can be seen as a development objective of mapping all processes and data of an enterprise into a comprehensive integrative structure. Third, ERP can be seen as the key element of an infrastructure that delivers a solution to business (Rosemann & Gable , 2000).

To define the term according to the American Production and Inventory Control Society (2001) ERP is a method for the effective planning and controlling of all

resources needed to take, make, ship and account for customer orders in a manufacturing, distribution or service organization. Rosemann and Gable (2000) defined Enterprise Resource Planning (ERP) as a computer-based system designed to place companies' major activity areas: planning, production and customer service under an umbrella. Especially, after SAP reinvented and developed their product further by developing a business solution for the client/server architecture environment; this became known as R/3 and was released in 1992. In the 1990s SAP and its R/3 solution would go on to become the dominant ERP solution, and also become one of the world's biggest software houses (Aktharsha & Kalaivani , 2015).

#### ***2.2.1.2. Definition of HRM***

The first definition of HRM is that “It is the process of managing people in organizations in a structured and thorough manner”. This covers the fields of staffing (hiring people), retention of people, pay and perks setting and management, performance management, change management and taking care of exits from the company to round off the activities (Geet & Deshpande , 2009). Actually, this is the traditional definition of HRM which leads some experts to define it as a modern version of the Personnel Management function that was used earlier. The second definition of HRM encompasses “The management of people in organizations from a macro perspective, i.e. managing people in the form of a collective relationship between management and employees” (Helena, 2005)

This approach focuses on the objectives and outcomes of the HRM functions. It means that the HR function in contemporary organizations is concerned with the notions of people enabling, people development and a focus on making the “employment relationship” fulfilling for both the management and employees. In simple words, Human resource management is management function that helps manager to recruit, select, train and develop organization members. Or HRM is a process of making the efficient and effective use of human resources so that the set goals are achieved (Geet & Deshpande , 2009).

### ***2.2.1.3. The Concept and Definition of HRM Efficiency***

Efficiency is productivity as output per hour of work with minimum cost. HRM efficiency constitutes HR measurement issues such as cost per hire, time to fill, training investment per high-potential employee promoted and HR expenses as a proportion of all company expenses (Fink & Sturman, 2017). It helps to reveal the ability of various HR functions to avoid waste-be it of time, money, or effort. HR operations, such as managing payroll or managing employee service centers, can also apply concepts of efficiency in the sense of minimizing waste. As companies want managers to pay attention to the ever-important staffing need and to keep a group's productivity at desired levels, it makes sense to be concerned regarding this process, as overly long staffing times may be detrimental. This day HRM efficiency goes to the level of obtaining and sustaining competitive advantage by investing on employees. It means that happy and satisfied employees have higher performance, therefore making it easy for management to motivate them thus attaining the firm targets (Maguire , Ojiako , & Said , 2010).

### **2.2.2. The origin of ERP**

The origins of ERP can be found in the 1970s when companies started to find a solution to the problem of large inventories whose cost became not manageable any longer (Klaus et al, 2000). These inputs brought to Material Requirement Planning (MRP) systems whose main goal was to reduce the inventory by coordinating the procurement process activities with the production process. Using accurate inventory record files, the available quantity of on-hand or scheduled – to - arrive materials could then be used to determine net material requirements (Hintsch , 2013).

In the 1980's MRP faced an evolution towards MRP II, which were capable to couple the inventory with the financial dimensions. Basically, with MRP II financial accounting and management systems created a system with the manufacturing and materials management systems (Ngwenya & Aigbavboa, 2012). This evolution was an important step towards a more integrated view of

business activities. The next step was taken in the 1990's when MRP II scope enlarged to consider all the resource planning for the entire organization, including human resources, giving rise to the Enterprise Resource Planning Systems (Muscatello, Small, & Chen, 2003)

### **2.2.3. ERP Implementation Process**

According to Beheshti (2006) currently, a popular approach to the development of an integrated enterprise-wide system is the implementation of an enterprise resource planning (ERP) system (Aktharsha and Kalaivani, 2015). ERP implementation is an expensive and extensive undertaking involving activities related to planning, justifying, installing and commissioning of the installed system. An ERP system extends across the entire organization and sometimes even beyond to cover integral partners in the supply (Muscatello, Small, & Chen, 2003). The ERP implementation process will be presented in three subsections under the general headings of planning activities, justification and selection activities, and installation activities. Planning activities are *strategic objectives and top management involvement, Reengineering efforts, ES needs analysis and ERP profiles of the companies* (Addo-Tenkorang & Helo, 2011).

*Reengineering efforts* is to lay the groundwork for streamlining their business operations to more closely match their customers' current and expected future requirements for quality, timeliness, innovation and customization (Muscatello, Small and Chen, 2003). *ES needs analysis* it is performing a checklist assessment provided by the consultants to determine the best fitting software (Addo-Tenkorang and Helo, 2011). *ERP profiles of the companies* – it is budgeting for ERP investments (Muscatello, Small, & Chen, 2003). Justification and selection activities are *Economic and strategic goals*. Installation activities are *Education and training requirements* (Muscatello, Small and Chen, 2003).

#### **2.2.4. Human resource Management Efficiency Improvement**

The crisis in productivity arose for a number of reasons; poor labor management relations, and often hostile relationship between business and government, out dated plants and equipment and lack of capital for plant modernization (Igwe , Onwumere , & Egbo , 2014). Pfeffer (1994, 1998) argued that the greater use of HRM practices emphasizing employee participation, empowerment, teamwork, employee training, performance contingency, incentive and compensation are believed to improve the performance of organizations (Ngwenya & Aigbavboa, 2012)

#### **2.2.5. Theories for this Study**

In this study the following theories i.e. HRM theory, theory on ERP implementation impact dimension & mediation variable in scientific theory are considered to investigate HRM efficiency improvement in context of ERP in reference to Ethiopian Telecommunications Corporation. Basically, Dezdar & Sulaiman (2009) found that that organizational impact and user satisfaction were the two most frequently used measures for ERP implementation impact. The impact of ERP implementation can be seen from different dimensions. The first dimension includes the antecedent of ERP successful implementation (internal, environmental, technology related issues, implementation team, end users), the second dimension the implementation itself (information quality, system quality, service quality) while the third dimension includes three measures of (internal efficiency, competitiveness, profitability) (Chatzoglou, Chatzoudes, & Apostolopoulou, 2016). In this regard previously Qutaishat, Khattab, Abu Zaid & Al-Manasra (2012) assumed theoretical concept by stating “after ERP implementation HRM practices improves to the extent they correlate over the relationship between ERP implementation impact dimensions (ERP Organizational Impact and ERP users’ satisfaction) & employee productivity, service quality and employee innovation. The *user's satisfaction* can be defined as those feelings and attitudes towards a variety of factors related to the delivery

of information products and services, including being up-to-date, being precise, being comprehensive and so forth.

*Employee productivity* is a particularly important issue to managers and supervisors as the primary purpose of their job is to get the most out of the people they are responsible for. Caruso (2009) the founder of David Caruso & Associates Inc., stated that employees are the secret of the success of any manufacturing industry. In today's cost-competitive world, the emphasis is on getting things done through increasing the productivity of employees (Addo-Tenkorang & Helo , 2011).

It has been typically regarded as a key strategic component of competitive advantage and the enhancement of service and product quality in organizations and still until present (Callejas & Terzi , 2012). According Bosschaa et al. (2006) many factors causes poor product quality in small manufacturing companies that cannot afford advanced management systems such as: problem allocation delays and intervention, poor human resource allocation and poor inventory management (Addo-Tenkorang & Helo , 2011). *Employee innovation* Kanter (1988) defined innovation as the creation and exploitation of new ideas. Innovation is being increasingly seen as a critical competitive advantage and has been recognized as an important trend. According to Rogers (1995) innovation is often characterized as a type of organizational capital and has been broadly defined as an idea, a product or process, system or device that is perceived to be new to an individual, a firms, an industrial sector or a society as a whole (Qutaishat, Khattab, & Abu-Zaid, 2012)

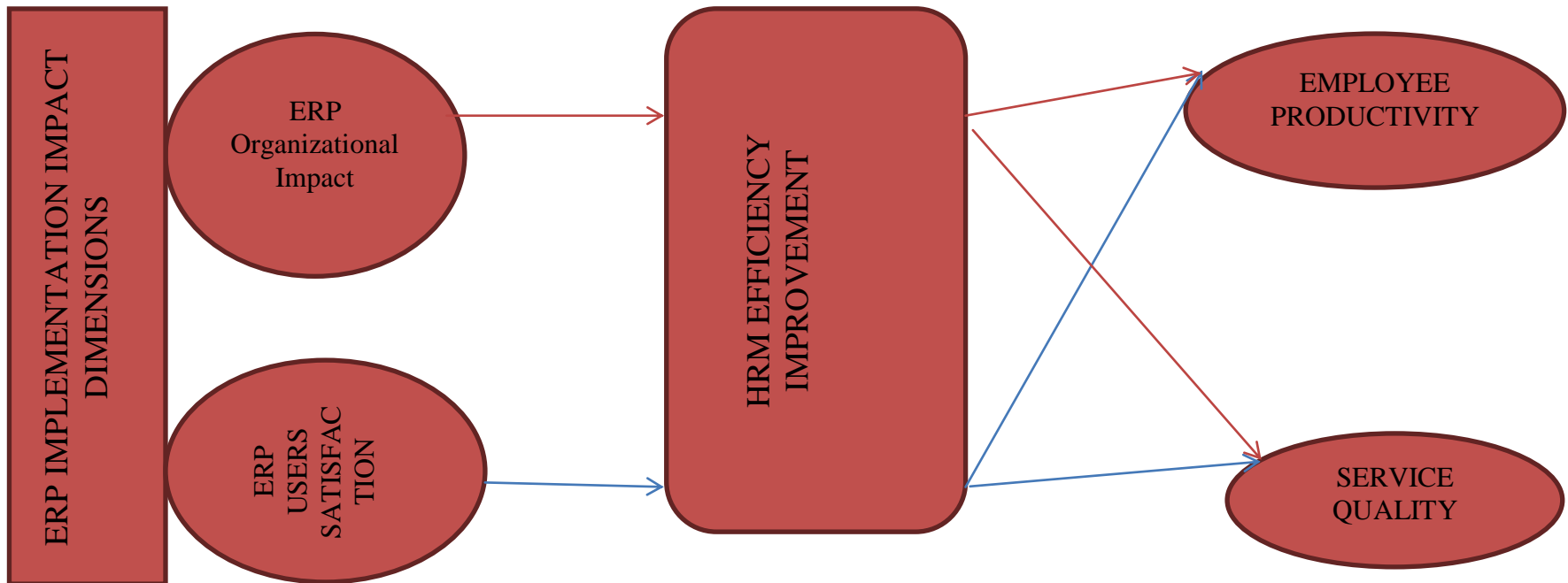
Meanwhile, technology tends to grow more complex organizational structure and operation system (Cicek & Demir, 2015). So, this day it is inevitable to consider technology driven HR operations and process with in the organizations (Thales UK, 2016). So, this thesis considered theoretical assumption of the indirect effect of HRM practices (e.g. Katou and Budhwar, 2006). HR practices, at best, only impact some mediator variables which subsequently impact organizational performance (Dyer and Reeves, 1995; Becker and Gerhart, 1996; Paauwe and

Richardson, 1997; Guest, 1997; Wright et al., 2003; Collins and Clark, 2003; Paauwe, 2009); this can be termed as the “black box” issue in HRM-performance research (Singh, Darwish , Costa , & Anderson , 2012). So, this study considers mediation variables in scientific theory. Using this theory this study estimated HRM efficiency improvement by paying attention to explaining the kind and effects of the relationship between independent- ERP implementation impact dimensions (ERP users’ satisfaction and ERP organizational impact and) and dependent variables (employee productivity, service quality and employee innovation).

### **2.3. Theoretical framework**

A theoretical framework of this thesis comprises the aforementioned issues expressed by theorists: Dyer and Reeves (1995); Becker and Gerhart, (1996); Paauwe and Richardson (1997); Guest (1997); Wright et al. (2003); Collins and Clark (2003);Paauwe (2009) in the field into which this study plan to research, which the study draws upon to provide a theoretical coat hanger for its data analysis and interpretation of results. And the theoretical frame work is graphically presented below

**Figure 2.1: Theoretical Framework**



*Source: Own Synthesis from Literature Review on Dyer and Reeves (1995); Becker and Gerhart, (1996); Paauwe and Richardson (1997); Guest (1997); Wright et al.(2003); Collins and Clark (2003);Paauwe (2009) & Dezdar and Sulaiman (2009)*

## **2.4. Review of Empirical Studies**

### **2.4.1. Empirical evidence on ERP implementation in Ethio telecom**

For the question which the ERP team had well prepared and committed for system implementation, 50% of the respondents from the management category replied that the ERP team has committed successful implementation of the system. Similarly, 52% of non-management respondents also reflected the same viewpoint (Enderas, 2017)

On the contrary, 42% of the respondents from management and 36% among non-management employees believed that the ERP team not committed for successful implementation of the system. The remaining 12% of non-management respondents and 8% of management members are neither of the two sides. From this fact, we can conclude that as majority of the respondents believe that knowledgeable, capable and effective project team play great contribution for successful ERP implementation of the system.

### **2.4.2. Empirical evidence on ERP Implementation and HRM Practices Improvement**

Among scholars Shahzadi, Shoaib & Lodhi (2014) assessed the impact of ERP on improving HRM practices and revealed that recruitment and selection was not showing relationship with ERP and organizational productivity. In addition ERP has no relation with compensation and benefits. But ERP implementation shows positive relation with training and development. Although this study reported interesting results, meanwhile employee productivity and service quality were not considered as of dependent variables. According to Dezdar & Sulaiman (2009) to measure how far the organization is successful in ERP implementation organizational impact and user satisfaction are considered.

The user's satisfaction can be defined as those feelings and attitudes towards a variety of factors related to the delivery of information products and services,

including being up-to-date, being precise, being comprehensive and so forth (Qutaishat, Khattab, & Abu-Zaid, 2012).

Qutaishat, Khattab, Abu Zaid & Al-Manasra (2012) measured ERP implementation via two dimensions user satisfaction and organizational impact which were considered as of independent variables. Employee productivity, employee innovation and service quality were considered as of dependent variables.

At the same time human resource management practices were seen as of mediating variables. Organization impact has a significant positive effect on productivity ( $\beta = 0.399$ ,  $p < 0.05$ ); Service Quality ( $\beta = 0.312$ ,  $p < 0.05$ ) and innovation ( $\beta = 0.325$ ,  $p < 0.05$ ). And satisfaction has a significant positive effect on service quality ( $\beta = 0.401$ ,  $p < 0.05$ ); innovation ( $\beta = 0.342$ ,  $p < 0.05$ ). Whereas, satisfaction hasn't a significant effect on productivity ( $\beta = 0.116$ ,  $p > 0.05$ ).

## **2.5. Summary of Literature Review and Research Gap**

Even though there are so many researches involving in ERP implementation impact dimension; still literatures are too far in revealing to what extent HRM efficiency improved after ERP implementation by considering it as the mediating variable in between ERP implementation impact dimensions (ERP organizational impact & ERP users' satisfaction) and employee productivity, service quality and employee innovation. Previous studies seem somehow spurious and illusory, because reported results were confined to limited research design which suffers from, at least with acute shortcomings: parsimony, rationality problems and external validity threats.

In correlational business research, mediating variables may be identified to explain the kind and effects of the relationship between independent and dependent variables in an attempt to determine the nature of the study more accurately and functionally. A Mediator Variable (ME), also called "intervening

or process variable”, is the variable that causes mediation in the relationship between the dependent variable (Namazi and Namazi, 2016). So, this study will investigate the mediating role of (efficient use of HRM) over the relationship between ERP implementation impact dimensions and employee productivity, service quality and employee innovation.

# CHAPTER THREE

## RESEARCH METHODOLOGY

### 3.1. Introduction

Research design and approach, data sources and types, population and sample, data collection method, reliability and validity test are presented in this chapter. Further description and illustration is given on how each data collection tool is applied.

### 3.2. Research design

Research design is a framework that serves as a plan to study the research problem. The role of a research design is to manage the collection of relevant data with minimal consumption of effort, time and money considering the research objectives (Kothari, 2004). This study applied descriptive survey research design. The purpose of adopting a descriptive research design for the study was to enable the researcher to see the current status of ERP implementation in improving HRM efficiency in Ethio telecom.

In addition descriptive research design is appropriate to this paper aiming at gathering information without environmental manipulation since it is not an experimental research but there is correlational study by describing, analyzing and reporting data so as to appropriately answer research questions. For instance, this study conducted to demonstrate the mediating role of HRM efficiency improvement in between ERP implementation impact dimensions (ERP organizational impact & ERP users' satisfaction) and employee productivity, service quality and employee innovation.

### **3.3. Research Approach**

There are three different accredited research approaches. These are, as noted in Creswell (2009), analytical study, quantitative, qualitative and mixed methods approach. (Kothari, 2004). According to Polit and Hungler (2013) quantitative research is a means for testing objective theories by examining the relationship among variables. Hence, based on the research problem and objective to be met in this study, the quantitative research approach was deployed.

### **3.4. Sources and Type of Data**

Primary data was collected through questionnaire from sample respondents. In this study context the employees in divisions of human resources, finance & sourcing and facility divisions were major primary information source; because, in these same divisions in which ERP is fully deployed (Enderas, 2017).

### **3.5. Population, sample and sample size of the study**

The target population is that which a researcher wants to generalize the results of the study. The target population of this study embraces all Ethiopian Telecommunications Corporation employees. Ethiopian telecommunication employees are resided in six zone offices and head quarter in Addis Ababa (Worku , 2005). All parties involved in the implementation process of enterprise resources planning system will be represented by the sample. Divisions of human resources finance & sourcing and facility divisions are major source of information. There are 7,423 employees in Addis Ababa 1,512 are staffed under those three divisions in which ERP is fully deployed. Because of the geographical constraint, the study will be concentrated on Addis Ababa. Moreover, studying different zones and regions will not bring significant different since company follows centralized management system most of activities are similar. As a result 1,512 employees were taken as a population for this study. To determine the

sample size, formula of Glenn D. Israel from University of Florida was used (Enderas, 2017).

$$\frac{z^2 pq}{e^2}$$

Equation 1

This is valid where:

$n_0$  = sample size

$Z_2$  = abscissa of the normal curve that cuts off an area  $\alpha$  at the tails ( $1 - \alpha$  equals the desired confidence level, e.g., 95%)

$e$  = desired level of precision

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

The value for  $Z$  is found in statistical tables which contain the area under the normal curve. Then, the sample size determined for the large population have been used to determine sample size for a finite population. Therefore, the following formula was derived from equation 1:

$$n = n_0 / (1 + n_0 - 1/N)$$

Equation 2

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

Hence, the sample size for the given population (1512) at  $e = \pm 5\%$ , confidence level = 95%,

And  $p = 0.5$  (maximum variability)

Equation 1:

$$(1.96)^2 (.5) (.5) / (0.05) (0.05) = 385$$

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

$$n = 385/1 + 385 - 1/1512 = 307 \text{ Sample size}$$

### **3.6. Sampling technique**

The careful design of the sample size and the right selection of sampling techniques are important to ensure the representativeness of the sample that can be dependable to generalize the information obtained from the sample to the whole population of the study (Kothari, 2004). As the sampling technique the study employed probability sampling – simple random sampling.

### **3.7. Instrument of data collection**

According to Wimmer and Dominick (2011), method is a specific data collection process in accordance with the assumption of the selected methodology. Primary data are those which are collected a fresh and for the first time and thus happen to be original in character (Kothari, 2004). Thus this study will apply mainly the following information gathering tool, i.e. survey

#### **3.7.1. Survey questionnaires**

For this study, questionnaire is the most important data collecting tool. Because of it is quick, economical; simply reach large numbers and it easy to get much information from respondents. It also helps to save time, encourages objectivity, provide rapid analysis and feed back to the researcher (Kothari, 2004). The survey measure employed in this study comprised five major sections: (1) demographic information, (2) HRM efficiency improvement (3) ERP organizational impact (4) service quality, and (5) employee productivity. And to collect demographic information education and years of work experience are considered.

Questions with 5 point likert type scale are designed to HRM efficiency improvement, ERP users' satisfaction, ERP organizational impact, service quality and employee productivity. Quality of the service compares well with other

services that the organization has developed in the past and will be accessed via questions with 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Regarding to employee productivity it will be measured by asking the question using the scale from 1 (poor) to 5 (excellent): 'what rating did you receive from your supervisor on your most recent performance appraisal on your current job this year?' In addition, regarding to HRM practices it will be compared well with other practices that the organization has developed in the past and will be accessed via questions with 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Moreover, regarding to Efficient Management of Human Resource likert scale questionnaires will be designed.

### **3.8. Technique of Data Analysis**

After `collecting the necessary data, the data was organized according to their homogeneity; tabulated and analyzed to answer the basic research questions in meaningful way. In addition they were analyzed using descriptive statistics. Moreover the study sought to uncover variable (HRMEI) that mediate the relationship between ERP implementation impact dimensions and employee productivity and service quality. So, the data were analyzed using multiple regression tool found at SPSS V20.

### **3.9. Instrument Reliability**

For ensuring the consistency of the research findings and the accuracy with which a method measures what it is intended to measure; the study implemented the following way of instrument reliability and validity. According to Isaac and Michael (1993) construct validity in instruments of data collection shows the extent to which certain explanatory concepts or qualities account for the Indentured objectives of the data collection tools.

On the other hand, Fraenken and Wallen (2003) reported that reliability indicates the consistency of the scores obtained between different respondents or within the responses of the same subjects' overtime. So, reliability of the items to the variables was measured by using Crobach's alpha method by the help of SPSS version 20. The consistency of each item with the scale as a whole to SQ, HRMI, ERPUS and ERPOI was presented in table 3.1 with Cronbach's alpha 0.96, 0.709, 0.971 and 0.981. In the case of HRMI one bad item (After ERP implementation the nature of HR practices is more enabling (supportive of the organization business objectives) and not restrictive) in the study scale (i.e., one that is not representing the construct the study was trying to measure) was removed.

**Table3.1: Reliability of the items to SQ, HRMI, ERPUS and ERPOI**

<b>Reliability Statistics to SQ</b>	
Cronbach's Alpha	N of Items
.965	6
<b>Reliability Statistics to HRMI</b>	
Cronbach's Alpha	N of Items
.709	21
<b>Reliability Statistics to ERPUS</b>	
Cronbach's Alpha	N of Items
0.971	12
<b>Reliability Statistics to ERPOI</b>	
Cronbach's Alpha	N of Items
0.981	11

*Source: own survey SPSS V20 (2020)*

### **3.10. Validity**

According to Isaac and Michael (1993) construct validity in instruments of data collection shows the extent to which certain explanatory concepts or qualities account for the Indentured objectives of the data collection tools.

According to Kothari, (2004), validity is the most critical criterion and indicates the degree to which an instrument measures what it is supposed to measure. Validity can also be thought of as utility. In other word, validity is the extent to which difference found with a measuring instrument reflects true differences among those being tested.

### **3.11. Ethical Consideration**

To collect data the ethical permission was taken from Addis Ababa University by official letter. The respondents were asked respectfully to receive the required information based on their willingness. Responses of respondents were unnamed. The researcher disclosed the privacy of respondents and kept secretly the information collected from respondents. Confidentiality was considered in all levels of the study during information gathering.



## **CHAPTER FOUR**

# **DATA ANALYSIS, INTERPRETATION AND DISCUSSION**

### **4.1. Introduction**

These chapters attempted analyze and interpret the data collected and summarized. The results are made to relate to the key considerations discussed in the literature review sections.

At the same time, the data is analyzed in association with the research questions raised in chapter one. Basically this study tried to investigate HRM efficiency improvement in context of ERP in reference to Ethio telecom by revealing to what extent ERP implementation improved HRM efficiency.

This chapter also focused on uncovering variable (HRMEI) that mediate the relationship between ERP implementation impact dimensions and employee productivity and service quality. Moreover, the data collected were analyzed using SPSS version 20. Regression has been applied in the quantitative analyses and to test the hypotheses.

### **4.2. Sample and Response Rate**

A total of 307 questionnaires were obtained and used for analysis. The non-response rate is 0 (0%).

### **4.3. Demographic Composition of Respondents**

Demographic information was demographic information of the respondents includes gender, age, educational level collected from Ethiopian Telecommunications Corporation's employees. And work experience to see the

demographic composition of respondents in the study area. Accordingly, table 4.1 below presents frequency and percentage distribution of the responses to Demographic characteristics

**Table 4.1: Frequency and percentage distribution of the respondents by demographic/background variables**

<b>Age</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 -25 years	40	13.0	13.0	13.0
	26-35 years	160	52.1	52.1	65.1
	36-45 years	107	34.9	34.9	100.0
	Total	307	100.0	100.0	
<b>Gender</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	139	45.3	45.3	45.3
	Male	168	54.7	54.7	100.0
	Total	307	100.0	100.0	
<b>Education</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Above Second Degree	9	2.9	2.9	2.9
	College Diploma	11	3.6	3.6	6.5
	First Degree	161	52.4	52.4	59.0
	Second Degree	126	41.0	41.0	100.0
	Total	307	100.0	100.0	
<b>Serviceyear:1=1-5 years 2=6-10years 3=11-15years 4=above 15 years</b>					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-5 years	108	35.2	35.2	35.2
	6-10years	108	35.2	35.2	70.4
	11-15years	91	29.6	29.6	100.0
	Total	307	100.0	100.0	

Source: own survey SPSS V20 (2020)

The Table 4.1 presents frequency and percentage of the respondents by demographic/background variables. Relatively most participants (52.1%) are in the age category of 26-35. 34.9% of participants are aged 36-45 years old, 13.0% are in the age group of 18 - 25 years old. On the other hand out of total 307 participants involved in this study of which 54.7% were male and 45.3% were female.

Further 52.4% of the respondents hold a bachelor degree, while, 41.0 % of the respondents hold a Master degree. The remained, 3.6% were having educational level of college diploma. In addition out of the total 307 participants involved in this study 35.2% of participants are tenured in Ethio Telecom for 1-5 years. 35.2% of participants are also tenured in Ethio Telecom for 6-10yearsThe remaining 29.6% are tenured in Ethio Telecom for 11-15years Relatively more than half of participants (64.8%) are tenured for more than 6 years the organization which in turn gave relatively better opportunity to elicit analyzable information and data on investigating HRM efficiency improvement in context of ERP.

#### **4.4. The Improvement of HRM Efficiency in Ethio Telecom in ERP context**

Ethio telecom introduces ERP system with the vision of obtaining world class telecom service provider. To be a world class operator there are many requirements set by ITU that all telecom operators across the world need to fulfill, and some of the requirements are having a well-defined business process as per the international standard named Tom and PCMM, supporting all this business process by information system mainly ERP and deploying the best quality of service for the customers in all aspects of product and services (Enderas, 2017).

Hence; for the fulfilling the expected requirement and to support the steady growth of the country's economic development Ethio telecom implemented an integrated ERP system on December 01/2011 on a modular manner. Today's

firms are finding that they can become more flexible and productive by coordinating their business processes more closely and, in some cases, integrating these processes so they focus on efficient management of resources and customer service (Abdulahi , Aychilum , Dawit , Ermyas, & Kidane , 2013).So, it is necessary to evaluate the outcome of ERP implementation in terms of improved efficiency. Especially HRM efficiency helps to reveal the ability of various HR functions to avoid waste-be it of time, money, or effort.

HR operations, such as managing payroll or managing employee service centers, can also apply concepts of efficiency in the sense of minimizing waste (Maguire , Ojiako , & Said , 2010). And as part of descriptive survey this study assessed respondents’ attitudes/beliefs /think/know/feel about HRM efficiency improvement via questions with 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).The table below presented surveyed results of HRMEI by the responses to the query in the survey.

**Table 4.2<sub>a</sub>: Frequency and percentage distribution of the respondents by degree of agreement to 5-point Likert-type scale of HRMEI**

<b>HR administrative processes ensure the availability of employee data at any given time</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	4
	2	9	2.9	2.9	2.9	
	3	55	17.9	17.9	20.8	
	4	164	53.4	53.4	74.3	
	5	79	25.7	25.7	100	
	Total	307	100	100		
<b>HR is efficient in ensuring that all relevant data / information and resources are made available to support the strategic planning process</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
Valid	1	0	0	0	0	4
	2	0	0	0	0	
	3	151	49.2	49.2	49.2	
	4	156	50.8	50.8	100	
	5	0	0	0	100	
	Total	307	100	100		

<b>HR professionals can demonstrate more about knowledge and skills to deliver HR products and services</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	4
	2	0	0	0	0	
Valid	3	151	49.2	49.2	49.2	
	4	156	50.8	50.8	100	
	5	0	0	0	100	
	Total	307	100	100		

Source: own survey SPSS V20 (2020)

As the result illustrated on the above table, concerning of ensuring the availability of employee data at any given time 164 (53.4%) % of the respondents were in the agreement level, while 55 (17.9%) were neutral. More over the median distribution of the response was found 4, which both value show the value of “agree”. This implies that after ERP implementation HR an administrative process ensures the availability of employee data at any given time. Concerning of ensuring that all relevant data / information and resources are made available to support the strategic planning process 156 (50.8%)% of the respondents were in the agreement level, while 151(49.2%) were neutral. More over the median distribution of the response was found 4, which both value show the value of “agree”. This implies that after ERP implementation organization’s HR is efficient in ensuring that all relevant data / information and resources are made available to support the strategic planning process. Further, as the result illustrated on the above table, concerning of demonstrating more about knowledge and skills to deliver HR products and services 156 (50.8%) % of the respondents were in the agreement level, while 151 (49.2%) were neutral. More over the median distribution of the response was found 4, which both value show the value of “agree”. This implies that after ERP implementation HR professionals can demonstrate more about knowledge and skills to deliver HR products and services.

**Table 4.2<sub>b</sub>: Frequency and percentage distribution of the respondents by degree of agreement to 5-point Likert-type scale of HRMEI**

<b>HR provides more inputs timeously / pro-actively for the strategic planning process</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	2
Valid	2	172	55.9	55.9	55.9	
	3	135	44.1	44.1	100	
	4	0	0	0	100	
	5	0	0	0	100	
	Total	307	100	100		
<b>HR contributes efficiently to the strategic debate in all segments of the balance scorecard</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	2
Valid	2	176	57.4	57.4	57.4	
	3	131	42.6	42.6	100	
	4	0	0	0	100	
	5	0	0	0	100	
	Total	307	100	100		
<b>HR is efficient in scanning the internal and external environment and provides more inputs for the strategic planning process</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	2
Valid	2	158	51.5	51.5	51.5	
	3	149	48.5	48.5	100	
	4	0	0	0	100	
	5	0	0	0	100	
	Total	307	100	100		

Source: own survey SPSS V20 (2020)

As the result shown on the above table, concerning of providing more inputs timeously / pro-actively for the strategic planning process 135 (44.1%) % of the respondents were neutral, even 172 (55.9%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “agree”. This implies that after ERP implementation HR doesn’t provide more inputs timeously / pro-actively for the strategic planning process. Concerning of

contributing efficiently to the strategic debate in all segments of the balance scorecard 131 (42.6%) % of the respondents were neutral, even 176 (57.4%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “agree”. This implies that after ERP implementation HR is still yet in providing more inputs timeously / pro-actively for the strategic planning process. Further, as the result illustrated on the above table, concerning of efficiently scanning the internal and external environment and provides more inputs for the strategic planning process 149 (48.5%) % of the respondents were neutral, even 158 (51.5%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HR is still yet in efficiently scanning the internal and external environment and provides more inputs for the strategic planning process.

**Table 4.2<sub>c</sub>: Frequency and percentage distribution of the respondents by degree of agreement to 5-point Likert-type scale of HRMEI**

<b>After ERP implementation HRM participates efficiently in the organization strategic planning process.</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	2
Valid	2	201	65.47	65.47	51.1	
	3	31	10.11	10.11	75.58	
	4	75	24.42	24.42	100	
	5	0	0	0	100	
	Total	307	100	100		

<b>After ERP implementation HRM participates efficiently in HRM process reengineering</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	2
Valid	2	189	61.56	61.56	61.56	
	3	63	20.53	20.53	82.09	
	4	55	17.91	17.91	100	
	5	0	0	0	100	
	Total	307	100	100		
<b>After ERP implementation the HRM administrative system enables the processing of transactions with efficient work flow management.</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	2
Valid	2	278	90.55	90.55	90.55	
	3	29	9.45	9.45	100	
	4	0	0	0	100	
	5	0	0	0	100	
	Total	307	100	100		
<b>ERP system is user-friendly and improve the efficiency of the HR processes</b>						
		Frequency	Percent	Valid Percent	Cumulative Percent	Median
	1	0	0	0	0	2
	2	286	93.15	93.15	93.15	
Valid	3	21	6.85	6.85	100	
	4	0	0	0	100	
	5	0	0	0	100	
	Total	307	100	100		

Source: own survey SPSS V20 (2020)

As implied from the above Table 4.2<sub>c</sub> concerning of participating efficiently in the organization strategic planning process 31 (10.11%) of the respondents were neutral; meanwhile, 201 (65.47%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HRM is still yet in participating efficiently in the organization strategic planning process. Concerning of participating efficiently in HRM process reengineering 63 (20%) of the respondents were neutral; meanwhile, 189 (61.56%) were disagree. More over the

median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HRM is still yet in participating efficiently in HRM process reengineering. Further, as the result illustrated on the above table, concerning of HRM administrative system enabling the processing of transactions with efficient work flow management 29 (9.45%) of the respondents were neutral; meanwhile, 278 (90.55%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HRM administrative system is still yet in enabling the processing of transactions with efficient work flow management. As implied from the above Table 4.2c concerning of user-friendly and improve the efficiency of the HR processes 21 (6.85%) of the respondents were neutral; meanwhile, 286 (93.15%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP system is still yet in being user-friendly and improves the efficiency of the HR processes. Previous studies also complied with this finding. For instance, Abdulahi , Aychilum , Dawit , Ermyas, & Kidane (2013) revealed that in Ethio telecom there is in adequate training that create gap among the staff and staffs learn by themselves through trial and error. Even the scholars recalled that still there are staff that prefers manual system. Meanwhile, most literatures advised that the organizations can realize the full value of ERP only when it can be efficiently transferred between staffs in respect of HR operations.

#### **4.5. The Mediating role of HRMEI in the Relationship between ERP implementation impact dimensions and service quality**

Organizational impact and user satisfaction were the two most frequently used measures for ERP implementation impact. So, this study examined the mediating role of HRMEI in the relationship between ERP organizational impact and user satisfaction & service quality and employee productivity.

**4.5.1. Cross Tabulation (Mean ERPUS\*Mean HRMEI & Mean SQ \*Mean HRMEI)**

The study determined whether or not there was a relationship (association) between the proportion of ERPUS\*HRMEI & SQ \*HRMEI Medians. Note cross tabulation (on page 35\_40& 41-45) that, for instance, the most popular median value in this study is 3 (50% of the proportion is referred to ERPUS); whilst, 33% of the proportion is referred to HRMEI. For the case of SQ \*HRMEI Medians the most popular mean value in this study is 3(50% of the proportion is referred to SQ), whilst 31.8% of the proportion is referred to HRMEI.

**4.5.2. Chi-square test for association ERPUS, HRMEI & SQ, HRMEI Median values**

*Table 4.3: Chi-Square Tests for ERPUS and HRMEI Mean values*

<b>Chi-Square Tests</b>			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	596.812 <sup>a</sup>	305	.000
Likelihood Ratio	413.334	305	.079
Linear-by-Linear Association	122.501	1	.000
N of Valid Cases	307		
a. 409 cells (98.8%) have expected count less than 5. The minimum expected count is .00.			

**Table 4.4: Chi-Square for SQ and HRMEI Median values**

<b>Chi-Square Tests</b>			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	523.907 <sup>a</sup>	305	.000
Likelihood Ratio	389.590	305	.000
Linear-by-Linear Association	130.173	1	.000
N of Valid Cases	307		
a. 219 cells (95.2%) have expected count less than 5. The minimum expected count is .01.			

Source: own survey SPSS V20 (2020)

When reading the tables above we are interested in the results of the "Pearson Chi-Square" rows. We can see here that  $\chi (1) = 596.812^a$ ,  $p = .000$  and  $523.907^a, .000$ . This tells us that there is statistically significant association between ERPUS and HRMEI median values & SQ and HRMEI median values

#### **4.5.3. Cross Tabulation (Median ERPOI\*Median HRMEI)**

The **study determined whether or not there was** a relationship (association) between the proportion of ERPOI\*HRMEI Medians. Note **cross tabulation (on page 46-50 & 51-55)** that, for instance, the most popular median value in this study is 3 (50% of the proportion is referred to ERPOI); whilst, 50% of the proportion is referred to HRMEI.

**Table 4.5: Chi-Square for ERPOI and HRMEI Median values**

<b>Chi-Square Tests</b>			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	621.230 <sup>a</sup>	305	.000
Likelihood Ratio	448.590	305	.000
Linear-by-Linear Association	133.449	1	.000
N of Valid Cases	307		
a. 316 cells (98.1%) have expected count less than 5. The minimum expected count is .01.			

When reading the table above we are interested in the results of the "Pearson Chi-Square" rows. We can see here that  $\chi(1) = 621.230^a$ ,  $p = .000$ . This tells us that there is statistically significant association between ERPOI and HRMEI median values

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION**

This chapter presents findings, conclusion and some relevant recommendations to practice as well as for future researchers based on objective of the study mentioned in Chapter One.

#### **5.1 Summary of Research Findings**

In this research, the HRM efficiency of improvement in context of ERP was investigated. The reliability and validity of the constructs and items were tested as per the recommendations made in literatures. To test the research hypotheses, multiple regression analysis has been applied and the findings are summarized as follows.

- Concerning of ensuring the availability of employee data at any given time 164 (53.4%) % of the respondents were in the agreement level, while 55 (17.9%) were neutral. More over the median distribution of the response was found 4, which both value show the value of “agree”. This implies that after ERP implementation HR an administrative process ensures the availability of employee data at any given time.
- Regarding to ensuring that all relevant data / information and resources are made available to support the strategic planning process 156 (50.8%) % of the respondents were in the agreement level, while 151(49.2%) were neutral. More over the median distribution of the response was found 4, which both value show the value of “agree”. This implies that after ERP implementation organization’s HR is efficient in ensuring that all relevant data / information and resources are made available to support the strategic planning process.

- In respect of demonstrating more about knowledge and skills to deliver HR products and services 156 (50.8%) % of the respondents were in the agreement level, while 151 (49.2%) were neutral. More over the median distribution of the response was found 4, which both value show the value of “agree”. This implies that after ERP implementation HR professionals can demonstrate more about knowledge and skills to deliver HR products and services.
- Concerning of providing more inputs timely / pro-actively for the strategic planning process 135 (44.1%) % of the respondents were neutral, even 172 (55.9%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “agree”. This implies that after ERP implementation HR doesn’t provide more inputs timely / pro-actively for the strategic planning process.
- Regarding to contributing efficiently to the strategic debate in all segments of the balance scorecard 131 (42.6%) % of the respondents were neutral, even 176 (57.4%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “agree”. This implies that after ERP implementation HR is still yet in providing more inputs timely / pro-actively for the strategic planning process.
- Concerning of efficiently scanning the internal and external environment and provides more inputs for the strategic planning process 149 (48.5%) % of the respondents were neutral, even 158 (51.5%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HR is still yet in efficiently scanning the internal and external environment and provides more inputs for the strategic planning process.
- Concerning of participating efficiently in the organization strategic planning process 31 (10.11%) of the respondents were neutral; meanwhile, 201 (65.47%) were disagree. More over the median distribution of the

response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HRM is still yet in participating efficiently in the organization strategic planning process.

- Concerning of participating efficiently in HRM process reengineering 63 (20%) of the respondents were neutral; meanwhile, 189 (61.56%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HRM is still yet in participating efficiently in HRM process reengineering.
- Concerning of HRM administrative system enabling the processing of transactions with efficient work flow management 29 (9.45%) of the respondents were neutral; meanwhile, 278 (90.55%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP implementation HRM administrative system is still yet in enabling the processing of transactions with efficient work flow management.
- Concerning of user-friendly and improve the efficiency of the HR processes 21 (6.85%) of the respondents were neutral; meanwhile, 286 (93.15%) were disagree. More over the median distribution of the response was found 2, which both value show the value of “disagree”. This implies that after ERP system is still yet in being user-friendly and improves the efficiency of the HR processes.
- $\chi(1) = 596.812a, p = .000$  and  $523.907a, .000$ . This tells us that there is statistically significant association between ERPUS and HRMEI median values & SQ and HRMEI median values
- $\chi(1) = 621.230a, p = .000$ . This tells us that there is statistically significant association between ERPOI and HRMEI median values.

## 5.2. CONCLUSION

The large numbers of studies have been conducted by various research scholars and academicians across the globe, to investigate ERP implementation impact dimensions. This research work is an attempt to investigate HRM efficiency improvement to the extent it correlates over the relationship between ERP implementation impact dimensions (ERP Organizational Impact and ERP users' satisfaction) & employee productivity, service quality and employee innovation. The study was conducted by drawing a sample of 307 employees from the divisions of human resources, finance & sourcing and facility divisions of the Ethio telecom. Relying on existing literature; variables were considered and offered to respondents in form of a closed ended questionnaire to mark their responses on a five point Likert scale.

The collected data was analyzed with the help of statistical package for social science (SPSS17). Based on the aforementioned findings the study led to the following conclusive issues i.e. HRMEI has mediating role to correlate over the relation between ERPUS & EP and SQ. In addition it has mediating role to correlate over the relation between ERPOI & EP and SQ. Anyway Ethio telecom is still too far in automating HR operations in its ERP installation. Moreover Ethio telecom is not at satisfactory level in realizing ERP implementation for efficient utilization of HRM

### **5.3. RECOMMENDATION**

Based on the findings and the conclusions made before, the following recommendations are provided: In limited resource setting it is better to put effort on making ERP user-friendly and improve the efficiency of the HR processes.

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

The major purpose of Enterprise resource planning (ERP) system implementation is to reinforce the efforts and performance of employees towards the achievement of organizations goals and objectives, Ethio Telecom has to do a lot by delivering the required training programs for both end-user as well as super users to bring the required level of skills on the system.

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# APPENDIX

## A QUESTIONNAIRE

### Informed consent form

Dear, respondent,

I am a final year Masters in Public Management and Policy (PMP) program student at Addis Ababa University. As a partial fulfillment of the program, I am undertaking a research on **“Enterprise Resource Planning Implementation in Improving the Efficiency of Human Resource Management in Public Enterprises: - The Case of Ethio telecom.”** The research results could be used as an input for policy makers, academicians, practitioners and other interested parties on the topic of interest.

All information provided will be treated confidentially and will only be used for academic purposes. Moreover, your participation has to be voluntary and based on informed consent. Therefore, if you have the willingness, please answer the questions as thoroughly, objectively and honestly as possible according to the instructions stated in the body of the questionnaire.

Thank you in advance for your willingness to fill this questionnaire by taking your precious time.

Agermas Shayle

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Email: [agermasshayle@gmail.com](mailto:agermasshayle@gmail.com)

## I. General Demographic Information

S/N	Profile of respondents	Responses	
1	How old are you?	18-25 yrs.	
		26-35 yrs.	
		36-45 yrs.	
		Above 45 yrs.	
2	Your gender / sex	Male	
		Female	
3	Your level of education	College diploma	
		First Degree	
		Second Degree	
		Above Second Degree	
4	Year of service in Ethio telecom.	1 - 5 yrs.	
		6 - 10 yrs.	
		11 - 15 yrs.	
		Above 15 yrs.	

## II. HRM Efficiency Improvement Questions

The following questions are designed in order to measure you your opinion of agreement and disagreement using the 5-point Likert Scale items. Therefore, please respond by making a tick mark (✓) where appropriate. 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

S/N	Questions	1	2	3	4	5
1	After ERP implementation HRM participates efficiently in the organization strategic planning process.					
2	After ERP implementation HRM participates efficiently in HRM process reengineering					
3	After ERP implementation the HRM administrative system enables the processing of transactions with efficient work flow management.					
4	ERP system is user-friendly and improve the efficiency of the HRM processes					
5	After ERP implementation HR administrative processes ensure the availability of employee data at any given time					
6	After ERP implementation HR efficiently manages the HR operational processes					
7	After ERP implementation HR contributes efficiently to the strategic debate in all segments of the balance scorecard.					
8	After ERP implementation HR provides more intellectual leadership on the employee segment of the balance scorecard.					
9	After ERP implementation HR is efficient in scanning the internal and external environment and provides more inputs for the strategic planning process.					
10	After ERP implementation Information provided by HR for the strategic planning process is becoming more relevant and useful.					
11	After ERP implementation HRM provides more inputs timeously / pro-actively for the strategic planning process.					

S/N	Questions	1	2	3	4	5
12	After ERP implementation HR is efficient in ensuring that all relevant data / information and resources are made available to support the strategic planning process					
13	After ERP implementation HR plays more facilitation role in the strategic debate					
14	After ERP implementation HR plays more facilitation role in the strategic debate					
15	After ERP implementation HR professionals can demonstrate more about knowledge of the business (in order to contribute efficiently to the planning process)					
15	After ERP implementation HR professionals can demonstrate more about knowledge of the business (in order to contribute efficiently to the planning process)					
16	After ERP implementation HR professionals can demonstrate more about knowledge and skills to deliver HR products and services					
17	After ERP implementation HR professionals can move the people side of the organization towards business goals					
18	After ERP implementation HR professionals can demonstrate new ways of looking at traditional HR problems					
19	After ERP implementation HR professionals could have personal credibility					
20	After ERP implementation HR policies and practices are more aligned with strategic business objectives					
21	After ERP implementation the nature of HR practices is more enabling (supportive of the organization business objectives) and not restrictive.					

### III. ERP users' satisfaction questions with 5-point likert-type scale

Please respond by making a tick mark (✓) where appropriate. 1 = Quite dissatisfied, 2 = Dissatisfied, 3 = Neutral, 4 = satisfied, and 5 = Very satisfied

S/ N	Improvement of the efficiency of HRM practices	Responses				
		1	2	3	4	5
1	To what extent are you satisfied in the improvement of HRM activities after the implementation of an ERP system?					
2	How would you rate ERP system in providing the information content you need?					
3	How would you rate ERP system in providing reports that seem to be exactly what you need?					
4	How would you rate ERP system in providing sufficient information?					
5	How would you rate ERP system in being accurate?					
6	How would you rate ERP system in presenting the output in a useful format?					
7	How would you rate ERP system in presenting the output in a clear format?					
8	How would you rate ERP system in displaying the format with the clear information?					
9	How would you rate ERP system in being user friendly?					
10	How would you rate ERP system in being easy to use?					
11	How would you rate ERP system in providing the information you need in time?					
12	How would you rate ERP system in providing up-to-date information?					

#### IV. ERP Organizational Impact Questions with 5-point likert-type scale

Please respond by making a **tick mark** (✓) where appropriate. 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

S/N	Statement	Responses				
		1	2	3	4	5
1	Will the ERP aid in improving the process and the content of the decisions?					
2	Will the ERP aid in the meetings and internal discussions?					
3	Will the ERP make it possible for a better coordination among functional areas of the company?					
4	Will the ERP empower better evaluation of annual budget reports?					
5	Will the ERP aid in increasing the company's profit margin?					
6	Will the ERP aid in increasing market share?					
7	Will the ERP improve strategic planning?					
8	Will the ERP improve communication among organizational units from different regions?					
9	Will the ERP aid in coordinating regional, domestic and worldwide activities?					
10	Will the ERP aid in closely controlling its clients and suppliers?					
11	Will the ERP make it possible for the company to add more information to the services?					

## V. Service quality Questions with 5-point likert-type scale

Please respond by making a **tick mark** (✓) where appropriate. 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree

S/N	Statement	Responses				
		1	2	3	4	5
1	ERP facilitates for the customer quality standards and expectations are easily identified					
2	After implementing ERP so many internal project quality standards and expectations are identified					
3	ERP facilitates for the organizational quality standard and expectations are easily identified					
4	After implementing ERP the organization can make difference in maintaining quality standard and expectation					
5	ERP makes things easy in determining business processes involved by organization's quality plan					
6	ERP creates opportunities for improvement in determining project goals, quality standards, critical success factors and metrics					

**VI. Employee Productivity Questions with 5-point likert-type scale**

S/N	Questions	Responses	
1	What rating did you receive from your supervisor on your most recent performance appraisal on your current job this year?	Excellent	
		Very good	
		Good	
		Satisfactory	
		Poor	

**THANK YOU!!!**

