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DEPARTMENT OF BUSINESS ADMINISTRATION AND INFORMATION SYSTEM

ASSESSMENT OF PRACTICES AND CHALLENGES OF IMPLEMENTING ICT PROJECT MANAGEMENT IN ETHIO-TELECOM

BY

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IMPLEMENTING ICT PROJECT MANAGEMENT IN ETHIO-TELECOM**

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MASTER OF ARTS DEGREE IN PROJECT MANAGEMENT

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STATEMENT OF DECLARATION

I, Meaza Tegenu, declare that this research entitled “**ASSESSMENT OF PRACTICES AND CHALLENGES OF IMPLEMENTING ICT PROJECT MANAGEMENT IN ETHIO-TELECOM**” is the outcome of my own effort and study. This study has not been presented for the award of Degree or Diploma Program in this or any other institution. All sources of materials used for the project have been duly acknowledged.

Meaza Tegenu

Signature: _____

Date: _____

CERTIFICATION

This is to certify that Meaza Tegenu has completed her thesis entitled “**ASSESSMENT OF PRACTICES AND CHALLENGES OF IMPLEMENTING ICT PROJECT MANAGEMENT IN ETHIO-TELECOM**”, In my opinion all the materials used for the thesis have been duly acknowledged and her thesis is appropriate to be submitted as a partial fulfillment for the requirement of Master of Arts Degree in Project Management (MAPM).

Advisor: ***ABDUREZAK MOHAMMED(PHD)***

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LIST OF ACRONYMS / ABBREVIATIONS

CBS: Converging Billing System

CRM: Customer Relation Management

ETC: Ethiopian Telecommunication Corporation

GTP: Growth Transformation Plan

ICT: Information Communication Technology

ITU: International Telecommunications Union

MCIT: Ministry of Communication and Information Technology

PMBOK: Project Management Body of Knowledge

PMI: Project Management Institute

SPSS: Statistical Package for Social Science

TEP: Telecom Expansion Project

ZTE: Zhong Xing Telecom Corporation

ABSTRACT

This research is conducted to assess the practice of project management knowledge areas and challenges in implementing ICT projects in Ethio-Telecom. To achieve this purpose questionnaire were distributed among 100 Telecom Expansion Projects employee participated in the implementation of these projects and selected using simple random sampling. Apart from survey questionnaires, interview with project managers and document reviews were also conducted. Finally, the collected was analyzed using descriptive statistics by applying SPSS. Project scope management, project time management, project quality management, project risk management, project communication and project stakeholders knowledge area are highly practiced during the implementation of the ICT projects whereas project integration management project time management and project procurement management knowledge areas are practiced at low level lack of relevant training and procurement delay were the main challenges during the implementation of the ICT projects . Therefore, it's recommended that the organization should give special attention to the least practiced knowledge area i.e. project integration management, project cost management, project human resource management and project procurement management knowledge areas. The company should introduce different systems/ tools such as project management software as it is very important in implementing the ICT projects. In addition, the organization should introduce and strengthen project management office. This office helps in practicing the project management knowledge areas (PMI, 2013).

Key Words: Project management, ICT, Ethio telecom,

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Information technology and communication has a significant impact on organizations over the past three decades. They are viewed as means of providing competitive edge and hence, they are becoming part of the organization strategy. Information systems have reduced transaction costs, altered nature of operations in organizations, enabled firms to develop closer relationships with their clients and created new opportunities for organizations. Recent generations of information systems in public sector support electronic delivery of public services to the citizens and business enterprises by enabling them to make most of their transactions with the government through electronic channels such as the Internet (Bellamy et al 1998, Bekkers et al 1999).

Today the world has turned into a global village (Gholami et al, 2008) as a result of numerous ICT projects that have been implemented. According to 2014 annual report by International Telecommunications Union (ITU), about 3 billion people (40% of the world's population) are using the internet and the number of mobile-broadband subscriptions have reached 2.3 billion with 55% of them in developing countries.

A study in the UK by a special interest group associated with organizational aspects of IT indicates that IT project success rate was around 20-30% at best, with 70% of IT projects failing in some respect. Over 61% of projects were believed to have failed. More than three quarters went over their schedules by 30% or more; more than half exceeded their budgets by a substantial margin. (KPMG Canada Survey, 1997)

Project management processes are very helpful to the telecom companies like ethio telecom, this is because it helps the company to focus on resource and time while moving its business forward strategically, so that, ICT projects pass through the project implementation process, among others project management practices were the most important part of the project management process usually implemented throughout the project life cycle.

ICT projects are managed in a structured way using a subset of project management method, ensuring that ICT projects are fully documented and controlled at all stages of implementation.

In information communication technology (ICT) sector, Project Management has been found as one of the most important aspects of the entire development process of IT. The main purpose of project management is to ensure the projects finish on time, within budget limit, with in defined scope and desired quality for achieving other project objectives.

Information communications technology projects are usually thought as merely a set of activities requiring only hardware, networking systems, software and applications with the end goal of introducing technological changes. As a matter of fact, managing ICT projects are quite challenging which need proper project management practices until the closure of the project (Schwable, 2014). Basically, such endeavor primarily is attempted by giving a due attention the strategically context; larger goals of the organization.

The ICT sector in Ethiopia has seen substantial growth over the last decade. Mobile telecommunications grew from a mere 1.2 million subscribers in 2007 to around 23.7 million subscribers in 2013 (MCIT 2016). The voice communication geographic coverage has reached 64%, a progress by all standards considering Ethiopia's start from a very lower base in 2005. The use of mobile for Internet is growing. A Research ICT Africa Network survey shows that the proportion of mobile Internet users was 1.2% in 2012 driven by increasing use of social networks such as Facebook. Ethiopia reached the million Facebook users' level in 2013 with an increase in the users by 20% between 2012 and 2013. The demand for mobile services and Internet access continues to grow exponentially. The government has continued to invest in the communications infrastructure to meet this growing demand. The second phase of a vendor credit project between the Ethio Telecom and two Chinese companies - Huawei Technologies and Zhongxing Telecom Corporation (ZTE) in the amount of US\$1.6 billion was approved in 2013. This follows the completion of a first round of vendor credit in the amount of US\$1.5 billion that was signed in 2007(MCIT 2016).

Recently, Ethio telecom has implemented the Telecom expansion program (TEP) to become a world class operator, to expand and improve the network coverage in both rural and urban areas, the quality of service provided, to increase the number of mobile and data users and to enhance customer satisfaction. From this immense country level project, the ICT program is the core and the leading one to increase the ICT expansion and availability & accessibility of the service.

This indicates that the company is applying project management practices in meeting the objectives of these huge projects. But most ICT projects are failed to meet the planned objectives

due to lack project management practices and different challenges in executing these projects and practicing project management knowledge areas. Therefore, the aim of this study is to assess the project management practices and related challenges in implementing these ICT projects.

1.2 Background of the Organization

Ethio Telecom, previously known as the Ethiopian Telecommunications Corporation (ETC), is an integrated telecommunications services provider in Ethiopia, providing all telecommunication services. Since its establishment as ethio telecom on 29th day of November 2010 as per the council of Ministers Regulation No 197/2010, from the ambition of supporting the steady growth of our country, within the Growth Transformation Plan (GTP), the company has registered several accomplishments required to transform the company to a modern telecom service provider by implementing and managing two consistent huge projects.

The first one is a Next generation network (NGN) project contract agreement worth of US1.5 Billion Dollar of vendor financing in 2006 with Chinese Zhongxing Telecom Enterprise (ZTE) to come up with dynamic technological revolution in the telecom industry and with great vision to see the entire country connected with state of the art of Information Communication Technology (ICT) infrastructure that provide highly qualitative, reliable and secure communication service at affordable price which support data, voice and multimedia. This project contract agreement covered projects like Mobile, Fixed Line Next Generation Network (LF-NGN) Core network, Access network to all services (Wire and Wireless), Code Division Multiple Access (CDMA), urban and rural, Transport network (Optical and Microwave), Network Operational Center (NOC), Call center and IP Bearer Network (Company statement of work agreement,2006).

And the second huge project that was managed and deployed recently is called Telecom Expansion Program (TEP) Kicked off in January 2013 with a total project cost of 1.6 Billion USD. This project is a continuation of the NGN project. The main objectives of these projects were to achieve target objectives of GTP on mobile and Broadband (BB) service as defined by the FDRE government, improve network Quality of service (QoS), increase coverage and capacity on mobile services, improve 3G network coverage in rural areas, introduce LTE in Addis Ababa on hotspot area, build strong infrastructure with latest technology and enhance and modernize the information system domain (TEP charter, 2013).

In order to manage and implement such kind of huge projects, the organization challenged in implementing and practicing of project management. Hence, it is important to assess the practices

and challenges of implementing ICT project management in ethio telecom. As such, those practices of project management and challenges are the key ingredient to projects implementation.

1.3 Statement of the Problem

Information and communication technologies for development refers to the application of information and communication technologies toward social, economic, and political development, with an emphasis on helping poor and marginalized people and communities. ICT projects have been noted by several researchers to be facing several implementation challenges including failure in US, Europe, Australia and other parts of the globe. Previous study from the year 2014 states 80% new products fail, 70% of software projects fail due to poor requirements (Randell, et al, 2014). In 2009 the worldwide cost of failed IT projects was estimated to be as high as Six Trillion USD, using calculations by Roger Seasons. (Kim &Mike Orzen, 2012) relook at the numbers and make an estimate of the impact of IT failure on the global economy.

Ethio Telecom faces similar implementation challenges, despite the remarkable growth of ICT sector providing direct contribution to meet the GTP goal and increase opportunities to enhance development and create new market and of course, the telecommunications sector is one of the strategic pillars in the government's Growth and Transformation Plan (GTP II) of 2015, in which the state set an ambitious plan to increase telephony penetration 100m by 2020. Practicing of project management knowledge areas and implementation of ICT projects have remained a challenge experienced with projects being run by Ethio Telecom.

According to research ICT Africa.net (Adam, 2012), while Ethiopia has moved one step forward in expanding access to communication services through vendor credit from the Export-Import Bank of China; the scheme has brought the country two steps backwards in terms of innovation and competitiveness. And, the lack of competitiveness and innovation is evident in the absence of skills in planning, designing, implementation, and maintenance of communication networks, mobile applications, distributed databases, and IT-enabled services.

Based on the preliminary investigation that has been carried out by the researcher, the ICT projects at Ethio-Telecom challenged in implementing of these projects and practicing of project management knowledge areas. For example, ITSM-IT Service management was delayed for three years from the due date, it was expected to be finalized within one year period of time /August 2011-July 2012/ after it has been delayed, it was even delivered partially and the project is not yet

operational since some modules like incident management, change management, release and deployment and more modules are not fully provided yet and that is why the vendor couldn't get the Final Acceptance Certificate (FAC) , over budget is another problem i.e., Ethio-Telecom has been forced to pay additional cost due to so many reasons for instance, it has been required to pay double of its original cost for revenue assurance system for infrastructure expansion before implementing the solution, this is all because of specific problems related to project scope definition, requirement gathering and stakeholder analysis. This indicates that there are challenges that hinders implementation of ICT projects and a gap in practicing of project management knowledge areas which results in the end user refusal to accept the solution.

1.4 Basic Research Questions

In order to accomplish the objective of the study and keep focus on what is relevant for this research, the following research questions were developed:

- What is the extent to which ICT project management is practiced in Ethio Telecom?
- What are the challenges of implementing ICT project management in Ethio Telecom?

1.5 Objective of the Study

1.5.1 General Objective

The general objective of the study is to assess practices and challenges of implementing Information Communication Technology project management in ethio telecom.

1.5.2 Specific Objectives

- To assess the practice of project management knowledge areas in the implementation of the ICT projects in Ethio-telecom.
- To find out the challenges of implementing ICT project management in Ethio-telecom.

1.6 Significance of the Study

Findings of this study will benefit different stakeholders. The first significance of this research will help Ethio telecom's project managers to manage different ICT projects in informing the gap in practicing of project management knowledge areas and taking corrective measures to improve practicing of project management knowledge areas. Secondly it will help top-level officials of the organization in knowing the main challenges of implementing ICT project management and taking measures to solve these challenges. Thirdly it serves as a reference material for anyone who will

undertake a further study on the same or related topic in the company and in other companies. This study is also used other researcher in this area as a bench mark for referencing and comparing their results.

1.7 Scope of Study

This study was confined to assessing practices and challenges of implementing ICT project management in Ethio Telecom. The sample of the study comprised both management personnel and non-management level within the company who have participated in the implementation of ICT projects. Therefore, in this study, the researcher selected descriptive survey study design and simple random sampling method to gather all the relevant information and employed both quantitative and qualitative approaches. The research is conducted using structured questionnaires, interview questions and document reviews to increase the trustworthiness of the findings of the research.

1.8 Limitation of the Study

Limitations are matters and occurrence that arise in a study which are out of the researcher's control. Every study, no matter how well it is conducted and constructed, has limitation. Although the study has reached its purpose, there were some unavoidable limitations. The limitation of the study is mainly divided into two: Difficulty of getting secondary data available from the organization side linked to project management practices. And the second limitation is limitation of resource in conducted this study.

1.9 Definition of Key Terms

Project: A project is a temporary endeavor undertaken to create a unique product, service or result (PMI, 2013).

Project implementation: is the Process whereby project inputs are converted to project outputs.

Information Communication Technology (ICT): is defined as an umbrella that consists of hardware, software, networks, and media for collection, storage, processing, transmission, and presentation of information (World Bank Group, 2003).

Project management: is an application of knowledge, skills, tools and techniques to project activities to meet project requirements. This is accomplished through the application and

integration of the project management processes of initiation, planning, executing, monitoring and controlling and closing (PMI, 2013).

1.10 Organization of the Study

This study is organized into five chapters. The first chapter presents the background of the study, background of the organization, statement of the problem, objective of the study, research questions, significance of the study, scope and limitation of the study. The second chapter reviews literatures pertinent to the subject matter of the study. Then the third chapter presents the research methodology followed by data analysis and presentation, which is chapter four. On the final fifth chapter Summary, conclusions and recommendations, limitation and implications for further research are presented.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Project Management

According to PMBOK (2013) a project is a temporary endeavor undertaken to create a unique product, service or result. The temporary nature of projects indicates that project has a definite beginning and end. Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements PMBOK (2013).

2.1.2 Project Management Knowledge areas

According to PMI (2013) PMBOK® Guide a project management Knowledge Area is an identified area of project management defined by its knowledge requirements and described in terms of its component processes, practices, inputs, outputs, tools, and techniques. Although the Knowledge Areas are interrelated, they are defined separately from the project management perspective. According the PMI there are ten general project management knowledge areas which are: project integration management, project scope management, project time management, project cost management, project quality management, project human resource management, project communications management, project risk management, project procurement management and project stakeholder management. These ten Knowledge Areas are used in most projects most of the time PMI (2013).

Project Integration Management

Project integration management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the project management process groups. In the project management context, integration includes characteristics of unification, consolidation, communication, and integrative actions that are crucial to controlled project execution through completion, successfully managing stakeholder expectations, and meeting requirements (PMI, 2013).

Project Integration Management includes making choices about resource allocation, making trade-offs among competing objectives and alternatives, and managing the interdependencies among the project management Knowledge Areas. Project integration management Knowledge Areas includes the six processes (PMI, 2013):

- i. Develop project charter- it is the process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply organizational resources to project activities.
- ii. Develop project management plan- it is the process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The project's integrated baselines and subsidiary plans may be included within the project management plan.
- iii. Direct and manage project work-The process of leading and performing the work defined in the project management plan and implementing approved changes to achieve the project's objectives.
- iv. Monitor and control project work-The process of tracking, reviewing, and reporting project progress against the performance objectives defined in the project management plan.
- v. Perform integrated change control-The process of reviewing all change requests; approving changes and managing changes to deliverables, organizational process assets, project documents, and the project management plan; and communicating their disposition.
- vi. Close project or phase- The process of finalizing all activities across all the Project Management Process Groups to formally complete the phase or project.

Project Scope Management

According to PMI (2013) project scope management Knowledge Area comprises the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully. Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project. This Knowledge Area includes the six processes (PMI, 2013):

- i. Plan scope management- The process of creating a scope management plan that documents how the project scope will be defined, validated, and controlled.
- ii. Collect requirements - The process of determining, documenting, and managing stakeholder needs and requirements to meet project objectives.
- iii. Define scope - The process of developing a detailed description of the project and product
- iv. Create WBS - The process of subdividing project deliverables and project work into smaller, more manageable components.
- v. Validate scope- The process of formalizing acceptance of the completed project deliverables.

- vi. Control scope- The process of monitoring the status of the project and product scope and managing changes to the scope baseline.

Project Time Management

According to Saylor.org (2009), the definition of project success often includes completing the project on time. The importance of ensuring work proceeds efficiently within individual tasks, along with the interfacing of related tasks, is a key message in project time management (Pasian, 2011). The ultimate measure being project success, based on effective control of time management processes, tools and practices. The development and management of realistic project schedule and project plan is a primary responsibility of the project manager to complete the project on time. Accordingly, PMI (2013) PMBOK® Guide this knowledge includes the processes required to manage the timely completion of the project.

- i. Plan schedule management: The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
- ii. Define activities: The process of identifying and documenting the specific actions to be performed to produce the project deliverables.
- iii. Sequence activities: The process of identifying and documenting relationships among the project activities.
- iv. Estimate activity resources: The process of estimating the type and quantities of material, human resources, equipment, or supplies required to perform each activity.
- v. Estimate activity durations: The process of estimating the number of work periods needed to complete individual activities with estimated resources.
- vi. Develop schedule: The process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the project schedule model.
- vii. Control schedule: The process of monitoring the status of project activities to update project progress and manage changes to the schedule baseline to achieve the plan.

Project Cost Management

The Knowledge Area include processes that required to ensure the project is completed within the approved budget. Here, costs for the project have to be calculated by developing an estimate of the costs for the resources needed to complete project activities and resources have to be planned, by determining what resources (people, equipment and materials) and what quantities of each are needed to perform project activities. It includes the processes involved in planning, estimating, budgeting, financing, funding, managing, and controlling costs so that the project can be completed within the approved budget (PMI, 2013).

- i. Plan cost management-The process that establishes the policies, procedures, and documentation for planning, managing, expending, and controlling project costs.
- ii. Estimate costs- The process of developing an approximation of the monetary resources needed to complete project activities.
- iii. Determine budget-The process of aggregating the estimated costs of individual activities or work packages to establish an authorized cost baseline.
- iv. Control costs- The process of monitoring the status of the project to update the project costs and managing changes to the cost baseline.

Project Quality Management

According to PMI (2013) Project Quality Management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken. Project Quality Management uses policies and procedures to implement, within the project's context, the organization's quality management system and, as appropriate, it supports continuous process improvement activities as undertaken on behalf of the performing organization. Project Quality Management works to ensure that the project requirements, including product requirements, are met and validated. There are three processes which need to be included in this Knowledge Areas.

- i. Plan quality management: The process of identifying quality requirements and/or standards for the project and its deliverables and documenting how the project will demonstrate compliance with quality requirements.

- ii. Perform quality assurance: The process of auditing the quality requirements and the results from quality control measurements to ensure that appropriate quality standards and operational definitions are used.
- iii. Control quality: The process of monitoring and recording results of executing the quality activities to assess performance and recommend necessary changes.

Project Human Resource Management

According to PMI (2013) Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. Project team members may have varied skill sets, may be assigned full or part-time, and may be added or removed from the team as the project progresses. Project team members may also be referred to as the project's staff. Although specific roles and responsibilities for the project team members are assigned, the involvement of all team members in project planning and decision making is beneficial. Participation of team members during planning adds their expertise to the process and strengthens their commitment to the project. This project management Knowledge Area include the following four processes.

- i. Plan human resource management: The process of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan.
- ii. Acquire project team: The process of confirming human resource availability and obtaining the team necessary to complete project activities.
- iii. Develop project team: The process of improving competencies, team member interaction, and overall team environment to enhance project performance.
- iv. Manage project team: The process of tracking team member performance, providing feedback, resolving issues, and managing changes to optimize project performance.

Project Communications Management

Project Communications Management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information. Project managers spend most of their time communicating with team members and other project stakeholders, whether they are internal (at all organizational levels) or external to the organization. Effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or have an influence upon the project execution or outcome PMI (2013). According to PMI there are three processes under this knowledge area.

- i. Plan communications Management: the process of developing an appropriate approach and plan for project communications based on stakeholder's information needs and requirements, and available organizational assets.
- ii. Manage communications: the process of creating, collecting, distributing, storing, retrieving and the ultimate disposition of project information in accordance with the communications management plan.
- iii. Control communications: the process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met.

Project Risk Management

Project risk management deals with the processes of ensuring a proper risk identification, analysis and control during different phases of project. It enables the project team to take proactive responses and control the impact of risk events (PMI, 2013). The key components examined are risk management plan, risk identification and analyses, risk response plan and control risks.

- i. Plan risk management- The process of defining how to conduct risk management activities for a project.
- ii. Identify risks-The process of determining which risks may affect the project and documenting their characteristics.
- iii. Perform qualitative risk analysis-The process of prioritizing risks for further analysis or action by assessing and combining their probability of occurrence and impact.

- iv. Perform quantitative risk analysis-The process of numerically analyzing the effect of identified risks on overall project objectives.
- v. Plan risk responses-The process of developing options and actions to enhance opportunities and to reduce threats to project objectives.
- vi. Control risks- The process of implementing risk response plans, tracking identified risks, monitoring residual risks, identifying new risks, and evaluating risk process effectiveness throughout the project.

Project Procurement Management

This knowledge area deals with the processes involved in purchasing and acquiring the required resources from external suppliers. Procurement decisions depend upon the make or buy analyses in the initial phases of the project life cycle (PMI, 2013). The key components analyzed in this knowledge area are procurement management plan, procurement contract, controlling and closing procedures and documents.

- i. Plan Procurement Management-the process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.
- ii. Conduct Procurements-the process of obtaining seller responses, selecting a seller, and awarding a contract.
- iii. Control Procurements-the process of managing procurement relationships, monitoring contract performance, and making changes and corrections as appropriate.
- iv. Close Procurements-the process of completing each project procurement.

Project Stakeholder Management

Project stakeholder management deals with the processes of identifying and managing different stakeholders during different phases of project lifecycle. Stakeholders may have an impact on the project or the project may impact their concerns. These stakeholders are further used to create an effective communication plan as well (PMI, 2013). The key components analyzed are identifying stakeholders, management and engagement of stakeholders during different phases.

- i. Identify Stakeholders-The process of identifying the people, groups, or organizations that could impact or be impacted by a decision, activity, or outcome of the project; and analyzing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.

- ii. Plan Stakeholder Management-The process of developing appropriate management strategies to effectively engage stakeholders throughout the project life cycle, based on the analysis of their needs, interests, and potential impact on project success.
- iii. Manage Stakeholder Engagement-The process of communicating and working with stakeholders to meet their needs/expectations, address issues as they occur, and foster appropriate stakeholder engagement in project activities throughout the project life cycle.
- iv. Control Stakeholder Engagement-the process of monitoring overall project stakeholder relationships and adjusting strategies and plans for engaging stakeholders.

2.1.3 Project management model and practice

Project Management is the application of a collection of tools and techniques like CPM or network analysis, PERT and soon, to direct the use of diverse resources toward the accomplishment of a unique, complex, one-time task within time, cost and quality constraints. Each task requires a particular mix of these tools and techniques structured to the task environment and life cycle (from conception to completion) of the task (Turner & Muller, 2005). Projects are successful if they are completed on time, within budget, and to performance requirements. In order to bring the many components of a large project into control there is a large toolkit of techniques, methodologies, and tools. These techniques provide the tools for managing different components involved in a project: planning and scheduling, developing a product, managing financial and capital resources, and monitoring progress. Project management processes and techniques are used to coordinate resources to achieve predictable results. All projects may need some level of project management.

Successful management of projects requires using good practices and learning through experience. Companies may use standard project models (APM 2012, Garel 2013, PMI 2013) or tailor a specific project model for their unique needs in project management. However, the practice of project management does not necessarily follow the established model (e.g. Blomquist et al. 2010; Cicmil et al. 2006). Project managers and personnel may improvise to anticipate or respond to unforeseen events in the project situation or context (Chelariu et al. 2002, Leybourne 2006).

In order to achieve goals and planned results within a defined schedule and a budget, a manager uses a project. Regardless of which field or which trade, there are assortments of methodologies to help managers at every stage of a project from the initiation to implementation to the closure.

2.1.4 Complexity Theory and Project Management

Current management practices require adherence to rigid, global responses unsuitable for addressing the changing needs of most projects. Complexity Theory and Project Management shifts this paradigm to create opportunities for expanding the decision-making process in ways that promote flexibility and increase effectiveness. It informs readers on the managerial challenges of juggling project requirements, and offers them a clear roadmap on how to revise perspectives and reassess priorities to excel despite having an unpredictable workflow (Wanda et al, 2010)

Complexity theory helps understand the social behaviors of teams and the networks of people involved in and around a project. The ideas apply equally to small in-house projects as to large complicated programs. In this regard, ‘complexity’ is not a synonym for ‘complicated’ or ‘large’. Whilst the ideas of ‘complexity theory’ are applicable to all projects, size does have an impact. From a complexity theory perspective, every project is complex, the project team are working together to deliver their project and the process have to deal with issues and tensions within the project and issues and tensions (if not outright conflict) with stakeholders external to the project. The actions and influences of these external stakeholders trigger the need for the project team to adapt to its environment and engage proactively with the external stakeholders for the project as a whole to survive and deliver a successful outcome. And importantly the behavior of the team cannot be predicted from the behavior of any one person.

2.1.5 Information Systems Success Model

The importance of investing in new information systems (IS) architectures and infrastructures has become a topical issue within organizations. This is predominantly motivated by the need to deliver better value products and service through robust and responsive supply chains. With this in mind, business managers are seeking to use appropriate methods and techniques to appraise and justify the financial contribution of IS at strategic, operational and tactical levels. Yet, managers often express concern regarding their ability to appraise IS investments prior to committing financial and emotional resources (Irani, 2008).

Information systems success is considered critical to the field of information systems (SabHerwal et al, 2006) a review of literature reveals that a lot of research has been undertaken to measure the success of information system. The concept of IS success is widely accepted in IS research as the principal criterion for evaluating information systems (Rai et al., 2002)

Information systems quality is an important measure of IS success. A stream of research has been conducted to identify IS success measures. DeLone and McLean (D & M) introduced a comprehensive taxonomy to organize this diverse research. Based on a review of 180 empirical studies, they developed a model of “temporal and causal” interdependencies between six categories of IS success (DeLone and McLean, 1992). Seddon (1997) presented and justified a re-specified and extended version of the D & M model of IS success by splitting the D & M model into two variance submodules (of use and success) and eliminating the process model interpretation.

Information systems success theory proposes that system quality and information quality affect users' usage of and satisfaction with information systems, further determining project performance (DeLone and McLean, 2004). Service quality was later incorporated into the model. The new model argues that system quality, information quality and service quality affect usage and user satisfaction, further affecting net benefits such as increased knowledge sharing and lower costs (DeLone and McLean, 2004).

Since its inception information systems success theory has been widely applied and empirically validated in the contexts of traditional information systems and electronic commerce. Wixom and Todd (2005) noted that information quality and system quality affect data warehousing software users' satisfaction, perceived usefulness, and perceived ease of use and usage behavior. Zhang (2010) proposed that both system quality and information quality affect social networking users' satisfaction and sense of community. Song and Zahedi (2007) reported that system quality and information quality affect users' trust in health infomediaries. Lin (2008) noted that system quality and information quality affect virtual community user satisfaction. The information system success theory was used in this study to find out how user involvement affects performance of ICT projects a case of ethio telecom.

2.1.6 Change and Project Monitoring

Theory of Change (ToC) is a specific type of methodology for planning, participation, and evaluation that is used in the philanthropy, not-for-profit and government sectors to promote social change. Theory of Change defines long-term goals and then maps backward to identify necessary preconditions. Theory of Change explains the process of change by outlining causal linkages in an initiative, i.e., its shorter-term, intermediate, and longer-term outcomes.

Theory of change is both a process and a product. It should be seen as an on-going process of discussion-based analysis and learning that produces powerful insights to support program design, strategy, implementation, evaluation and impact assessment, communicated through diagrams and narratives which are updated at regular intervals.

The quality of a theory of change process rests on ‘making assumptions explicit’ and making strategic thinking realistic and transparent. Practical experience highlights that this is not straightforward to do, as these tap into deeper beliefs, values, worldviews, operational ‘rules of thumb’ and analytical lenses that all individuals in development bring to their work. It takes time and dialogue to be able to challenge assumptions. Power relations, both in the program’s context and within organizations, limit the ability to challenge established ways of working.

The idea of the Theory of change approach seems to have first emerged in the United States in the 1990s, in the context of improving evaluation theory and practice in the field of community initiatives. (Weiss, 1995). Yet the “current evolution draws on two streams of development and social programme practice: evaluation and informed social practice.” (Vogel, pp. 310, 2012). From the evaluation perspective, Theory of change is part of broader program analysis or program theory.

A Theory of Change can be developed retrospectively by reading program documents, talking to stakeholders and using monitoring and evaluation data. This is often done during evaluations reflecting what has worked or not in order to understand the past and plan for the future. The Theory of change and project monitoring was used in this study to determine the practice of project monitoring has an impact on ICT projects a case of Ethio telecom.

2.2 Empirical Review

Technology involves the generation of knowledge and processes to develop systems that solve problems and extend human capabilities. In other words, technology can change or alter how people access, gather, analyze, present, transmit and simulate information. The impact of technology is one of the most critical issues in education (Webber 2003). Moreover, the use of information and communication technology ICT creates a powerful learning environment and it transforms the learning and teaching process in which students deal with knowledge in an active, self-directed and constructive way. It is thus an important instrument to support new ways of teaching and learning which should be used to develop students' skills for cooperation, communication, problem solving and lifelong learning (Plompet., al 1996; Voogt, 2003).

Projects that focus on the effective use of information and communications technology for development (ICTD) have emerged in the last three decades of the 20th century. Studies have shown that ICTD projects have a high failure rate, in part because of poor project design and management. Government leaders must understand the process of managing projects and be aware of the tools available to raise project success rates. This briefing note begins by introducing three vital elements of ICTD projects - people, process, and technology. Defining, balancing, and integrating these elements can result in optimum project performance.

2.2.1 Top Management Support

In the list was Top management support, selecting a project manager with the required technical expertise, management experience and interpersonal skills to successfully manage the project, provide adequate resources for the project and provide incentives to the team members. The findings of the study pointed out that Top management support strongly affects the success of IT projects, Top Management is required to conduct regular review meetings to ensure and monitor the progress of the project, follow up with customers to determine general customer satisfaction and finally to recognize and reward the project team members upon the successful completion of the project. Top management support ensures the availability of resources and employee commitment towards the project. Based on the study it is determined that top management support is essential for the success of an IT Project.

2.2.2 Communication

Gharashe (2009) concluded in his study on analysis of factors influencing projects in Kenya that the quality of project management, operating environment, worker motivation, communication,

inadequate resources and organization of the project team as factors affecting project implementation. Mwadali (2006) found that inexperienced project managers, poor communication, poor monitoring and control systems negatively affect project management efficiency.

Effective communication in project implementation creates a common perception, changing behaviors and acquiring information. A failure in communication can negatively impact the project (Ruuska, 2007). The importance of communication in the success of a project is immense. Careful communication planning and setting the right expectations with all the project stakeholders is therefore extremely important.

2.2.3 Project Monitoring

According to Chua et al (2009), project success is not determined exclusively by the project manager, monitoring and control efforts. Similarly, Chen et al (2007) studied critical success factors for projects in Taiwan and concluded that project owners, team members, vendors and other related stakeholders who are directly or indirectly involved in the work all significantly influence the success of the projects. Chan et al (2004) examined three case studies of key performance indicators for measuring project implementation success in Hong Kong. He concluded that cost, time and quality were still three most important indicators of success in projects.

Pheng et al (2007) on the other hand carried out a study on how environmental factors affect the performance of the project manager. Nguyen (2004) and Pheng et al (2007) studied project success factors and identified: competent project manager, adequate funding, competent project team, commitment and availability of information. Mansfield et al (2006) found poor contract management, financing and payment arrangements, resource shortages, inaccurate estimates and overall price escalation as the major factors causing project delays.

2.2.4 Project Management performance

Nowadays, more and more organizations change their organizational culture towards project orientation. There is a big challenge for each organization to continually improve its project management processes to increase quality of outputs and satisfaction of customers. Measuring project management implementation maturity can assist in this effort by providing a valuable

framework for performance improvement. In the study by Andrej Miklosik (2015) Improving project management performance through capability maturity measurement aims to provide results of the research performed in the ICT sector in Slovakia using a standardized methodology. Results of the research show that typically, ICT companies in Slovakia have a standardized project management methodology in place and try to improve their project management processes.

However, there is quite a big space for improving their attitude towards continual improvement. In the study, factors of insufficient performance in several areas are being analyzed and solutions are being proposed to minimize their impact on project and company outputs. Over the past few years, many organizations have adopted a project-oriented approach both for external delivery processes and internal control processes. This decision has positive impacts on the organization, as it systemizes the work being delivered. In this sense, a project can be defined as a temporary organization, containing sources (people, budget, tools, etc.), existing over a specific time period with the objective to deliver project outputs.

There are many potential advantages for both organization and its customers, if work is being organized this way. However, there are many potential risks and problems that can occur if projects are not systematically managed with the use of a project management framework. The aim of the study is to assess practices and challenges for the implementation of project management in the ICT sector. This will be achieved by determining the practices of project management processes within these organizations and by identifying the challenges and describing the possible solutions for the challenges for the implementation of ICT project management.

2.3 Conceptual Framework

A conceptual model shows the associations and inter relations that have been found in the research material, it shows structure and coherence to the research by simplifying the research task (Fisher, 2007), and the figure 1 shows the conceptual framework of the study.

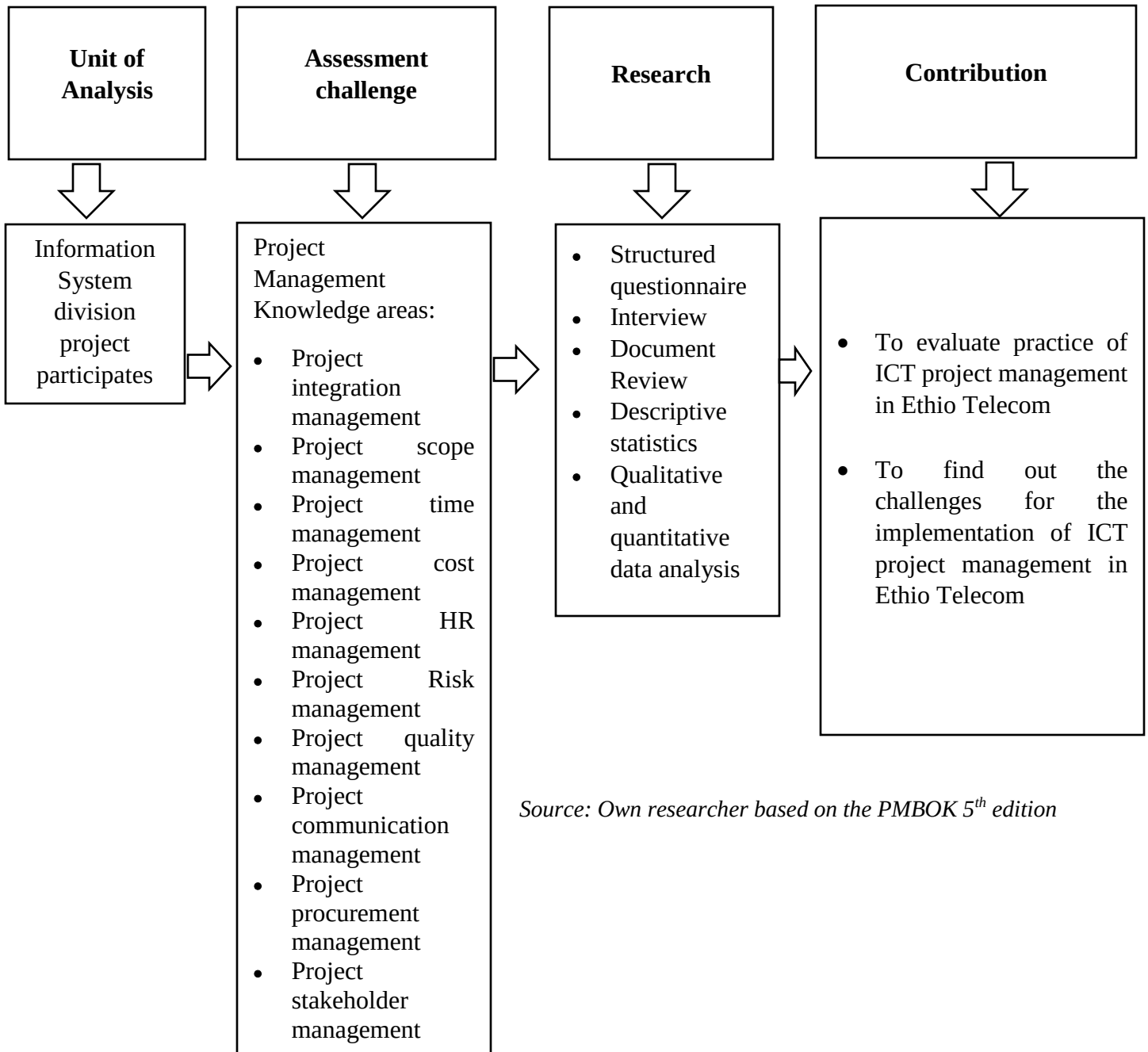


Figure 1: The conceptual framework

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Research Design

According to Adams, Khan, Raeside and White (2007) research design is the blueprint for fulfilling research objectives and answering research questions. In other words, it is a master plan specifying the methods and procedures for collecting and analyzing the needed information. According to Kothari (2004) the major purpose of descriptive research as the term implies, is to describe characteristics of a population phenomenon. Descriptive research seeks to determine the answers to who, what, when, where and how questions but not why questions. The researcher adopted a descriptive survey research design for the study as the study conducted to answer questions of how project management have practiced and what are the challenges in implementing of the ICT projects in the company.

3.2 Research Approach/Method

To assess project management practices and challenges in implementing of the ICT projects of the company the researcher employed both quantitative and qualitative approaches. Qualitative approaches helped to interpret the research data and describe the actual project management practice. Quantitative approach helped to present the data in a tabular form, and frequencies and percentage. Hence, the mixed method research approach to inquiry is used since it involves philosophical assumptions and mixing of both approaches in tandem within a single study so that the overall strength of the study is greater than either qualitative or quantitative research (Creswell, 2009).

3.3 Target Population

According to Dawson (2002) the first step in the process of sampling is specifying the population of the study. Population or universe refers to any collection of specified groups of cases to be studied. The population needs to be properly defined so that there is no ambiguity as to whether a given unit belongs to the population. On the other hand, if a population is not properly defined, a researcher faces a difficulty in knowing what units to consider when selecting the sample. The intended population of this study was employees in Information System division who are directly participating in the implementation of the different projects, these are employees and management members.

Information system division in Ethio telecom is segmented in to six categories by the nature of work these are: IT Service Design, IT Service Transition, IT Service Strategy and Program Management, IT Operation, IT Security and Automation. Among the Six categories the target population of this study was IT Service Design, IT Service Transition and IT Service Strategy and Program Management which include about 135 (one hundred thirty-five) employees.

IT Service Design, IT Service Transition and IT Service Strategy and Program Management department are selected for this study because these teams are the one who has the overall responsibility for the successful initiation, planning, design, execution, monitoring, controlling and closure of an ICT project of the Ethio telecom. The study targets these employees because they are very relevant for the research.

3.4 Sampling Technique and Sample Size

To determine each sample size, the study employed a sampling procedure having simple random sampling. According to Saunders, Lewis, and Thornhill (2009) the size of sample should be optimum, which is neither excessively large nor too small. An optimum or adequate sample is one which fulfills the requirements of efficiency, representativeness, reliability and flexibility. In this research sample size was determined using Yamane, 1967.

$$n = \frac{N}{1 + N(e)^2}$$

n= sample size

N= The population size

e = level of precision (0.05)

As such, the sample size of this study was computed at a 95% confidence interval (most common in descriptive studies), 5% standard error, total population size of the Information system division (135), and sample size of the study is determined (100) as shown below.

So that

$$n = \frac{135}{1 + 135(0.05)^2}$$

$$\underline{\underline{n = 100}}$$

Hence, the researcher settled on a sample size of **100** for the study. And 100 questionnaire booklets are distributed to the respondents.

3.5 Data Collection Methods and Procedures

To collect data the researcher used mainly a 1 to 5-point Likert Scale questionnaire format, with a 1 Very low practiced (almost not practiced) of the project management knowledge areas to 5 very highly practiced of the project management knowledge areas in managing the ICT projects. The study also applied a 1 to 5-point Likert Scale from strongly disagree to strongly to get perception of the respondents about the challenges in implementing the ICT projects.

The distribution was done in person and email to the respondents; that was collected back within five days' time with an average return rate of 93%. The researcher tried to clarify the questionnaire to the participants by face to face discussion and making calls.

In addition to the questionnaire the researcher used interview with four project managers to get farther qualitative information from project managers to get possible solution. During the interviews, a set of complied questions with brief background for conducting the research study was presented to the respondents.

3.6 Data Quality Assurance

In establishing trustworthiness of the research, two concepts are usually taken into account validity and reliability (Robson 2002).

3.7.1. Validity

Validity refers to which the extent to which measurement of instrument actually measure what is intended to measure.

3.7.2. Reliability

Reliability refers to internal consistency or dependability of a measuring instrument. Internal consistency of items incorporated in the instrument checked by using Cronbach Alpha. Besides, the reliability is checked using the SPSS'' Cronbach''s-Alpha test coefficients and the result is as follows.

Cronbach's Alpha coefficient of 0.828 shows good internal consistence of the items in the Scale used (George & Mallery 2003). The below reliability measures show that the internally consistent measure results are greater than the acceptable level, which is 0.70.

Table 1 Outcome of Reliability Test

Cronbach's Alpha	N of Items
.828	25

Source: computed from SPSS

3.7 Data Analysis and Presentation

According to Mosby (2009), data analysis is the process of coding, classifying and tabulating information required to perform quantitative or qualitative analysis according to the research design and appropriate to the data. The researcher carefully examined the collected raw data to detect errors and omissions and to correct these when possible and assigned numerals to answers that enable to put responses into a limited number of categories. In this research data analysis was done using descriptive statistics using Statistical Package for Social Sciences (SPSS) 20 and Microsoft Excel version 2013. The results obtained from the analysis was presented in graphs and based on which concrete conclusions and recommendations are forwarded.

3.8 Ethical Issues and Considerations

In this study ethical consideration was applied by maintaining confidentiality of information about the organization and respondents. In addition to this, the gathered data were only used for this study, not used for other purpose, or not transferred to other party. Furthermore, the respondents were ordered not to write any information like their name and other personal code while responding to the questionnaire.

CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION

This section of the paper presents the presentation, analysis, and interpretation of the data collected from respondents. The chapter is divided into different sections. Accordingly, the first section deals with demographic characteristics of respondents. The second section deals with the assessment of the extent of practicing of project management knowledge areas in managing of ICT projects of the company. The third section deals with Challenges of implementing ICT project management in ethio telecom.

4.1 Response Rate

Response rate refers to the number of subjects sampled in a study who respond to the research instruments. A total of 100 questionnaire copies were administered, of which 93 were fully returned representing 93 % response rate. Despite several follow ups 7 % failed to respond. A response rate of 50% was deemed adequate for analysis and reporting, response rate of 60% was good and a response rate of 70% and over was considered very good (Mugenda & Mugenda, 2003). Thus, the study returned a very good response rate at 93 % and was considered adequate for analysis and reporting.

4.2 General information of the respondents

For the general questions regarding level of education, position/role, company experience, project working experience, and department of the respondents are presented here under.

4.2.1 Education Level of Respondents

The findings regarding to the education level of the respondents as presented in Table 2 below shows that most of the respondents 61 (65.6 %) indicated they have “Bachelors” degree. On the other hand, some 32 (34.4%) of the respondents indicates a master’s Degree. Majority of respondents working in Ethio Telecom have bachelor’s degree qualifications. This implies that they are capable of conceptualizing and respond authoritatively on issues and practices.

Table 2 Respondents level of education

	Frequency	Percent	Valid Percent	Cumulative Percent
Bachelor's degree	61	65.6	65.6	65.6
Post Graduate degree	32	34.4	34.4	100.0
Total	93	100.0	100.0	

(Source: own survey results, 2018)

4.2.2 Position/role at ICT Projects of the Respondents

Table 3 portrays the roles of the respondents’ Staff 73 (78.5%), Manager 16 (17.2%), Officer 3 (3.2%) and Chief officer 1 (1.1%) respectively. This indicated that the more information is collected from each role regarding to the assessment of practice and challenges of implementation of ICT project management in ethio telecom.

Table 3 Position/role at ICT projects of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Staff	73	78.5	78.5	78.5
Manager	16	17.2	17.2	95.7
Officer	3	3.2	3.2	98.9
Chief Officer	1	1.1	1.1	100.0
Total	93	100.0	100.0	

(Source: own survey results, 2018)

4.2.3 Company Working Experience of Respondents

Table 4 Company working Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
From 1 to 5	20	21.5	21.5	21.5
From 6 to 10	30	32.3	32.3	53.8
Valid From 11 to 15	33	35.5	35.5	89.2
above 15	10	10.8	10.8	100.0
Total	93	100.0	100.0	

(Source: own survey results, 2018)

In addition to the related Position/role in the company, respondents were requested to fill for how long they worked in Ethio telecom and resulted were analyzed as distributed in table 4. Accordingly, 20 (21.5 %) worked from 1 to 5, 30 (32.3%) worked between 6-10years, 33 (35.5%) of them had between 11-15 years of experience, while 10 (10.8 %) of them had been working for above 15 years. Here, it's clear that most of the respondents have a work experience for above five years in the Ethio telecom and it shows that they had enough time to well know their company's practice of project management knowledge areas challenges in managing ICT projects.

4.2.4 Project Working Experience of Respondents

Table 5 Project working experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Below 1	1	1.1	1.1	1.1
Valid From 1 to 5	66	71.0	71.0	72.0
From 6 to 10	26	28.0	28.0	100.0
Total	93	100.0	100.0	

(Source: own survey results, 2018)

Table 5 indicates that respondents have significant levels of project management experience. The details show that about 66 (71%) of the respondents have 1-5 years of project experience. Some 26 (28 %) indicates their project experience was between 6-10 years. This shows that majority of

the respondents have between 1 to 5 years of project experience in the company which in turn points that they are quite experienced to the ICT project implementation.

4.2.5 Department of Respondents

Table 6 Department of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
IT Service Strategy and Program management	20	21.5	21.5	21.5
Valid IT Service Design	34	36.6	36.6	58.1
IT Service Transition	39	41.9	41.9	100.0
Total	93	100.0	100.0	

(Source: own survey results, 2018)

To get more information from the respondents participating in implementation of ICT projects the respondents were also asked their department. Table 6 indicates that more than 70% of respondents are from IT Service design and IT Service transition departments of the division which are majority projects of the division is implementing through these departments. This indicates accurate information related to project management practices, challenges in implementation of ICT projects and possible solution to increase the practice of project management in implementing of these ICT projects.

4.3 Practice of Project management knowledge area in the implementation of the ICT Projects

One of the objectives of this study set out to answer was, knowing the extent of practice of project management in ethio telecom in implementing the ICT projects with respect to each of the project management knowledge areas. This was done by asking respondents to respond the PMBOK's project management knowledge areas as 1 very low practiced (almost not practiced), 2 practiced at low level, 3 moderately practiced, 4 highly practiced and 5 very highly practiced.

4.3.1 Practice of Project Integration Management

Table 7 Practice of project integration management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
1.	Project Integration Management	Very low	11	11.8	2.22	.874
		Low	65	69.9		
		Moderate	3	3.2		
		High	13	14.0		
		Very high	1	1.1		

(Source: own survey results, 2018)

Table 7, the respondents were asked to what extent they practiced project integration management at ICT projects. Thus, the computed weighted mean score ($m=2.22$, $sd=0.87$) of the respondents practicing the project integration management knowledge area at low level. It indicated that project integration management activities practices at lower level.

4.3.2 Practice of Project Scope Management

Table 8 Practice of Project Scope Management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
2.	Project Scope Management	Very low	3	3.2	3.75	.893
		Low	7	7.5		
		Moderate	12	12.9		
		High	59	63.4		
		Very high	12	12.9		

(Source: own survey results, 2018)

Project scope management consists of the processes required to ensure that the project includes all the work required to complete the project successfully. Table 8 shows computed mean score ($m= 3.75$, $sd=0.89$) of the respondents respond at higher level. This indicates that they practiced project scope management at a higher level in ICT projects of ethio telecom.

4.3.3 Practice of Project Time Management

Table 9 Practice of project time management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
3.	Project Time Management	Very low	2	2.2	3.91	.985
		Low	10	10.8		
		Moderate	7	7.5		
		High	49	52.7		
		Very high	25	26.9		

(Source: own survey results, 2018)

Project time management knowledge areas includes the processes required to manage the timely completion of the project. Which includes the process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule, the process of identifying and documenting the specific actions to be performed to produce the project deliverables.

As shown in table 9 project time management about weighted mean ($m = 3.91$, $sd = 0.98$) of ICT project respondents responded schedule is monitored and managed to keep the project on the track in implementing ICT projects are practiced at high level rate.

4.3.4 Practice of Project Cost Management

Table 10 Practice of project cost management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
4.	Project Cost Management	Very low	2	2.2	2.34	.729
		Low	68	73.1		
		Moderate	13	14.0		
		High	9	9.7		
		Very high	1	1.1		

(Source: own survey results, 2018)

Project cost management includes the processes involved in estimating, budgeting and controlling costs so that the project can be completed within the approved budget. Table 10 above indicates that project cost management weighted mean ($m = 2.34$, $sd = 0.72$) of the of the respondents practiced at low level rate. This indicated that project cost management in implementing ICT projects are practiced at low level of rate.

4.3.5 Practice of Project Quality Management

Table 11 Practice of project quality management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
5.	Project Quality Management	Very low	2	2.2	3.76	1.00
		Low	12	12.9		
		Moderate	12	12.9		
		High	47	50.5		
		Very high	20	21.5		

(Source: own survey results, 2018)

Project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the processes. Its main purpose is to satisfy the client, to conform to requirements, to ensure fitness to requirements and to ensure if the design is fit for customers. According to the result, ICT project respondents mentioned that there are high practices for project quality management weighted mean ($m = 3.76$, $sd = 1.00$) of the respondent's project quality management in implementing ICT projects are practiced at high level.

4.3.6 Practice of Project Human Resource Management

Table 12 Practice of project human resource management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
6.	Project Human Resources Management	Very low	11	11.8	2.19	.837
		Low	65	69.9		
		Moderate	7	7.5		
		High	8	8.6		
		Very high	2	2.2		

(Source: own survey results, 2018)

Project Human Resource Management includes the processes that organize, manage, and lead the project team. The project team is comprised of the people with assigned roles and responsibilities for completing the project. It is measured using the processes of identifying and documenting project roles, responsibilities, required skills, reporting relationships, and creating a staffing management plan, confirming human resource availability and obtaining the team necessary to complete project activities, improving competencies, team member interaction, and overall team environment to enhance project performance and tracking team member performance, providing

feedback, resolving issues, and managing changes to optimize project performance.

As table 12 above shows the computed average mean of the practices is ($m=2.19$, $sd=0.83$) of the respondents practicing project human resource management at low level.

4.3.7 Practice Project Communication Management

Table 13 Practice of project communication management

	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
7	Project Communications Management	Very low	1	1.1	3.75	.717
		Low	9	9.7		
		Moderate	5	5.4		
		High	75	80.6		
		Very high	3	3.2		

(Source: own survey results, 2018)

Project Communications Management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, management, control, monitoring, and the ultimate disposition of project information.

The table 13 above shows that this knowledge area weighted mean ($m= 3.75$, $sd=0.71$) of the respondents rated the practice of this knowledge area at highly level. This indicates that project members are communicated at higher level about the project status in all project stages in implementing ICT projects. Effective communication creates a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different levels of expertise, and different perspectives and interests, which impact or have an influence upon the project execution or outcome.

4.3.8 Practice of Project Risk Management

Table 14 Practice of project risk management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
8	Project Risk Management	Very low	6	6.5	3.62	.871
		Low	4	4.3		
		Moderate	11	11.8		
		High	70	75.3		
		Very high	2	2.2		

(Source: own survey results, 2018)

Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project. The respondents rated each of the practices in this knowledge area at high level as depicted table 14 above is its mean is (m=3.62, sd=0.87) of the respondents rated it at high level. This indicates that project risk monitoring and controlling practices are practiced at level in implementing ICT projects.

4.3.9 Practice of Project Procurement Management

Table 15 Practice of project procurement management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
9	Project Procurement Management	Very low	6	6.5	2.29	.802
		Low	67	72.0		
		Moderate	8	8.6		
		High	11	11.8		
		Very high	1	1.1		

(Source: own survey results, 2018)

Procurement management is the processes and actions undertaken by the project manager and/or team to acquire goods and services in support of the project. It also includes activities in managing the contract throughout the period of performance and closing the contract upon completion.

Table 15 shows majority of the respondents rated these practices at a low level and mean (m= 2.29, sd=0.80) of the respondents rated procurement management process applied for the successful completion of the project in implementing ICT projects at lower level.

4.3.10 Practice Project Stakeholder Management

Table 16 Practice of project stakeholder management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
10	Project Stakeholder Management	Very low	3	3.2	3.67	.945
		Low	10	10.8		
		Moderate	13	14.0		
		High	55	59.1		
		Very high	12	12.9		

(Source: own survey results, 2018)

Project Stakeholder Management knowledge area includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. This knowledge area also focuses on continuous communication with stakeholders to understand their needs and expectations, addressing issues as they occur, managing conflicting interests and fostering appropriate stakeholder engagement in project decisions and activities.

The result in Table 16, item 10, further revealed that the computed mean score ($m = 3.68$, $sd = 0.94$) of the project respondents practiced at high level.

4.4 Challenges of implementing ICT projects management in Ethio Telecom

To identify the main challenges for the implementation of ICT projects in ethio telecom, the researcher developed a questionnaire for respondents. The results were compiled and presented in Table 4.3. The respondents were asked to show their genuine opinion by judging the level of each item by using five points of Likert scale 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree.

4.4.1 Lack of commitment of top management

Table 17 Lack of commitment of top management

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
1.	Lack of commitment of top management	Strongly Disagree	5	5.4	2.26	.835
		Disagree	72	77.4		
		Neutral	6	6.5		
		Agree	6	6.5		
		Strongly Agree	4	4.3		

(Source: own survey results, 2018)

As it is depicted from item 1(lack of commitment of top management) in table 17, most of the respondents' responses, mean score result ($m= 2.26$, $sd=0.83$) of the respondents disagreed with the statement lack of commitment of top management. This indicates that commitment of top management and support was high in the implementation of ICT project in ethio telecom or it is not a major challenge in the implementation of the ICT projects.

4.4.2 Unrealistic deadline

Table 18 Unrealistic deadline

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
2.	Unrealistic deadline	Strongly Disagree	6	6.5	2.36	.929
		Disagree	66	71.0		
		Neutral	6	6.5		
		Agree	11	11.8		
		Strongly Agree	4	4.3		

(Source: own survey results, 2018)

As it can be seen in table 18, item 2 (unrealistic deadline), mean score ($m=2.36$, $sd=0.92$) of the respondents disagree with the statement that there is unrealistic deadline. The result shows that unrealistic deadline during the implementation of ICT projects in ethio telecom is not be a challenge.

4.4.3 Scope creep

Table 19 scope creep

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
3.	Scope creep	Strongly Disagree	5	5.4	2.45	.878
		Disagree	59	63.4		
		Neutral	12	12.9		
		Agree	16	17.2		
		Strongly Agree	1	1.1		

(Source: own survey results, 2018)

Respondents were asked whether scope creep was a challenge in the implementation of ICT projects. In item 3 (scope creep) of table 19, the computed mean score result ($m = 2.45$, $sd = 0.87$) of the respondents' responses asserted their disagreement. This indicates that the scope creep was not a challenge in the implementation of the ICT projects that have been implemented by ethio telecom.

4.4.4 Lack of team knowledge and skill

Table 20 Lack of team knowledge and skill

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
4.	Lack of team knowledge and skill	Strongly Disagree	3	3.2	2.22	.677
		Disagree	74	79.6		
		Neutral	10	10.8		
		Agree	4	4.3		
		Strongly Agree	2	2.2		

(Source: own survey results, 2018)

As displayed in item 4 (lack of team knowledge and skill), in table 20, mean score result ($m = 2.22$, $sd = 0.67$) of the respondents disagreed with the statement lack of team knowledge and skill. This indicates that lack of team knowledge and skills of the respondents was not a challenge during the implementation of the ICT projects.

4.4.5 Lack of communication

Table 21 Lack of communication

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
5.	Lack of communication	Strongly Disagree	7	7.5	2.31	.872
		Disagree	66	71.0		
		Neutral	6	6.5		
		Agree	12	12.9		
		Strongly Agree	2	2.2		

(Source: own survey results, 2018)

Related to lack of communication in item 5 (lack of communication) of table 21 shows its mean score ($m = 2.31$, $sd = 0.87$) of the respondents disagree with lack of communication as the main challenges during the implementation of the ICT projects.

4.4.6 Lack of conducive working culture

Table 22 Lack of conducive working culture

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
6.	Lack of conducive working culture	Strongly Disagree	6	6.5	2.52	.995
		Disagree	56	60.2		
		Neutral	11	11.8		
		Agree	16	17.2		
		Strongly Agree	4	4.3		

(Source: own survey results, 2018)

In Table 22, item 6 (lack of conducive working environment), respondents were requested whether there was lack of conducive working environment in the implementation of ICT project in ethio telecom. The respondents disagreed with this request as it shows the mean score ($m = 2.52$, $sd = 0.99$) or almost half of the respondents responded as disagree.

4.4.7 Lack of relevant training

Table 23 Lack of relevant training

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
7	Lack of relevant training	Strongly Disagree	2	2.2	3.91	.746
		Disagree	3	3.2		
		Neutral	9	9.7		
		Agree	66	71.0		
		Strongly Agree	13	14.0		

(Source: own survey results, 2018)

The result in Table 23, item 7 (lack of relevant training), many of the respondents claimed that there was lack of relevant training with the mean score ($m = 3.91$, $sd = 0.74$) of the respondents agrees with the question of lack of training during the implementation of the ICT projects. This indicated that lack of relevant training for the implementors were the major challenge during implementation.

4.4.8 Procurement delay

Table 24 Procurement delay

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
8	Procurement delay	Strongly Disagree	2	2.2	3.81	1.45
		Disagree	15	16.1		
		Neutral	5	5.4		
		Agree	56	60.2		
		Strongly Agree	14	15.1		

(Source: own survey results, 2018)

In Table 24, item 8 (procurement delay), respondents requested whether there was procurement delay in the implementation of ICT project in ethio telecom. Regarding to this request the respondents agreed with this challenge with the mean score ($m = 3.82$, $sd = 1.45$). It implies that procurement delay is one of the challenges for the implementation of ICT project in ethio telecom.

4.4.9 Lack of managing identified risks

Table 25 Lack of managing identified risks

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
9	Lack of managing identified risks	Strongly Disagree	8	8.6	2.17	.701
		Disagree	68	73.1		
		Neutral	11	11.8		
		Agree	5	5.4		
		Strongly Agree	1	1.1		

(Source: own survey results, 2018)

Respondents were also asked whether there was lack of managing identified risks in the implementation of ICT projects as it is depicted in table 25 above. This table shows computed mean score result ($m = 2.17$, $sd = 0.70$) of the respondent disagree with request of identified risk during the implementation of the ICT project. This indicates that ICT project risks are identified early at the project initiation and during the execution of the projects and controlled across the project life cycles.

4.4.10 Lack of quality measurement process

Table 26 Lack of quality measurement process

No	Items	Variables	Frequency	Percentage (%)	Mean	Std. Deviation
10	Lack of quality measurement process	Strongly Disagree	4	4.3	2.36	.831
		Disagree	66	71.0		
		Neutral	10	10.8		
		Agree	11	11.8		
		Strongly Agree	2	2.2		

(Source: own survey results, 2018)

Additionally, in Table 26, item 10 (lack of quality measurement process) indicated most respondents were disagreed with the statement there was lack of quality measurement process with the mean score ($m = 2.36$, $sd = 0.83$) of the respondents. This means that lack of quality measurement process was not a major challenge during the implementation of the ICT project.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This section summarizes the overall process of the study. It includes conclusions drawn from the findings of the study and recommendations of how to solve the challenges that affect the implementation of ICT project management in ethio telecom.

5.1 Summary of Research Findings

The main objective of this study was focused analyze and compare the practices and challenges of implementing ICT project management in Ethio telecom. In order to attain the intended objective, basic questions were prepared. These were the extent to which ICT project management practice in ethio telecom and the challenges of implementing ICT project management in ethio telecom.

In this study, a descriptive survey research design was used and to perform it, employees in Information System division who are directly participating in the implementation of ICT project, these are employees and management members. A total of 100 sample respondents from the project participated in the study based on the Yamane's formula. To obtain the data required for the study, the researcher employed a structured questionnaire, interview and document review. The collected data were analyzed and discussed both quantitative and qualitative data approaches. Using these tools, the following basic questions were answered:

- What is the extent to which ICT project management is practiced in Ethio Telecom?
- What are the challenges of implementing of ICT project management in Ethio Telecom?

Finally, after questionnaire distributed and data collected from 93 respondents who are directly participating in the implementation of ICT project. The data obtained from the respondents were sorted, coded, tabulated, generalized, analyzed and interpreted using descriptive statistics such as percentage, and grand mean. Open-ended questions, interviews, and observation analyzed and narrated.

Consequently, the analysis and interpretation made so far, the following major findings of the study were set out.

1) Finding related to the extent of project management practice in Ethio Telecom

The finding proved that the extent of project scope management, project time management, project quality management and project risk management and project stakeholder management knowledge areas are practiced at high level where as project integration management, project cost management, project human resource and project procurement knowledge areas are practiced at the low level.

2) Finding related to the challenges of implementing ICT project management in Ethio Telecom

The research finding indicates that main challenges of implementing ICT project management in Ethio Telecom were lack of relevant training and procurement delay and lack of conducive working environment. Training presents a prime opportunity to expand the knowledge base of all project manager and teams. Employee or project teams who receives the necessary training is more able to perform in their task. The training will give the employee a greater understanding of their responsibilities within their role, and in turn build their confidence. This confidence will enhance their overall performance, and this can only benefit the project. Other challenges of implementing ICT project management in Ethio telecom was procurement delay.

5.2 Conclusion

Based on the entire study and the summary of the major findings made above, the following conclusions are drawn. The following four project management knowledge areas Project integration management, project cost management, project human resource management and project procurement management in the implementation of the ICT projects are practiced at low level. Whereas project scope management, project time management, project quality management, project communication management, project risk management and project stakeholder management knowledge areas are practiced at high level during the implementation of the ICT projects.

Finally lack of relevant training to the project members, procurement delay are the main challenges for the implementation of the ICT projects.

5.3 Recommendation

Based on the findings and conclusions made above, the following recommendations were forwarded.

- The organization should give special attention to the least practiced knowledge area i.e. project integration management, project cost management, project human resource management and project procurement management knowledge areas.
- Provide project management training to the project members based on project management knowledge areas including organizational standards, and processes of project management. This could increase the ability to implement all the standards and processes to all projects easily and will increase project deliverables.
- The organization should use the already implemented Enterprise Resource Planning (ERP) as this system could solve the procurement delay during the implementation of the ICT projects.
- The organization should introduce and strengthen project management office. This office helps in practicing the project management knowledge areas (PMI, 2013).
- The company should introduce different systems/ tools such as project management software as it is very important in implementing the ICT projects.
- Ethio telecom Project managers should adopt project management practices in their work. They need to get acquainted with project management tools and techniques, know which phase their projects are, plan, monitor and evaluate their projects regularly. This will ensure their projects perform better and when they don't, they can make changes that will yield positive results to the projects.
- Ethio telecom should have sufficient special technical and project management knowledge and openness to new and effective methods when initiating ICT projects. Staff should be equipped with the specific skills and competencies needed to design and develop software using the appropriate software development process.

5.4 Recommendations for Future Research

Although this study is conducted in assessing the practice of project management knowledge areas and challenges of implementing ICT projects in Ethio telecom. The research findings show project scope management, project time management, project quality management, project risk management and project stakeholder management knowledge areas are practiced at high level where as project integration management, project cost management, project human resource and project procurement knowledge areas are practiced at the low level. This indicates that there is room for further research to conduct on the root causes or factors associated to this low level of project management practices of the company.

Conducting a reassessment research after some years later to determine if there is any improvement in managing of its projects and if the organization has shown also improvement in level of project management practices.

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APPENDIX A: QUESTIONNAIRE

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

MASTER OF ART IN PROJECT MANAGEMENT

Dear Participant;

My name is Meaza Tegenu. I am an MA student in project management at Addis Ababa University School of Commerce. As part and parcel of my MA in project management, I am studying **ASSESSING PRACTICES AND CHALLENGES OF IMPLEMENTING ICT PROJECT MANAGEMENT IN ETHIO-TELECOM.**

The purpose of this questionnaire is to gather data on practices and challenges of implementing information communication technology (ICT) Project management in Ethio telecom. The study is purely for academic purpose and thus not affects you in any case. So, your genuine, frank and timely response is vital for successfulness of the study. Therefore, I kindly request you to participate in this study by patiently completing the questionnaires. And, I hereby assure you that all the information will remain confidential and do not include your name in the questionnaires.

The results of this research will contribute greatly in assessing practices and challenges of implementing information communication technology (ICT) Project management in Ethio telecom and managing its projects and where the organization needs to go to the next level for further improvement and success of projects within the organization. Therefore, it is your genuine response which drives to effective analysis and conclusion then fruitful recommendations.

Contact Address If you have any query, please do not hesitate to contact me and I am available as per your convenience at (Mobile: 0911-52-24-67 or e-mail: meazitegenu2015@gmail.com).

General instruction and information

General Instructions

- There is no need of writing your name
- Where answer options are available please tick (√) in the appropriate box.

Part I: General Information of respondent: tick (√) on the respective boxes

1. Educational Qualification

1) Certificate/diploma ☐

3) Post Graduate degree ☐

2) Bachelor's degree ☐

4) Doctorate degree ☐

2. Employee Level

1) Staff ☐

2) Manager ☐

3) Officer ☐

4) Chief Officer ☐

3. Years of working experience in the company

1) Below 1 ☐

2) 1-5 ☐

3) 6-10 ☐

4) 11-15 ☐

5) above 15 ☐

4. Years of working experience in the project

1) Below 1 ☐

2) 1-5 ☐

3) 6-10 ☐

4) 11-15 ☐

5) above 15 ☐

5. Your department

1) IT Strategy and Program Management ☐

2) IT Service Design ☐

3) IT Service Transition ☐

Part II: Main questions on the level of project management practices of the company in managing its projects

Directions: - Please check all that apply and indicate your answers using an “✓” mark on an appropriate column that describes your viewpoint about the practices of ICT project management in Ethio telecom.

Use the rating scales to respond the following items: 1=Very low, 2=Low, 3=Moderate, 4=High and 5= Very high

1. Project Management practices		Very Low (1)	Low (2)	Moderate (3)	High (4)	Very High (5)
1.1	Project Integration Management					
1.2	Project Scope Management					
1.3	Project Time Management					
1.4	Project Cost Management					
1.5	Project Quality Management					
1.6	Project Human Resources Management					
1.7	Project Communications Management					
1.8	Project Risk Management					
1.9	Project Procurement Management					
1.10	Project Stakeholder Management					

Part III: Challenges for the implementation of ICT project management in ethio telecom

Directions: The following are possible challenges for the implementation of ICT project management in ethio telecom. Using the rating scales given in a table, indicate your agreement/ disagreement for each of the item given by putting “√” mark in the appropriate column.

(Scale: 1= Strongly Disagree, 2 = Disagree, 3 =Neutral, 4 = Agree, 5 = Strongly Agree)

2. Challenges		Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
2.1	Lack of commitment of top management					
2.2	Unrealistic deadline					
2.3	Scope creep					
2.4	Lack of team knowledge and skill					
2.5	Lack of communication					
2.6	Lack of conducive work environment					
2.7	Lack of relevant training					
2.8	Procurement delay					
2.9	Lack of managing identified risks					
2.10	Lack of quality measurement process					

If others (please specify) _____

APPENDIX B: INTERVIEW QUESTIONS

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

SCHOOL OF COMMERCE

MASTER OF ART IN PROJECT MANAGEMENT

Dear Participant;

My name is Meaza Tegenu. I am an MA student in project management at Addis Ababa University School of Commerce. As part and parcel of my MA in project management, I am studying **ASSESSING PRACTICES AND CHALLENGES OF IMPLEMENTING ICT PROJECT MANAGEMENT IN ETHIO-TELECOM.**

I kindly request you to participate in this study by patiently giving answers for the following list of interview questions. And, I hereby assure you that all the information will remain confidential. Besides, I sincerely request you to respond to the interview questions as per the actual company's project management practices, not the general perspective. And, as honestly as possible. The results of this research will contribute greatly in assessing practices and challenges of implementing information communication technology (ICT) Project management in Ethio telecom and managing its projects and where the organization needs to go to the next level for further improvement and success of projects within the organization. Therefore, it is your genuine response which drives to effective analysis and conclusion then fruitful recommendations.

Contact Address If you have any query, please do not hesitate to contact me and I am available as per your convenience at (Mobile: 0911-52-24-67 or e-mail: meazitegenu2015@gmail.com).

Interview Questions

Part IV: Practices and challenges of implementing ICT project management in Ethio telecom

Question No. 1

What is your experience on the implementation of ICT project in ethio telecom?

Question No. 2

What is the extent to which ICT project management is practiced in Ethio Telecom?

Question No. 3

What are the challenges for implementing ICT project management in ethio telecom?

APPENDIX C: SPSS OUTPUTS

Case Processing Summary

		N	%
Cases	Valid	93	100.0
	Excluded	0	.0
	Total	93	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.828	25

Statistics

		Education level of Respondents	Employee level of Respondents	Company Working experience of Respondents	Project work experience of Respondents	Department of Respondents
N	Valid	93	93	93	93	93
	Missing	0	0	0	0	0
Mean		2.3441	1.2688	3.3548	2.2688	2.2043
Std. Deviation		.47764	.57369	.93999	.46950	.77402

Education level of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bachelor's degree	61	65.6	65.6	65.6
	Post Graduate degree	32	34.4	34.4	100.0
	Total	93	100.0	100.0	

Employee level of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid staff	73	78.5	78.5	78.5
Manager	16	17.2	17.2	95.7
officer	3	3.2	3.2	98.9
Chief Officer	1	1.1	1.1	100.0
Total	93	100.0	100.0	

Company Working experience of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid From 1 to 5	20	21.5	21.5	21.5
From 6 to 10	30	32.3	32.3	53.8
From 11 to 15	33	35.5	35.5	89.2
above 15	10	10.8	10.8	100.0
Total	93	100.0	100.0	

Project work experience of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 1	1	1.1	1.1	1.1
From 1 to 5	66	71.0	71.0	72.0
From 6 to 10	26	28.0	28.0	100.0
Total	93	100.0	100.0	

Department of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid IT Service Strategy and Program management	20	21.5	21.5	21.5
IT Service Design	34	36.6	36.6	58.1
IT Service Transition	39	41.9	41.9	100.0
Total	93	100.0	100.0	

		Project Integration Management Practices	Project Scope Management Practices	Project Time Management Practices	Project Cost Management Practices	Project Quality Management Practices
N	Valid	93	93	93	93	93
	Missing	0	0	0	0	0
	Mean	2.2258	3.7527	3.9140	2.3441	3.7634
	Std. Deviation	.87388	.89267	.98528	.72972	1.00432

		Project Human Resource Management Practices	Project Communication Management Practices	Project Risk Management Practices	Project Procurement Management Practices	Project stakeholder Management Practices
N	Valid	93	93	93	93	93
	Missing	0	0	0	0	0
	Mean	2.1935	3.7527	3.6237	2.2903	3.6774
	Std. Deviation	.83741	.71712	.87121	0.80191	.94594

Project Integration Management Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	11	11.8	11.8	11.8
	low	65	69.9	69.9	81.7
	Moderate	3	3.2	3.2	84.9
	High	13	14.0	14.0	98.9
	Very High	1	1.1	1.1	100.0
	Total	93	100.0	100.0	

Project Scope Management Practices

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	3	3.2	3.2
	low	7	7.5	10.8
	Moderate	12	12.9	23.7
	High	59	63.4	87.1
	Very High	12	12.9	100.0
	Total	93	100.0	100.0

Project Time Management Practices

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	2	2.2	2.2
	low	10	10.8	12.9
	Moderate	7	7.5	20.4
	High	49	52.7	73.1
	Very High	25	26.9	100.0
	Total	93	100.0	100.0

Project Cost Management Practices

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	2	2.2	2.2
	low	68	73.1	75.3
	Moderate	13	14.0	89.2
	High	9	9.7	98.9
	Very High	1	1.1	100.0
	Total	93	100.0	100.0

Project Quality Management Practices

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	2	2.2	2.2
	low	12	12.9	15.1
	Moderate	12	12.9	28.0
	High	47	50.5	78.5
	Very High	20	21.5	100.0
	Total	93	100.0	

Project Human Resource Management Practices

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	11	11.8	11.8
	low	65	69.9	81.7
	Moderate	7	7.5	89.2
	High	8	8.6	97.8
	Very High	2	2.2	100.0
	Total	93	100.0	

Project Communication Management Practices

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	1	1.1	1.1
	low	9	9.7	10.8
	Moderate	5	5.4	16.1
	High	75	80.6	96.8
	Very High	3	3.2	100.0
	Total	93	100.0	

Project Risk Management Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	6	6.5	6.5	6.5
	low	4	4.3	4.3	10.8
	Moderate	11	11.8	11.8	22.6
	High	70	75.3	75.3	97.8
	Very High	2	2.2	2.2	100.0
	Total	93	100.0	100.0	

Project Procurement Management Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	6	6.5	6.5	6.5
	low	67	72.0	72.0	78.5
	Moderate	8	8.6	8.6	87.1
	High	11	11.8	11.8	98.9
	Very High	1	1.1	1.1	100.0
	Total	93	100.0	100.0	

Project Stakeholder Management Practices

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very low	3	3.2	3.2	3.2
	low	10	10.8	10.8	14.0
	Moderate	13	14.0	14.0	28.0
	High	55	59.1	59.1	87.1
	Very High	12	12.9	12.9	100.0
	Total	93	100.0	100.0	

Statistics

		Lack of Commitment of top management	Unrealistic deadline	Scope Creep	Lack of team Knowledge and skill	lack of communication
N	Valid	93	93	93	93	93
	Missing	0	0	0	0	0
Mean		2.2688	2.3656	2.4516	2.2258	2.3118
Std. Deviation		.83588	.92999	.87869	.67774	.87201

		Lack of conducive work environment	Lack of relevant training	Procurement delay	Lack of managing identified risk	lack of quality measurement process
N	Valid	93	93	93	93	93
	Missing	0	0	0	0	0
Mean		2.5269	3.9140	3.8172	2.1720	2.3656
Std. Deviation		.99555	.74682	1.45173	.70130	.83125

Lack of Commitment of top management

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	5	5.4	5.4
	Disagree	72	77.4	82.8
	Neutral	6	6.5	89.2
	Agree	6	6.5	95.7
	Strongly agree	4	4.3	100.0
	Total	93	100.0	100.0

Unrealistic deadline

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	6.5	6.5
	Disagree	66	71.0	77.4
	Neutral	6	6.5	83.9
	Agree	11	11.8	95.7
	Strongly agree	4	4.3	100.0
	Total	93	100.0	100.0

Scope Creep

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	5	5.4	5.4	5.4
Disagree	59	63.4	63.4	68.8
Neutral	12	12.9	12.9	81.7
Agree	16	17.2	17.2	98.9
Strongly agree	1	1.1	1.1	100.0
Total	93	100.0	100.0	

Lack of team Knowledge and skill

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	3	3.2	3.2	3.2
Disagree	74	79.6	79.6	82.8
Neutral	10	10.8	10.8	93.5
Agree	4	4.3	4.3	97.8
Strongly agree	2	2.2	2.2	100.0
Total	93	100.0	100.0	

lack of communication

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	7	7.5	7.5	7.5
Disagree	66	71.0	71.0	78.5
Neutral	6	6.5	6.5	84.9
Agree	12	12.9	12.9	97.8
Strongly agree	2	2.2	2.2	100.0
Total	93	100.0	100.0	

Lack of conducive working Env.t

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	6	6.5	6.5	6.5
Disagree	56	60.2	60.2	66.7
Neutral	11	11.8	11.8	78.5
Agree	16	17.2	17.2	95.7
Strongly agree	4	4.3	4.3	100.0
Total	93	100.0	100.0	

Lack of relevant training

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	2	2.2	2.2	2.2
Disagree	3	3.2	3.2	5.4
Neutral	9	9.7	9.7	15.1
Agree	66	71.0	71.0	86.0
Strongly agree	13	14.0	14.0	100.0
Total	93	100.0	100.0	

Procurement delay

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	2	2.2	2.2	2.2
Disagree	15	16.1	16.1	18.3
Neutral	5	5.4	5.4	23.7
Agree	56	60.2	60.2	83.9
Strongly agree	14	15.1	15.1	98.9
14.00	1	1.1	1.1	100.0
Total	93	100.0	100.0	

Lack of managing identified risks

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	8	8.6	8.6	8.6
Disagree	68	73.1	73.1	81.7
Neutral	11	11.8	11.8	93.5
Agree	5	5.4	5.4	98.9
Strongly agree	1	1.1	1.1	100.0
Total	93	100.0	100.0	

Lack of quality measurement process

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	4	4.3	4.3	4.3
Disagree	66	71.0	71.0	75.3
Neutral	10	10.8	10.8	86.0
Agree	11	11.8	11.8	97.8
Strongly agree	2	2.2	2.2	100.0
Total	93	100.0	100.0	