



ADDIS ABABA UNIVERSITY

**CRITICAL SUCCESS FACTORS OF LEADING IS
PROJECTS
(THE CASE OF ETHIO TELECOM INFORMATION
SYSTEM PROJECTS)**

By: Saba Woldemariam

**COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE
GRADUATE PROGRAM IN PROJECT MANAGEMENT**

**January, 2019
Addis Ababa, Ethiopia**



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By: Saba Woldemariam

Advisor Dr. Solomon Markos

**A Project Submitted to College of Business and Economics
School of Commerce Graduate Program in Project
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PROJECTS)”**

By: Saba Woldemariam

Approved by Board of Examiners

Advisor

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DECLARATION

I, Saba Woldemariam, declare that this research entitled Critical Success Factors of Leading IS Projects (The Case of Ethio Telecom Information System Projects) is the outcome of my own effort and study. All sources of materials used for the study have been duly acknowledged. I have produced it independently except for the guidance and suggestion of the Research Advisor.

This study has not been submitted for any degree in this University or any other University. It is offered for the partial fulfillment of the degree of MA in Project Management.

By: Saba Woldemariam

Signature _____

Date _____

ENDORSEMENT

This is to certify that Saba Woldemariam carried out her project on the topic entitled “**Critical Success Factors of Leading IS Projects (The Case of Ethio Telecom Information System Projects)**” This work is original in nature and is suitable for submission for the award of Master Art in Project Management.

Dr. Solomon Markos

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LIST OF ABBREVIATIONS

BSS	-	Business Support Systems
CBS	-	Customer Billing System
CRM	-	Customer Relation Management
EIRs	-	Equipment Identity Registration System
ERP	-	Enterprise Resource Planning
HPSM	-	Hewlett Packard- Service Manager System
ICT	-	Information and Communication Technology
IPCC	-	Internet Protocol Call Center
IS	-	Information System
ISPs	-	Information Service Providers
Gbps	-	Giga bit per second
GTP	-	Growth and Transformation Plan
mVAS	-	Multi Value Added Service
OSS	-	Operation Support System
PMI	-	Project Management Institute
PSCs	-	Project Success Criteria
PSFs	-	Project Success Factors
TEP	-	Telecom Expansion Program
ZTE	-	Zhongxing Telecom Corporation

ABSTRACT

The main objective of this research is to identify the critical success factors that prevail in leading projects in ethio telecom particularly in the case of information system projects. The research adopted both qualitative and quantitative approach and descriptive research design. Primary data were collected using questionnaire and through conducting interview with Information system implementers in ethio telecom. The collected data were analyzed using SPSS Version 20 and Microsoft Excel. The major finding of the research indicated that from the selected Critical Success Factors; Goal & Scope Determination, Management Support, Project Team, User Requirement, Communication, and Change Management are well addressed and implemented in the company. However there is gap in Planning and monitoring & Leadership of projects. Senior Management Decision making and resolving transcend issues are some of the challenges project managers face. To curb the problems, recommendation given to implement project planning and monitoring method, empower project managers and to assign empowered expertise in leading projects.

Key Words: IS Project management, Critical Success Factors of IS projects, Challenges of IS projects

CHAPTER ONE : INTRODUCTION

1.1 BACKGROUND OF THE STUDY

As a general-purpose technology, the information and communication technology (ICTs) have an impact that extends well beyond productivity gains. ICTs act as a vector of social development and transformation by improving access to basic services, enhancing connectivity, and creating employment opportunities. In these ways ICTs affect how people live, communicate, interact, and engage among themselves (Morcilio, 2016).

ICTs hold the potential for transforming our economies through multiple channels. They boost productivity and reduce transaction and information costs. They allow new models of collaboration that increase workers' efficiency and flexibility for better work life balance. (The Global Information Technology Report, 2015)

Telecom service is used to accelerate for economic growth and social good. It is a basic tool in accelerating sustainable development. Now, more than ever, (ICT) industry is undergoing a profound transformation with far-reaching consequences. The development of new and emerging ICTs, the rise of social networks and changing needs of consumers mean that ICTs are now fully integrated into modern lives. (Fenote Telecom, 2018; The Global Information Technology Report, 2015)

Telecommunication operators are responding and adapting to the social, economic and other changes driven by accelerating Information Technology innovations. Being part of this sector, Ethiopian Government has paid due

attention to the telecom sector and undertake major telecom infrastructure expansion projects. Ethio telecom (Onwards named as ethio telecom) has implemented the Telecom Expansion Program (TEP) to become a world class operator, to create to all Ethiopian citizens to have access to telecom infrastructure and services, to provide quality service, to increase mobile penetration and no of data users. (Fenote Telecom, 2018)

Based on ethio telecom annual report of February, 2018 the total subscribers of ethio telecom in all telecom services reached 59.7 million at the end of 2009 EFY. The total number of subscribers per category is: mobile 58.1 million; fixed line 1.2 million; internet and data 16.4 million at the end of 2009 EFY (2017 GC). (Fenote Telecom, 2018; Ministry of Communication and Information Technology, 2018)

As stated in the Federal Democratic Republic of Ethiopia Growth and Transformation Plan II (GTP II) huge investment has been made so as to acquire the latest technology and expand the services in the telecom sector.

Ethio telecom entered into different projects worth 1.6 billion dollars initial investment through vendor financing (Fenote Telecom, 2018; Adam, 2012; Federal Democratic Republic of Ethiopia Growth and Transformation Plan II (GTP II)). The projects were performed by Huawei, Zhongxing Telecom Corporation (ZTE), and Ericson companies. To list some of the IS projects performed are IP (internet) service; customer billing system (CBS); Customer Relation Management (CRM); Call Center and Security Operation Center. (Roger, 2013)

1.2 STATEMENT OF THE PROBLEM

“A study by the Economist in 2014 stated that only 56% of all projects were successful in delivering their intended outputs and/or outcomes” (Paul, 2016)

Many IS projects are cancelled before completion, many run over budget and over time, and many that are completed are not able to satisfy customers’ needs (Maritta, 2013). The ethio telecom’s Equipment Identity Registration System (EIRs) is one example of such failed project. The service launched on 21 September 2017 with the aim of preventing the entry of smuggled devices into the local market and also to guard against their use in the firm’s satellite network. The company has lifted the requirement of mobile device registrations on August 23, 2018 (Addisfortune, 2018; Endeshaw, 2017; Fenote Telecom, 2018).

Information System projects (CBS, CRM, ERP second phase and Security Operation Center) in ethio telecom also have delay and customer dissatisfaction problems. Based on the preliminary assessment made on the area, the researcher discovers the following projects with one or both problems. To mention Hewlett Packard- Service Manager System (HPSM) which was intended to encompass different modules such as Incident Management, Configuration Management, Change Management, Resource Management delivered with partial output and also lacks the required functionalities. Similarly, the Fraud Management System and Revenue Assurance (RA) projects encountered the same problem.

G/Hiwot (2017) stated that “There are even cases such as even if the project was finalized on time, the deliverables(solutions) have not been used (for example, E-Bill, Dealer Management, Zsmart Self-service, MMS – Multimedia Messaging Service) for instance, MMS is not used because of problems related to the objective and definition of requirement...”

The other project to mention is Enterprise Resource Planning (ERP) which is performed in two phases. On the second phase, some modules delivered six months delayed with lack of some functionalities and it’s still under construction. The Electronic-Top up, the electronic charging system which is intended to replace the voucher cards used in charging prepaid mobile service delayed for two years and reinstated with the original requirements redefined (G/Hiwot, 2017).

Ethio telecom projects challenged by delayed decision, capacity and skills shortage (limited skills & experts) in project development and management, lack of ongoing analysis of the cost benefits of various investments to correct failures, cultural and language barriers with vendors, and in managing integration issues raised in different projects (Adam, 2012).

In ethio telecom there is no documented critical success factors to follow in leading IS projects into success. Hence the intention of this research is to understand the critical success factors and the challenges faced in Information System project management in implementing projects, articulate them and suggest possible solution as to how Information System projects can be supported to attain success. The study is carried out in ethio telecom mainly focusing on information system projects.

1.3 RESEARCH QUESTIONS

The main research questions in this project work that the researcher wants to answer are:

- *What are the critical success factors for ethio telecom IS Projects?*
- *What are the major challenges that hinder successful project performance in ethio telecom IS projects?*

1.4 RESEARCH OBJECTIVE

1.4.1 General Objective

The main objective of this research is to identify the challenges and the critical success factors that prevail in leading projects in ethio telecom particularly in the case of information system projects. The findings will help to discover how Information System projects can be supported to attain success.

1.4.2 Specific Objectives

The specific objectives of this thesis are: -

1. *To identify the success factors of ethio telecom's IS projects*
2. *To identify the major challenges to successful IS project implementations*

1.5 SIGNIFICANCE OF THE STUDY

In this research CSF & challenges in leading IS projects are identified and possible solutions pertinent to the problem are recommended to ethio telecom

in order to plan and implement efficient strategies to improve project performance.

The outcomes of this research will help ethio telecom to understand weak areas in leading IS projects. Identifying the problems can help the company to tackle the problems and the result can be used to improve project deliverables of future project execution. In addition projects managers and others whose activities are related with projects can proactively prepared on identified challenges and hence pave the way for identifying the ways to improve project performance. Moreover the research also will have academic contributions

1.6 SCOPE OF THE STUDY

Ethio telecom's major projects broadly classified into Network and Information System projects. The IS projects include the Business Support Systems (BSS) and Operation Support Systems (OSS). The BSS project includes Customer Billing System (CBS), Customer Relation Management Systems (CRM), and Internet Protocol Contact Center (IPCC). The OSS System contains Unified Network Management Systems (UNMS), Fraud Management Systems (FMS), Multi Value Added Service (mVAS), Short Message Service (SMS), & Security Operation Center (SOC). This research is limited to the study of the critical success factor of leading the aforementioned IS projects that were implemented in TEP phase I.

The success of IS project implementation in the organization depends on a multitude of important and interrelated factors. Hence it is of a great significance to take into account this and observe the obstacles that encounters in implementing new Information System. In order to ensure success of IS

project implementation; therefore, the key success factors should be assessed and indicated to act on them and to allow a project to be successful.

Thus this research is focus on the assessment of the following selected critical success factors: - “Goal & Scope Determination”, “Planning”, “Management Support”, “Project Manager Leadership”, “Team”, “User Requirement”, “Communication”, and “Change Management” to the successful accomplishment of a project.

In addition, the challenges such as delayed decision making by senior management, capacity and skills shortage (limited skills & experts), lack of ongoing analysis of the cost benefits, cultural and language barriers with vendors, and integration issues raised in different projects and their impacts examined in this research. In a nutshell, the problem addressed in this study focus on the challenges and critical success factors regarding ethio telecom IS project implementation.

1.7 LIMITATION OF THE STUDY

Ethio telecom in different programs has implemented different projects. After the closure of projects teams reassigned to different functional departments. There is limitation to document lesson learned at the completion of projects in ethio telecom. This research considers Information System TEP Phase I projects to incorporate in the study. TEP Phase I projects are the latest that handled in ethio telecom. Some of the projects were completed recently and there are also projects which are under progress. Thus the researcher assumed to get full understanding of the challenges project managers and project coordinators face afresh before fading from their memory with time. Due to

that those employees who participated in projects that were performed before the TEP phase I and assigned outside IS Division excluded from the survey.

1.8 DEFINITION OF TERMS

1.8.1 Project

According to the Project Management Institute (PMI) a project is a “temporary endeavor undertaken to create a unique product, service, or result” (PMI, 2000). A project is defined as a unique endeavor to produce a set of deliverables within clearly specified time, cost and quality constraints. Project is distinguished from operational endeavor. Projects are different from the general operation of organizations because they have specific objectives to deliver new benefits, may have the effect of introducing changes, create new outputs and have temporary governance arrangements set up for the duration of the project.

Thus, in general, the definitions of project management emphasize the characteristics of projects as unique in nature, having a defined timeframe, an approved budget, specified resources and a set of processes.

1.8.2 Project Management

PMI (2000) defines Project Management as the “application of knowledge, skills and techniques to execute projects effectively and efficiently”. Project Management is the process by which projects are defined, planned, monitored, controlled and delivered such that the agreed benefits are realized. Some of the considerations of project management are: wise use of cost/budget,

identification and acting on risks, delivery of quality output, managing expectations of stakeholders and identifying requirements.

1.8.3 Project Leadership

Leadership is the ability and skill to inspire confidence, support and motivate the people who are needed to achieve the organizational goals (Vijay, Deepak and Joyce, 1994). According to the study made by Paul (2016) 80% of high performing project organization's most important required skill of their people when managing complex projects was leadership. A leader has many roles and functions; he/she must be a good follower as well as a good listener, coach, mentor, figurehead, spokesperson, negotiator, team builder, team player, technical problem solver, entrepreneur and strategic planner (Journal of Management Policies and Practices, 2014.)

Leadership is about coping with change. Leaders establish direction by developing a vision of the future. They align people by communicating this vision and inspiring them to overcome obstacles. Leadership is about motivating and guiding people to exert their potential in order to achieve the objective of the organization they work in (Vittal, 2010).

Leadership has an influence on the project success. The end results of the project are highly dependable on the behavior and actions of the project manager. Any successful outcomes or fallouts are accredited to the particular steps that the project manager deliberately decided to take (Maritta, 2013). Although each project will be initially set with specific measurable factors to gauge success, the fundamentals to aim and achieve overall project success require the ability to apply certain core leadership competencies. Some of the

high level leadership attributes that encompass the key set of competencies are planning, leading, team motivation and communication (Thomas, 2011).

1.8.4 Project Leadership Challenges

In the UK, the government's major projects portfolio in 2014/15 was made up of 188 projects with a lifetime project value of £489 Billion. From these on a linear basis only one in three of these projects are likely to be delivered on time and to budget (Paul, 2016).

A project leader can be challenged by the following factors in a way, unclear scope, undefined goals, poor estimating, bad contract terms and conditions, lack of stakeholder engagement, inconsistent support from stakeholder or limited sponsor attention, unclear requirements definition, undetermined risks, scope changes, the dynamic nature of environment in which projects are being managed, projects are becoming more complicated and increasingly more complex whilst the tools, techniques, methods and capabilities have remained the same over many years, and lack of skills in leadership. Hence, managing projects in this mix of dynamic factors requires a lot from project leaders and also show how easy it is for a project to fail (Paul, 2016).

1.9 ORGANIZATION OF THE STUDY

This research is divided in to five chapters. The first chapter contains the introduction part. The second chapter presents related theories and previous studies related to the topic (literature review). The third chapter contains research methodology and design used in this study. In chapter four the data collected during the data collection process is analyzed and discussed. Finally,

in chapter five, the conclusion, recommendations, limitation of the study and implications for further research is presented.

CHAPTER TWO: LITERATURE REVIEW

2.1 THEORETICAL REVIEW

Information systems (IS) have enormous economic influence to organizations' performance. As defined by the Standish Group (1995) "An information system is the technology an organization uses and also the way in which the organizations interact with the technology and the way in which the technology works with the organization's business processes". The application of IS makes easy the collection, storage and process of mega information in a greater speed and enable one to perform his/her job efficiently. It consists of all of the hardware, software, networks, and facilities.

As Kingsley (2012) stated Information Technology (IT) sector is the most dynamic and innovative sector. The projects of information systems development are very complex in nature. Changes are more reoccurring. The providers of the technologies are aggressively competing to provide new technologies. The telecommunication industry which constitutes a big part of the IT industry is always at the center of these technological changes. The project managers have to deal with these changes when participating in the implementation of these systems.

The aim of implementing IS project is not the technology itself, but achievement of certain business goals such as improved customer service or increased profitability. It enables the interconnection and operation of information technologies and human managerial skills to achieve business productivity and excellence.

According to Standish Group (1995) Information Systems Development (ISD) can be seen as the process of interaction by which some collective work activity is facilitated by new information-technological means through analysis, design, implementation, introduction and sustained support, as well as process management to achieve business excellence.

It is the developmental change in process that is aim at achieving certain business objectives or purposes by using information systems. This change is targeted toward business operational excellence and productivity. Several information development approaches have been used to achieve business excellence. Identified Waterfall, Prototyping, Incremental, Spiral, Rapid Application Development (RAD) and Extreme Programming Approaches as commonly used in IS project and system development. In IS development, no one approaches is regarded as the preeminent because of the dynamic nature of business and its requirements needed to achieve to operational excellence (Standish Group, 1995).

In the field of information systems, different authors and researchers use different terms for projects. They use IT (information technology) project, software development project, IS (Information Systems) project, and ICT (Information and Communication Technology) projects (Maritta, 2013). In this research, the concept information system project (IS project) refers to all the above-mentioned connotations.

2.1.1 Characteristics of IS projects

Information system projects are disrupted by a variety of changes, including technology, project requirements, as well as personnel and the external

environment. IS projects are different from other projects, as they can be very diverse. In contrast to projects in many other industries, IS projects are characterized by high complexity, conformity, changeability, invisibility, and high chances of failure (Maritta, 2013).

IT projects that range from small to mega projects all share common characteristics. The main characteristics can be summarized in seven categories abstract constraints, difficulty of visualization, excessive perception of flexibility, hidden complexity, uncertainty, more money being invested in research and development (R&D), more information being available, technology innovation increasing at an astounding rate, tendency to software failure (high risk projects), and goal to change existing business process (Maritta, 2013).

The most important characteristics of IS project developments is its complexity. Unpredicted events, associated with project carrying out, can negatively affect the costs, term, quality and other aspects of information systems development. Only one in eight information technology projects can be considered truly successful (that is meeting the original time, cost and quality criteria) (Maritta, 2013).

2.1.2 IS Project Management

The IS area is very wide, therefore different types of IS projects may be undertaken within it. Though not inclusive, IS project management includes overseeing projects for software development, hardware installations, network upgrades, cloud computing and virtualization rollouts, business analytics and data management projects and implementing IS services. Marchewka (2015)

conveys that IS project management employs project management principles and tools that should be part of a methodology, which consists of step-by-step activities, processes, tools, controls and deliverables defined for the entire project.

IS project management often encounter many issues, such as rapid technological upgrade, fast changes in the environment and frequent movement of people (Athar et al, 2013). On top of that the result of an IS project is difficult to visualize in the initiation phase of the project, therefore IS project management can be seen as the process of making visible what is invisible (Maritta, 2013).

IT project management as a discipline has become even more worrisome in today's business environment; constant IT changes are taking place; stakeholders and management have expectations that have to be met instantaneously; and ad- hoc temporary teams are created constantly to complete different projects (Athar et al, 2013).

2.1.3 IS Project Leadership

Leaders should have some critical qualities such as integrity; vision; toughness; decisive; trust; commitment; selflessness, creativity; risk taking; communication ability, and visibility (Vittal, 2010). On top of this the responsibility for keeping the project within the budget, schedule, and appropriate scope rests with the project leader (Maritta, 2013).

Specially in managing projects project leaders, should give greater attention to relationships, to clearly communicate their ideas, and also to processes (Athar et al, 2013). “Given the significance of project management processes and

team members in project success, the project manager has to pay attention to both the management and leadership roles; the emphasis shifts from one role or the other based on the size and characteristics of the project.” (Vittal, 2010).

Sreekumar (2015) noted the necessity of acquiring competent skills in project management knowledge areas in managing projects. According to him, “use of project management skills, understanding organizational stakeholders, availability of strong people with technical competencies, and project feedbacks and review mechanisms are extremely important for managing projects”

Information processing professionals are similar in many ways to other professionals, and hence the traditionally recognized managerial functions are relevant in the IS context as well. While the techniques and tools used in systems development change, the managerial functions employed during systems development process seem relatively stable (Vijay, Deepak and Joyce 1994).

2.1.4 Projects Critical Success Factors (CSFs)

The challenges in leading projects can be easily pin pointed out by managers if the success or failure factors attached with the project is clearly articulated and documented by the organization the project run with. Knowing the success or the failure factors helps to infer and figure out the challenges that are particularly impair the project negatively toward achieving success (Maritta, 2013). Study of project success and critical success factors is considered as one of the vital ways to improve the effectiveness of project delivery. In the following sections the project success factors assessed in depth.

The term “Success” defined by different stakeholders differently. Due to different perception project success claimed to be the result of different factors. Sometimes “...what appears to be a failure in one project might be a success factor in another one” (Ghasabeh and Chabok, 2009). Critical success factors are a set of project variables or factors that are strongly related to project success and lead to project success, when managing these factors in the best possible manner.

Critical success factors define what is necessary to meet the desired deliverables of the customer. Lavagnon (2009) defines project success with corresponding to a project’s efficiency and effectiveness. Project success or failure reason and critical success factors can be also used as a means of understanding and improving the project management process (Kingsley, 2012). Therefore, it is possible to claim that “...project success is an object of study that is inclusive, ambiguous, and multidimensional” (Lavagnon, 2009; Maritta, 2013)

(Ghasabeh and Chabok, 2009; Lavagnon, 2009) classify project success-related factors into two groups: "Project Success Criteria" (PSCs) and "Project Success Factors" (PSFs). Ghasabeh and Chabok (2009) demonstrated that it is of importance to differentiate between these two groups. More specifically, they stated that success criteria are used to measure success whilst success factors contribute to the achievement of success. Lavagnon (2009) defines the terms using the Canadian Oxford Dictionary (1998) as “a criterion is a principle or standard that a thing is judged by,” while a factor is “a circumstance, fact, or influence contributing to a result.”

Prefer et al (2018) categorize success into “Project Success” and “The Generic Project Success Criteria and Factors”. As mentioned here “The Management Support” turned out to be the most important measure of project success. “Time” and “Quality” and their process, on the other hand, were not considered as critical success criteria.

(Ghasabeh and Chabok 2009, Lavagnon, 2009) further categorize success into “Project Success” and “Project Management Success which is related to performance” Accordingly they state that project success is measured against the overall objectives of the project while project management success is measured mostly against cost, time and quality (so called performance).

As mentioned by Ghasabeh and Chabok (2009), a project management is deemed successful when it meets budget and schedule constraints even though it may not have met factors such as customer needs or achieved a quality commercialization process of the final product. However, it is necessary to consider both critical success factors and project success of having very close and significant relationship with each other.

There is a lack of agreement concerning the criteria by which success is judged (Dong, Chuah and Zhai, 2004). A project can be completed on time within budget but considered as a failed project if it did not meet company strategic objectives. Thus, project success and project management success are not the same. Failure could be avoided by paying careful attention to the project management success criteria and critical success factors which if it absents cause failure. Project success is often assessed only at the end of the project life cycle, which means success criteria to the outcome available after

wards taking months or years after finishing the project. However, it is important to consider success taking into consideration the beneficiaries or stakeholders perspective primarily (Kingsley, 2012).

Researchers who study the area of project success criteria and project management success factors stated the impossibility of listing out all the needs of all projects (Lavagnon, 2009). There is a clear lack of consensus between researchers and authors regarding what factors affect project success (Maritta, 2013). “Defining critical success factors for a project is contentious and intricate” (Kingsley, 2012). However, identifying and prioritizing the success factors could provide guidance to a project manager for the development of a risk management plan and for deciding which risks are worth taking and which are not (Kerzner, 2010).

Moreover, as to which criteria are most significant to the success of the project has been studied by different researchers. However, it is somehow impossible to introduce a limited number of parameters as project success criteria to evaluate projects against with. Trying to establish a set of accepted project success criteria by all seems like an endless effort (Maritta, 2013).

Kerzner (2010) define project success/ Project management success as having achieved the project objectives: within the allocated time period, within the budgeted cost, at the proper performance or specification level, while utilizing the assigned resources effectively and efficiently, and accepted by the customer, with minimum or mutually agreed upon scope changes, without disturbing the main work flow of the organization, and without changing the corporate culture.

Sreekumar (2015) on the other hand, considers constituting a PMO, adopting project management methodology, finding strong project managers, developing project management capabilities, and using feedback mechanisms are some of the best practices an organization needs for measuring its success.

According to Kingsley (2012) “success needs to be investigated from the perspective of active project team stakeholders as well as from that of their client/benefit recipients and in the theoretical and empirical/practical review of critical success criteria and factors on any project”.

2.1.5 Challenges to a successful IT project leadership

Given the uniqueness of projects and their temporary nature, project leaders face many challenges. Managing complex IS projects is a difficult task because of constantly changing conditions, technology, resources, project requirements, and schedules (Maritta, 2013). Development of IS system usually encounter many problems. Among the most imperative are low productivity, a large number of failures, and an insufficient relevance of information system with business needs (Standish Group, 1995).

At the project initiation, defining the project, scope, identifying the stakeholders, recruiting new project manager, and obtaining management approval are considered the key challenges in this stage. In the project planning besides scope, time and cost, contract and vendor management, organizing and controlling project situations, capabilities are the challenges (Sreekumar, 2015).

IS development projects requirement determination are conceptually intensive. It is difficult to completely and explicitly determine the system requirements

at the start of the project. It is suggested that requirements must be allowed to be refined as a project progresses and then be fixed at some appropriate point in time (Dong, Chuah and Zhai, 2004).

There are number of human issue factors that influence IS project success, e.g., competence, skills and experience of project managers and project staff, staff turnover, top management support, stakeholders' involvement, quality of project management and leadership (Maritta, 2013).

According to a study done by Kerzner (2010) the obstacles that hinder the benefit of successful project management are: complexity of projects, customer's special requirements and scope creep, organizational restructuring, project risks, technological changes, forward planning and pricing.

According to Sreekumar (2015) "Role of senior leadership, effectiveness of PMO, human factors, PM training, poor adoption of PM standards, and triple constraints are some of the important challenges that can occur while implementing best practices. As a critical success factor, top management support is most essential for the development of best practices. Lack of senior leadership support, ineffective PMO, people factors, and lack of formal PM training are some of the significant challenges organizations face, while implementing project management best practices.

2.2 EMPIRICAL REVIEW

As a generic/universal set of success factor and project success criteria in measuring projects performance Ghasabeh and Chabok (2009), listed: -. Time, Cost, Quality, Project Control, Project Scope, Project Change, Stakeholders'

Satisfaction, Project Team, Top Management support, Resources Availability, Project Contracts, and Project Risk Management. Based on the reviewed literature and conducted survey the following findings obtained.

As Ghasabeh and Chabok (2009), reviewed, the significant & the most important project success criterion is time which stated by 30 references. Time is followed by cost (29), stakeholder's satisfaction (24), quality (24), project management (12), project team (9), and Scope referred by (8) researchers respectively.

However, based on Ghasabeh and Chabok (2009), survey, the most important generic project success criterion and success factor collected from project manager feedback as listed in order: Top Management Support ranked (1), Cost (2), Project control (3), Stakeholder Satisfaction (4), Scope (5), Risk Management (6), Contracts (7), Project Team (8), Time (9), Project Change (10), Resource Availability (11), and Quality (12).

Here Project control assumed to embrace time, cost, quality, risk and scope control should be centralized under a general definition of “Project Control”, which was considered as a very important success criterion. The above analysis shows that the existence of different perspective among researchers and project managers as to the significance of different factors to the successful accomplishment of a project.

Adam (2007, 2012) pointed some of the challenges to Ethiopia ICT sector particularly on projects as the existence of a wide human capacity associated gap -Limited skills in large-scale ICT project development and management, building skilled human resource to manage complex socio-technical projects,

lack of ongoing analysis of the cost benefits of various investments to correct failures, capacity and skills shortage, monitoring and evaluation challenges, structural problems such as delays between plans and realization, project management.

G/Hiwot (2017) made a research on “Assessment of Factors Affecting ICT Project Performance at Ethio Telecom” with the objective of investigating the factors that influence the performance of ICT projects in ethio telecom. project management practice, top management support, user involvement & project monitoring on ICT project implementation performance as a factor that challenges project managers and survey to get managers perspective toward these factors. He bounded the survey only to the four success factors deemed potential and obliged the participant to respond only to that gap.

Therefore, what success? mean to ethio telecom priory must be defined by the organization itself to start with. Taking some factors assuming “significant” and assessing the challenges project manager’s face in regard to it might lead to wrong conclusion. The fact to consider the recognized generic success factors/ challenges to assess their impact on projects will add value but not replace what the project managers themselves pointed out. Therefore specific critical success factors that are particularly affect the performance of the IS projects priory should be gathered that are particular to ethio telecom IS projects. This research made an interview with selected experts to find CSFs that ethio telecom used in IS projects and based on the finding survey conducted to get the majority of the IS project implementers view about this CSFs and the challenges they faced in regard to this factors.

2.3 CONCEPTUAL FRAMEWORK

2.3.1 CRITICAL SUCCESS FACTORS OF IS PROJECTS

A fundamental problem of IS project assessment is the varied and sometimes contradictory stakeholders' expectations and their perceptions of success or failure (Maritta, 2013). According to Kingsley (2012) completing projects on time, within budget and to specification is used as the standard for judging success especially for information technology projects.

According to Athar et al (2013) combining project management ideology and methods with information technology during the implementation of IS projects is very significant for attainment of IS projects. The success of IS project relates to numerous factors, and it is important to find the critical ones.

IS project's complexity and high uncertainty also call for critical success factors in IS project to be analyzed from different angles. Athar et al (2013) enlisted and examined 15 Critical Success Factors (CSF) of IT projects. These factors can be applied to all IT projects and is not specific to a particular type of IT/IS projects.

A. ***Top Management Support:*** - Top management who own the resources and the decision power are considered as the most important factor for project management success intern for project success. Top Management Support is one of the most important factors for success of IS projects due to their authority and influence (Athar et al, 2013; Dong, Chuah and Zhai, 2004; Morcilio, 2016). This factor is important for ensuring a long-term business vision, top-level interaction among users, and IS departments to facilitate successful implementation (Standish Group, 1995).

B. Leadership: - Leadership effectiveness of the project manager is one of the critical success factors for the success of IT projects. The lack of leadership resulted in the implementation phase taking more time than planned (Athar et al, 2013). The project manager should be competent. As per the study of Dong, Chuah and Zhai (2004) leaders should have strong technical and relational skills. Leaders should use their charisma and influence to mold the working environment. Although some projects fail because of technology or design problems, most of the factors that lead to the failure of system development projects are within the control of the project manager.

C. Team Work: - Because the project manager and the members of the project team are charged with the responsibility of managing and carrying out the project work, general agreement between them is critical to project success (Dong, Chuah and Zhai, 2004). Cross-functional team and cooperation between members of team is a critical success factor for IT projects (Athar et al, 2013; Morcilio, 2016).

D. Clear Goals: - Clear and well-defined goals are important critical success factors for a successful IT project. According to Dong, Chuah and Zhai (2004) the right choice of project accounts for half of the project's success. The effort of the project team will not redeem a project that is doomed to fail because it has been ill-conceived or because of poor early decision-making. Therefore, the statement of the project objective must be clear, realistic, measurable, and concrete. The goals should be set in accordance with the requirements of the customer (Dong, Chuah and Zhai, 2004; Standish Group, 1995).

E. Team Capability: - A project is performed through human resources. Without them it is impossible to expect a project to happen. Having competent project team is considered as mandatory in IS project success (Athar et al, 2013; Dong, Chuah and Zhai, 2004). International scope of IT projects makes team capability an important critical success factor. IS staff or team must have multi-dimensional capabilities. The team must be composed of technical staff and staff who have knowledge of the functioning of the company. This multidimensional aspect of the IS team is regarded as one of the most important factors of success.

F. Budget/Financial Support: - The successful accomplishment of a project is largely dependent on its cost or budget utilization. Unrealistic allocation of budget is a great challenge for project managers. Such projects will not be completed within time or require standards. IT projects require significant financial resources. Financial support is dependent on another critical success factor 'Top Management Support' as the senior executives approve the budget (Athar et al, 2013; Morcilio, 2016).

G. Effective Communication: -Effective communication is regarded as an important factor for the success of IT projects, especially global IT projects. Dong, Chuah and Zhai (2004) also stated that good communication as a key to a successful project. The greatest threat to the success of any IS project is a failure to communicate effectively. IS projects being often complex and cross-disciplinary in nature. Good communication among project team members should lead to expectations that are more realistic, better relationships, and more effective. Such ground helps stakeholders to understand the objectives

and makes them more responsible towards their work (Athar et al, 2013; Morcilio, 2016).

H. Process Quality: -Quality is considered both a project success criterion and factor. Quality should be monitored from the start of the project and excellent quality standards and expectations should be established (Athar et al, 2013). The rationale for this is that a process cannot be reversed to add quality. When it is realized that there is a quality issue, it is perhaps too late to amend it. Hence it is a critical success factor for IT projects (Morcilio, 2016).

I. Training: - training should be conducted for managers, staff and end-users for the success of the IT project. It was also found that by training users, users gain more confidence in the IT system and hence it affects their attitudes towards the system. User training early in the development phase of the project can also help in building a better system (Athar et al., 2013).

J. Project Progress Schedule: - Project as defined earlier has a beginning and an end. The project work should be performed within the given duration. Unattainable allocation of time, too long or too short, frustrate the project manager even hamper successful accomplishment of projects. Therefore, project schedule should be realistic enough to be met and completed on time. As unlike in other projects where we can see the product being developed physically, software doesn't have physical manifestation therefore keeping track of the development schedule is very important. It has also been mentioned that meeting project success is synonymous with meeting project schedule; this highlights the importance of this critical success factor (Athar et al, 2013; Morcilio, 2016).

K. User Involvement: - user involvement is crucial to the successful completion of IS development projects (Dong, Chuah and Zhai, 2004) As per Athar et al (2013) customer/user involvement in application design is necessary and the lack of it can result in IS project failure. Many IS projects fail due to their inability to meet user expectations. Customer interaction helps in better understanding of the systems and also helps in improving acceptance from users as they get to know the systems capabilities more clearly (Athar et al, 2013; Standish Group, 1995).

L. Risk Management: - A project unique in nature associated with this project is doomed with uncertainties. There for a pre-planned risk management is considered as project success factor. Active risk management can reduce risks and can also help in avoiding risks (Morcilio, 2016).

M. Effective Monitoring and Control: - Project control mean directly associated with the controls and monitors of project success criteria like the project cost, time, change, quality and scope. Adequate monitoring and control is important for the quality of the project. Effective control can help in reducing the planned time and can also help in reducing ambiguity. According to Athar et al. project controlling and monitoring should be done on all stages of the project. Monitoring and control should be proactive, i.e. must be used to prevent incidents and provide regular feedback (Athar et al, 2013).

N. Adequate Requirement: -Getting clear requirements is an important design issue. According to Athar et al. adequate requirements is an important critical success factor. Inadequate requirements usually lead to a failed

project. Requirements should be defined clearly at the start of the project. Getting requirements involve developing a shared understanding of the future system in sync with the users and then using it to develop the actual system in as much likeness as possible (Athar et al, 2013; Standish Group, 1995).

O. Select Right Team: -Building the right team means getting suitable people in the team and it is one of the critical success factors for IT projects (Athar et al, 2013). The project team is responsible for the stability of the project and it is important to get a suitable mix of experts in the team.

P Project Scope: - A project scope with clearly defined goals and objective has been used as a dimension for project success. The project objective should be congruent and agreed upon by the project stakeholders and participants. The project team's effort must be within a definite and defined project scope. Scope changes are said to be the most common source of project over runs (Dong, Chuah and Zhai, 2004; Morcilio, 2016).

Q Project Change: - Any change that exists after the requirement determination affects project scope, goals and project planning. Most project specifications change amid the project progress. During project implementation, change control and management are critical to the success of a project. The problem of changes is particularly severe in the case of software development and IS projects. A formal change management system is a useful tool and an integral part of a configuration management system. Unless it is managed through scope change control it creates scope creep (Dong, Chuah and Zhai, 2004).

R ***Project planning:*** - For an IS project, the lack of good project planning is ranked as the most likely single cause of project failure. Effective planning is more than just setting up an elaborate plan at the start of a project. A good project manager monitors the progress closely and regularly updates the project plan throughout the project implementation (Dong, Chuah and Zhai, 2004; Standish Group, 1995).

S ***Technology support:*** -Technology factors play a contributory role to some IS projects' abandonment, cancellation, or failure. There must exist appropriate technical capability and infrastructure in the organization to effectively support the IS development and implementation (Dong, Chuah and Zhai, 2004).

T ***Relationship management:*** - Relationship management used as a dimension for project success (Akineda, 2016; Dong, Chuah and Zhai, 2004).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 DESCRIPTION OF THE STUDY AREA

The main purpose of this research is to identify the challenges that hinder successful accomplishments of IS projects. The methodologies that used in this research are, reviewing the existing literature in order to understand the current themes on the subject matter and appreciate the contributions of other scholars. Survey and Interviews were administered to identify the challenges IS project managers facing in implementing IS projects, to identify the IS critical success factors acted upon in the organization, and contribution of project leaders to successful projects accomplishments. Then based on the literature review, administration of survey, and interview, conclusions and recommendations are given.

A thorough desk research were done in order to appreciate important theories and practices both in telecom project management and in project leadership so as to understand them and reflects upon related to ethio telecom case. Academic books, journals and web pages were the major sources of the literature.

3.2 RESEARCH APPROACH

The approach within this research employs both qualitative and quantitative studies concurrently in order to gain more information relevant to the research topic & understanding of the survey results. The quantitative objective is to study the numerical properties and relations that arise from the data of each question through statistical models.

Qualitative approach is used to elaborate on the conclusions made from critical thought, circumstances, behavior and emotions. In this thesis a mix methodology is applied; mainly using a quantitative approach as a primary source of analysis, and validating this method by a qualitative methodology; which plays an auxiliary role in the analysis of the research questions. These methodologies allow the researcher to gain a fuller understanding of the research problem and helps to clarify the data collected. Finally, conclusion of the findings and possible recommendations are given.

A structured questionnaire survey is adopted as the main data-collection method. For a detailed understanding of the situation, semi structured interview with open-ended interview question is used. The interview is administered with four selected project managers and project coordinators of ethio telecom IS projects. It then summarized and analyzed in order to grasp understanding of the situation.

3.3 RESEARCH DESIGN

A research design is simply the framework or plan for a study that is used as a guide in collecting and analyzing the data as well it is a blueprint that is followed in completing a study. So this research uses quantitative and qualitative mixed research approach. The survey instrument is developed from items discussed in literature cited throughout the preceding section. Significant critical success factors are assessed and used in the survey(Dong, Chuah and Zhai, 2004).

An interview is conducted in order to collect any complementary information that can add value to the research and to ensure the comprehensiveness of the survey items. Finally, important facts for the analysis of the data completed through a quantitative approach. Statistical analysis such as percentages of the population, mean and standard deviation used to support the findings and the appropriate conclusion is drawn from the results from each question.

3.4 POPULATION AND SAMPLE

IS projects that were implemented in the TEP phase one were assessed. The TEP projects are the latest projects that were handled by (Some also in progress) IS Division. Hence the project managers and coordinators able to tell the challenges they face with full comprehension. Accordingly, respective assigned IT Services Transition Department project managers, project coordinators, and staffs were participated in the research.

IT Services Transition Department is responsible to rollout the IT Services solution, manages changes on the IT services, decommissions the retired solutions, manages and ensures the release and deployment of IT Services solution (ethio telecom interanet portal, 2018).

The entire 58 populations from IT Services Transition Department that were directly and indirectly participated in the TEP phase I project implementation were participated in the survey. Subsequently, with four key project managers, coordinator, and expert an interview conducted.

The decision to limit the scope of the study only to IT Services Transition Department projects, project managers and project coordinators is due to two

main reasons. They are direct interface between different project stakeholders and project implementers (Huawei, ZTE). Due to that the challenge they face is multifaceted, tackling them will pave a good way to future projects. Moreover they are the prime responsible personnel for leading the follow up of the successful project accomplishment. Hence, curbing the problem encountered by them will significantly contribute to the overall improvement of the Information Systems project's performance.

3.5 DATA SOURCES AND TYPES

The study incorporates both primary and secondary data. The primary data collected from Information System project managers and coordinators through survey and interview to gather first hand data about the specific challenges pertinent to the research topic. The secondary data were collected from unpublished materials of ethio telecom, ethio telecom portal and/or internet and lesson learned documented from previously deployed information system projects.

3.6 DATA COLLECTION PROCEDURES

A quantitative study method is used to conduct the study. There were 47 total questions included on the survey (Dong, Chuah and Zhai, 2004). Structured questionnaires were distributed to 58 IS Transition department's to be filled by project managers, coordinators and staffs. To this 56 participants respond. Qualitative data were collected by the researcher through interviewing four key IS Transition department's project managers (Two) and associated coordinator (one) and IS expert (one) through utilizing semi-structured

interview guideline questions. (Semi structured interview guidelines attached in appendix 1

3.7 ETHICAL CONSIDERATIONS

All the survey and qualitative interviews were conducted by the researcher. The purpose of the research, anonymity and duration were explained to the participants before conducting the survey/interview. The researcher gave time for the participants to respond and probe for each question to get as much information as possible. Chances were given to the participants before closing the interview. The data gathered used for this research purpose and guarantee given as to the confidentiality.

3.8 DATA ANALYSIS

Statistical and numerical data from the questionnaire respondents were collected and logical conclusions drawn from the results to assess the challenges that hinder successful IS project accomplishments. The data were analyzed using SPSS Version 20 and Microsoft Excel. From the five point Likert Scale from “Strongly disagree” to “Strongly agree” used in the questionnaire to measure a survey participant’s response, Mean & Variance were calculated for the challenges considered by each respondent. (A sample of the questionnaire is given in Appendix 2). In addition, from the interview the data gathered coded and discussed descriptively. Finally based on the analysis made, conclusion and possible recommendation is given so as to mitigate the challenges encountered by the project manager/ project coordinators.

Cronbach's Alpha

Cronbach's alpha is a coefficient (a number between 0 and 1) which is used to rate the homogeneity or the correlation of the items that included in a questionnaire. If the reliability test result is closer to the value one it is the more reliable. The items likely measuring the same construct and is the optimum result. Cronbach's alpha increase as the inter correlations between the test items are increase and known as an internal consistency estimate of reliability of test items. If correlation between test items are closer to zero it means the items incorporated in the test are likely measure different traits (Tavakol & Dennick, 2011).

The Cronbach's Alpha for the items included in this research run in the SPSS Version 20 application and the result for the items are above 7 (See the below tables). This result shows that the data collection instrument is close to the value of one and reliable. There is consistency between the items raised in each parameter. The reliability tests performed for parameters incorporated in the survey presented below.

Cronbach's Alpha

Table 3-1: Scale: Reliability Test for Goal & Scope Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.861	4

Source: Survey data, 2018

Table 3-2: Scale: Reliability Test for Planning & Monitoring Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.857	5

Source: Survey data, 2018

Table 3-3: Scale: Reliability Test for Management Support Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.837	2

Source: Survey data, 2018

Table 3-4: Scale: Reliability Test for Project Manager Leadership Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.911	6

Source: Survey data, 2018

Table 3-5: Scale: Reliability Test for Project Team Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.748	5

Source: Survey data, 2018

Table 3-6: Scale: Reliability Test for User Requirement Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.850	4

Source: Survey data, 2018

Table 3-7: Scale: Reliability Test for Communication Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.837	4

Source: Survey data, 2018

Table 3-8: Scale: Reliability Test for Change Management Issues

Reliability Statistics	
Cronbach's Alpha	N of Items
.906	3

Source: Survey data, 2018

Table 3-9: Scale: Reliability Test for Challenges to Leading Successful Projects

Reliability Statistics	
Cronbach's Alpha	N of Items
.888	8

Source: Survey data, 2018

CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

4.1 PROJECT IMPLEMENTERS DEMOGRAPHIC ANALYSIS

The demographic information is used to analyze about the characteristics of the population working on IS projects. Thus, the profiles of project implementers who are working in Ethio Telecom IT Services Transition Department are summarized by the following tables.

Profile of Project Implementers

Table 4-1: Gender of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	47	83.9	83.9	83.9
Female	9	16.1	16.1	100.0
Total	56	100.0	100.0	

Source: Survey data, 2018

Table 4-2: Educational Qualification of Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Bachelor's Degree	35	62.5	62.5	62.5
Post Graduate Degree	21	37.5	37.5	100.0
Total	56	100.0	100.0	

Source: Survey data, 2018

From the above table 62.5% respondents have bachelor degree qualification and the rest have post graduate degree qualification. The result shows the respondents are capable of understanding the project management principles and can apply it in the project with good guidance of the project manager.

Table 4-3: Project Management Training

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid YES	40	71.4	71.4	71.4
Valid NO	16	28.6	28.6	100.0
Total	56	100.0	100.0	

Source: Survey data, 2018

The above table shows that the majority of the survey participants (71.4%) of the implementers got training on project management principles. This helped them to easily follow the project management principles in the implementation of IS projects.

Table 4-4: Service Year

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid less than 5 year	6	10.7	10.7	10.7
Valid From 6 years to 10 years	18	32.1	32.1	42.9
Valid From 11 years to 15 years	24	42.9	42.9	85.7
Valid From 16 years to 20 years	8	14.3	14.3	100.0
Total	56	100.0	100.0	

Source: Survey data, 2018

From the above table it can be deduce that 89.3 % of the participant of the survey had more than six years of working experience in ethio telecom. This gave them the opportunity to understand the function, systems, as well as the integration relationship that exists between different systems.

Table 4-5: Position in the organization

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Staff	45	80.4	80.4	80.4
Valid Supervisor	3	5.4	5.4	85.7
Valid Manager	8	14.3	14.3	100.0
Total	56	100.0	100.0	

Source: Survey data, 2018

Table 4-6: Project Experience

	Frequency	Percent	Valid Percent	Cumulative Percent
0_2 Years	23	41.1	41.1	41.1
3_4 Years	18	32.1	32.1	73.2
Valid 5_6 Years	7	12.5	12.5	85.7
Above 7 Years	8	14.3	14.3	100.0
Total	56	100.0	100.0	

Source: Survey data, 2018

Regard to exposure to project work, 58.9% of the project implementers have more than 3 years of working experience on projects. Though projects are dynamic in nature and the environment the participants working on changed time to time, the training and experience they got helps them to cope up with changing project situations.

4.2 ANALYSIS OF THE CRITICAL SUCCESS FACTORS

The most important aspects of this research were to identify the critical success factors for IS projects ethio telecom’s senior management considered and implemented in the organization. Identifying and prioritizing the success factors could provide guidance to a project manager for the development of a risk management plan and for deciding which risks are worth taking and which are not (Kerzner, 2010).

The data gathered from IS project managers, coordinators and staffs about the critical success factors, ethio telecom acted upon the following results collected. The participant reflected their belief on the critical success factors “clear and realistic goals and scope”, “management support”, “user

involvements”, “change management process”, and about “project team” positively and the result presented in the following tables .

Clear and Realistic Goals and Scope

The study sought to find that IS projects were started with formulating clear and realistic goals and scope. The goals are towards which the project works to satisfy customer requirements and intern to meet the company strategic objective. The goals guide the project towards meeting the requirements of the customer (Dong, Chuah and Zhai, 2004). Bellow analysis made regard to setting clear and realistic goals and scope presented.

Table 4-7: Clear Goals and Scope

Critical Success Factors(CSF)	N	Mean	Std. Deviation
The project has a clear and realistic project goal	56	3.8036	.99854
The project has a clear defined project scope	56	3.8571	.92301
There is broad consensus of project goal and scope among key stakeholders	56	3.4643	.93350
The project has agreed-upon success criteria among stakeholders	56	3.6071	.77878
Valid N (listwise)	56		
Overall Mean		3.6830	

Source: Survey data, 2018

In this regard the criteria “Clear Goal & Scope” is having overall mean 3.6830. According to Dong, Chuah and Zhai (2004) the right choice of project goal accounts for half of the project's success. Ethio Telecom’s projects have a clear and realistic project goal (Mean value of 3.8036) and agreed on by all stallholders.

The projects that run in IS has a clear defined project scope (Mean value of 3.8571). The project objective should be congruent and agreed upon by project stakeholders. The project team effort should be guided by the defined project scope (Morcilio, 2016). Though projects run with flexibility in accommodating changes but this scope changes should be controlled and need to attended with care. Scope changes are said to be the most common source of project over runs (Dong, Chuah and Zhai, 2004; Morcilio, 2016).

Project planning and monitoring

The study sought to find out if the IS projects are progressed as planned and monitored in order to deliver projects as agreed upon schedule and quality. Lack of good project planning is ranked as the most likely single cause of project failure (Standish Group, 1995). The following results obtained from analysis of the gathered data.

Table 4-8: Project Planning and Monitoring

Critical Success Factors(CSF)	N	Mean	Std. Deviation
<i>The project has an easily understood master plan with well-set milestones</i>	56	3.4821	.85261
<i>The project plan and milestones are agreed-upon and accepted by all key participants</i>	56	3.3036	.87219
<i>The project progress is monitored closely by efficient tracking method</i>	56	2.8036	1.01658
<i>There are effective information feedback channels during project execution</i>	56	3.0893	.97751
<i>Project deviations off plan are well handled in time</i>	56	2.6250	.96413
<i>Valid N (listwise)</i>	56		
Overall Mean		3.0607	

Source: Survey data, 2018

The study revealed that in ethio telecom projects planned with easily understandable, agreed upon master plan and well set milestone by stakeholders, however not followed in the implementation of the project. A good project manager monitors the progress of a project closely and regularly updates the project plan throughout the project implementation (Dong, Chuah and Zhai, 2004; Standish Group, 1995). However the finding contradicts this fact Tables 4.8 indicates this finding.

The study performed to find whether the IS projects plan are followed strictly in order to avoid in project delay. The study revealed that the mean value obtained (2.6250) about project deviations off plan are well handled in time. The study also sought to find whether the IS project progress is monitored closely by efficient tracking method to clearly identify the status of a project in specified period of time, similarly the majority (46.4%) strongly disagree and disagree while 21.4% neutral and 32.2% agree and strongly agree that the existence of project progress tracking method.

Senior Management Support

Top Management Support is one of the most important factors for success of IS projects (Athar et al, 2013; Dong, Chuah and Zhai, 2004; Morcilio, 2016). Here aimed to find the commitment of senior management in offering the necessary help and support the project required of them. The overall mean of 3.1964 obtained for senior management support to the project shows senior managements of ethio telecom were committed them-selves to support the project and to provide the required resources for the project. As Standish Group (1995) stated executive management support among others is the most

significant criteria for the success of a project. Table below depicts senior management's support in ethio telecom IS projects.

Table 4-9: Senior Management Support

Critical Success Factors(CSF)	N	Mean	Std. Deviation
Senior management would like to offer necessary help and support for the project when requested	56	3.3571	.96160
Senior management commits to provide sufficient resources required for the project	56	3.0357	.95278
Valid N (listwise)	56		
Overall Mean		3.1964	

Source: Survey data, 2018

Project Manager Leadership

The study sought to find whether the project leader were acted upon the project with full knowledge, expertise, project leadership capability, good influence with the best use of acquired resources to the successful accomplishments of projects. The result obtained presented in the following table.

Table 4-10: Project Leadership

Critical Success Factors (CSF)	N	Mean	Std. Deviation
The project manager has sufficient PM Knowledge and relevant experience	56	2.8393	.91008
The project manager has enough expertise relevant to project	56	2.8393	.84803
The project manager leads his team with appropriate project leadership	56	2.7857	.90883
The project manager is capable of acquiring adequate resources for the project	56	3.0536	.86170
The project manager is able to allocate appropriately and make the best use of project resources	56	2.8393	.84803
The project manager is authorized with appropriate power	56	2.8571	1.01674
Valid N (listwise)	56		
Overall Mean		2.8690	

Source: Survey data, 2018

The overall mean of project leadership 2.8690 indicates that the IS projects handled in ethio telecom has gaps in project leading. The project manager lacks project management knowledge and relevant experience in projects. In addition as Adam (2007, 2012) pointed the existence of a wide human capacity associated gap -Limited skills in large-scale ICT project development and management, building skilled human resource, the project manager lack the expertise to lead projects. AS to leading the project team with appropriate project leadership skill, the majority (41.1%) of the respondents are strongly disagree and disagree about the fact the project manager leads his/her team with appropriate project leadership skill, 35.7% respondents are neutral about the issue, the rest 23.2% of the respondents agree and strongly agree about the project manager leads the project team with appropriate project leadership skill.

According to the responses of two interviewees, “The project manager selection in ethio telecom is not transparent. The selection is made mainly according to closeness to the management not by project experience he/she has or knowledge acquired. It is a position to benefit someone rather than the company. Therefore it is hard to communicate with them as a professional” However, Sreekumar (2015) stated that finding strong project manager as one of the critical success factor for a project.

Based on the analysis made the project manager has limitation on knowledge, expertise, project leadership capability, and best use of acquired resources. According to Kerzner (2010) utilization of the assigned resources effectively and efficiently leads to project success. Lacking such ability leads to project failure or delay.

Project Team

According to Athar et al (2013) and Dong, Chuah and Zhai, (2004) having competent project team is considered as mandatory in IS project success. This study sought to find whether the project team is staffed with skilled team players with the needed expertise and experience. In addition whether the team have given the required training and assigned to the right place with role and responsibility were the team of this study. The survey shows the following results (See table below)

Table 4-11: Project Team

Critical Success Factors(CSF)	N	Mean	Std. Deviation
The project team is staffed with skilled team players who possess the expertise the project requires	56	3.0179	.92424
The team members are motivated and committed to a shared goal	56	3.4286	.89152
The technical members have experience relevant to the project	56	3.3393	.83724
The team members are provided with required training	56	2.7857	.94800
Each participant in the project has a clear role, responsibility, authority and report relationship with others	56	3.0357	.95278
Valid N (listwise)	56		
Overall Mean		3.1214	

Source: Survey data, 2018

The project team is responsible for the stability of the project and it is important to get a suitable mix of experts in the team (Athar et al, 2013; Dong, Chuah and Zhai, 2004). The project team in IS staffed with skilled team players who possess the expertise and the experience the project requires. The overall mean value 3.1214 confirms this fact. The teams consider themselves

committed to the shared goal. However there is gap in acquiring training in the field with a mean value of 2.7857. Through training the project team will gain confidence in managing great technological innovations introduced in the project (Athar et al, 2013).

User Involvement

Here the study sought to find whether users were involved in the project in requirement definition and to affirm that the project's accomplishment to their need. The Standish Group stated that user involvement and clear statement of requirements are the most significant criteria for the success of a project (Standish Group, 1995). As per Athar et al (2013) lack of customer involvement in application design results in IS project failure. In ethio telecom users were involved in requirement determination, in design phase, and when testing the system. The mean value 3.3125 achieved for analysis of user involvement shows the fact that ethio telecom's act in implementing this in IS project implementations. Through involvement users were able to clearly state their requirement, their expectation were more or less realistic. Hence they were participated in all the stated project phases and their interaction to the helps them to better understand the system. They got knowledge on the system and able to use effectively the systems implemented. Athar et al (2013) concludes user involvement creates the same benefit as the finding. See table below to obtain further clarification.

Table 4-12: User Involvement

Critical Success Factors(CSF)	N	Mean	Std. Deviation
Users can state their requirements clearly	56	3.1786	1.04633
User requirements and expectations are realistic	56	3.1250	.93541
Users can involve in project actively as necessary	56	3.3571	.96160
Users have the ability to use the deliveries of project	56	3.5893	.82631
Valid N (listwise)	56		
Overall Mean		3.3125	

Source: Survey data, 2018

Communication

Hence the greatest threat to the success of any IS project is a failure to communicate effectively, this study sought to find whether communication were considered as critical success factor by ethio telecom senior management and given the needed attention. The research analysis shows that communication between project teams and within other stakeholders got overall mean 3.1696. Dong, Chuah and Zhai (2004) mentioned that communication as regarded important success factor for IS projects especially for those global IT projects. Ethio telecom's most projects involve third party vendors and need great interactions. The survey result shows that the company considered the issue with due care and acted on it. However language barrier with vendors were mentioned as a challenge for project success. There were effective communication about the project progress, information was disseminated according to the need and equally the project team communicated with the project users effectively in the course of IS project implementation. Table below depicted the fact that in all areas of

communication the study sought to find answer, the mean value is more than 3 see the bellow table for reference.

Table 4-13: Communication

Critical Success Factors (CSF)	N	Mean	Std. Deviation
The project stack holders are well informed about status of the project and necessary information	56	3.1964	.98016
There are good communication, mutual respect, and effective conflict resolution within project team members	56	3.2679	.99984
There is adequate and effective communication between users and project team	56	3.0000	.85280
The project manager has sufficient communication with top management	56	3.2143	.88860
Valid N (listwise)	56		
Overall Mean		3.1696	

Source: Survey data, 2018

Change Management

The study sought to find out if there were change management process or procedure used in the course of IS project implementation. During project implementation, change control and management are critical success to guide the project in a specific path towards success. According to Dong, Chuah and Zhai (2004) the problem of changes is particularly severe in the case of software development and IS projects as all. According to the finding about change management, in ethio telecom a formal change management process placed to manage changes that occurred in projects. User requirement changes

are handled effectively and managed well. The overall mean value of 3.1726 shows this fact. The mean value to each item presented in the following table.

Table 4-14: Change Management

Critical Success Factors (CSF)	N	Mean	Std. Deviation
A formal change management process exists in organization to manage project changes	56	3.3571	.99870
Project scope changes are managed well	56	3.1071	1.05621
Users requirement changes are handled and managed effectively	56	3.0536	.92283
Valid N (listwise)	56		
Overall Mean		3.1726	

Source: Survey data, 2018

Descriptive statistics of the variables

To give an overall insight and to make comparison about the aforementioned variables, items under each variable aggregated and their score mean value presented in Table below.

Table 4-15: Aggregated mean values of CSF

Critical Success Factors (CSF)	Mean	Std. Deviation
Clear goals and scope	3.683	0.90846
Project Planning and Monitoring	3.061	0.93660
Project Leadership	2.869	0.89890
Management Support	3.196	0.95719
User Involvements	3.313	0.94241
Communication	3.17	0.93035
Change Management Process	3.173	0.99258
Project Team	3.121	0.91076
Overall Mean	3.198	

Source: Survey data, 2018

As indicated in table 4-15, all CSF’s mean score is above 3 with the exception of project leadership. Of the eight CSFs setting clear goals and scope is the highest (3.683), while project leadership is the lowest 2.869. The overall mean

of the CSFs is 3.198 which shows ethio telecom were implemented the CSF to the successful accomplishments of the IS projects.

Challenges in Leading IS Projects

The study sought to find the challenges that project managers, coordinators, and the project team faced in the course of project execution. Hence lessons learned that were acquired in implementing projects are not compiled and provided in the upcoming projects the identification of project challenges have a great value to new entrants to the project. The major factors that were mentioned in the interview session were included in the preparation of the survey. The following responses obtained from the survey and presented as follows.

Table 4-16: Challenges in leading IS Projects

Critical Success Factors (CSF)	N	Mean	Std. Deviation
Management make decision promptly	56	2.8036	.96143
Issues on transcend on different projects attended well	56	2.8571	.86189
There exist experts with profound skills for project development and management	56	3.0714	.96967
There is effective ongoing analysis of the cost benefits of various investments to correct failures	56	2.7679	.93402
Project venders can provide sufficient support for the project	56	3.1607	.94920
There are good communication, mutual respect, and effective conflict resolution with venders	56	3.1964	.88255
The culture and language utilized project venders are well accepted by the project team	56	2.8929	.90812
There exists clearly defined vender management process in place	56	2.8929	1.00324
Valid N (listwise)	56		
Overall Mean		2.9554	

Source: Survey data, 2018

The above table shows that five of the raised question on the survey regarding the challenges the project manager and the project team faced in leading IS projects there mean value is lower than 3, with the overall mean value of 2.9554. The project manager and the project team challenged by lagged decisions made by senior management, with unresolved issues transcended between different projects, ineffective cost benefit analysis of IS projects, language barriers that exist with IS project vendors and the lack of vender management process.

Sreekumar (2015) share this fact and mentioned in his study the role of senior leadership and triple constraints as important challenges that can occur while implementing IS projects. The mean value for managements make decision promptly is 2.8 and this shows there is gap in prompt decision making. Hence projects are bound in time and everything planned with schedule every second passed unattended costs the project badly.

Based on the response of the interviewee, all of them raised this issue as a challenge. One of the interviewee said that “The managements are focused on the smooth running of the operation. On the course of executing the project if something interrupts the normal operation, they demanded to fall back to the normal scenario. But don’t decide promptly to resolve the issues that need their attention. ” All of the interviewee agreed the reason behind this as the managements are afraid of taking responsibility. The Interviewee mentioned that “Issue raised are pushed aside or needs for every issue raised a committee to be formed and to decide on the issue. This creates delay on projects.

The survey response also backed the above statement. 37.5% of respondents indicated that senior management's reluctance in decision making as strongly disagree and disagree, 37.5 % of the respondents are neutral, and 25 % agree and strongly agree that the managements make decision promptly. (Note the full result for all variables is presented in Appendix 3)

The study also sought to evaluate the reason behind project failure and whether investments on projects are followed periodically to check their feasibility. According to the survey mean value 2.7679 is obtained for the item there is effective ongoing analysis of the cost benefits of various investments to correct failure. Accordingly 35.7% of respondents strongly disagree and disagree to this statement, 41.1 % are neutral and 23.2 % are agree that there is effective ongoing analysis of the cost benefits of various investments to correct failure.

The interviewee strongly disagrees about the statement there is effective ongoing analysis of the cost benefits of various investments to correct failure. One of the interviewee states that "when a person assigned to a project he/she join the project on a temporary bases. Every expense incurred (salary, per dime, accommodation, fleet services) while he/she works on the project is assumed by his/her functional department. The cost of a project doesn't show its true value." In regard to this case two interviewees claimed that "some of the projects are even entered due to government interventions without cost benefit analysis, Equipment Identity Registration System (EIRs) is one of such example". IT projects require significant financial resources and needs to manage this resource effectively to the success of a project Athar et al (2013) and Morcilio (2016) present this fact in their research.

In ethio telecom TEP phase I and previous programs different projects held at the same period. The projects are complementary to each other. In order to be functional the successful accomplishments of each project is a mandatory. Hence it needs great commitment from the project managers to work with backing each other and to act upon issues that needs other project manager attentions. However this is the major challenge and contributes greatly to project delays.

According to the survey 34% of the participants respond strongly disagree and disagree and 41 % are neutral and 25 % agree about issues that transcend on different projects are attended well. Three of the interviewee also said that they are greatly challenged in managing transcend issues. They said “Project managers that are assigned in particular project works as if their project is the only significant project to ethio telecom and contentious on other projects. There is lack of collaboration and working for the same goal” However as indicated by Dong, Chuah and Zhai (2004) most of the factors that lead to failure of system development projects are within the control of the project manager, therefore due care should be given to achieve success in project accomplishments.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATION

The main objective of this research was to identify the critical success factors ethio telecom senior management acted upon and implemented in IS projects and the challenges that prevailed in leading IS projects in ethio telecom particularly the case of information system projects. The main conclusions and recommendations given presented as follows

5.1 CONCLUSION

From the analysis made, the following conclusions are made;

Ethio telecom's IS team acquired training on project management principles and applications and got the opportunity to participate in previous projects that were implemented in the IS Division. This gives them the confidence to engage with new projects. However due to the nature of IS projects, technological innovation dynamicity there are still gaps in acquiring technical trainings in the field.

The finding of this study also indicates that ethio telecom's senior managements acted upon the existence and implementation of the critical success factors (CSF) "clear and realistic goals and scope", "management support", "user involvements", "change management process", and "project team" highly. However the CSFs such as "project leadership", "Proper planning and monitoring" are not given the needed attention. Though there was a master plan, milestone, and feedback channels, well prepared and agreed upon by stakeholder, there were no effective progress tracking method

to monitor project progress. In addition project deviation off plan were not well addressed this led to project delay.

The finding also indicates that there were gaps in leading projects. The project leaders lacked project management skill, knowledge, expertise, project leadership capability, unable to influence the team with good leadership skill. He/she lacked the power to decide on issues raised at the course of the IS project implementation and also lacked the skill in efficient use of acquired resources to the successful accomplishments of projects.

Furthermore the IS projects were challenged by senior managements reluctance in decision making and resolving transcend issues raised between concurrently engaged projects. This made project managers and the project team to exert extra effort to resolve issues rose which led to project delay. There was also lack of periodic cost benefit analysis made to act on early on failing projects. On the contrary, the cost of a project in ethio telecom were not include all the costs a project incurred (Salary of staffs, travel, perdiem, accommodation costs of temporarily assigned staff). Moreover there is gap in providing vendor management process. Hence the project manager and project team were challenged by the culture and language utilized by the project vendors.

5.2 RECOMMENDATION

The following recommendations can be drawn from the analysis and conclusions made;

- In addition to the implemented Critical Success Factors (CSFs), “proper planning and monitoring” and “project leadership” should be

given greater attention in the upcoming projects by ethio telecom senior management hence these are also critical to the successful accomplishments of projects.

- Besides to providing milestones and feedback channels, there is a greater need to strictly follow the project progress and monitor and control using tools and applications. In addition projects which go off track should be attended well with proper care.
- Project managers should be assigned to lead projects according to their merit, expertise, and experience. Periodical training should also be given to them to boost their knowledge as mentioned the IS sector is in constant change. There should also be arranged workshops and knowledge sharing sessions in the company to share expert experiences to have competent project manager.
- Moreover Project managers should be empowered and be given the autonomy in respect to their responsibility to handle projects by exercising their power.
- The company should have a system to record each cost of a project that reflect the real time cost of a project. For this cause the project should backed by tools and application to record expenses timely.
- There should be in place vendor management process. And strict follow up should be made with vendors to assign expertise in the field and language barriers should be attended well and need not be a barrier to work with.

5.3 FURTHER RESEARCH AREA

Though this research has its own value it's not without limitation. This research is limited to the TEP one projects and the participants are drawn from TEP one program as well. Future studies can enlarge the scope and detail studies can be made in regard to the causes to the challenges in leading projects and the implication to the success of a project.

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APPENDICES

Appendix 1: Interview Items

Interview Questions

1. *Could you please tell me your experience in working with projects, specifically Information System Projects?*
2. *Your highest level of education, do you take any training on Project management field?*
3. *How do project manager or project coordinator selected and assigned in ethio telecom projects? Do you feel challenges attached to this process?*
4. *What are the challenges that you face as project manager or project coordinator in implementing the IS projects in ethio telecom?*
5. *Do you think the IS Projects which have been performed in TEP I successful or failed? What do you think the contributor factor that backed your answer?*
6. *Does ethio telecom set success criteria toward with the project performance measured with? Based on your perception, which of them are more significant? By which criteria as a project manager/coordinator you challenged most?*
7. *What do you think ethio telecom should do to the successful accomplishment of the projects particularly for IS projects?*

Appendix 2: Questionnaire

Addis Ababa University
College of Business and Economics
School of Commerce
Graduate Program in Project Management

Researcher: Saba W/Mariam

Dear Respondents

The main purpose of this questionnaire is to gather information about the challenges in leading Information System projects in ethio telecom for the partial fulfillment of the requirements for Masters of Project Management at Addis Ababa University. The outcome of this study will be used for academic purpose only.

Your volunteer participation is appreciated and the information you provided will have an added value for the research & certainly will be kept confidential. Therefore, your genuine response to the questions is vital for the quality and successful completion of the study. The accuracy of the information you provide highly determine the reliability of the study. The questionnaire has been limited to just 47 questions and will take approximately 20 minutes of your valuable time. Returning the completed survey on time will again be appreciated.

Contact Address:

Saba W/Mariam

E-mail – sabawma@gmail.com

Thank you in advance for your unreserved cooperation

Survey Question

Part I: Demographic Data-Instruction:

Please respond to the following questions either by ticking the appropriate box or by writing your answer in the space provided.

1.1. Gender

Male Female

1.2. Educational Qualification:

Certificate/ Diploma Bachelor's degree
Post Graduate Degree Other please specify _____

1.3 Have you received any project management related training?

Yes No

1.4 Your service year:

≤ 5 6 – 10
11 – 15 16 – 20
21 and above

1.5 The position you hold in the organization

Staff Supervisor Manager
Officer Director
Other please specify _____

1.6 Your experience working in projects

0-2 years 3-4 Years
5-6 Years Above 7 years

Part II: Questions related to Project Management/Critical Success Factors

Each statement in this part is considered a potential critical success factor for an information system project. Please indicate respective importance to the success of the project from your personal experience and perception by putting a check “√” next to the appropriate scale provided beside each statement.

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

Ser. No.	Critical Success Factors	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
<i>A. Goal & Scope Issues</i>						
1.	The project has a clear and realistic project goal					
2.	The project has a clearly defined project scope					
3.	There is broad consensus of project goal and scope among key stakeholders					
4.	The project has agreed-upon success criteria among stakeholders					
<i>B. Planning Issues</i>						
5.	The project has an easily understood master plan with well-set milestones					
6.	The project plan and milestones are agreed-upon and accepted by all key participants					
7.	The project progress is monitored closely by efficient tracking method					
8.	There are effective information feedback channels during project execution					
9.	Project deviations off plan are well handled in time					
<i>C. Management Support Issues</i>						
10.	Senior management would like to offer necessary help and support for the project when requested					
11.	Senior management commits to provide sufficient resources required for the project					
<i>D. Project Manager Leadership Issues</i>						
12.	The project manager has sufficient PM knowledge and relevant experience					
13.	The project manager has enough expertise relevant to project.					

Ser. No.	Critical Success Factors	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
14.	The project manager leads his team with appropriate project leadership					
15.	The project manager is capable of acquiring adequate resources for the project					
16.	The project manager is able to allocate appropriately and make the best use of project resources					
17.	The project manager is authorized with appropriate power					
<i>E. Team Issues</i>						
18.	The project team is staffed with skilled team players who possess the expertise the project requires					
19.	The team members are motivated and committed to a shared goal					
20.	The technical members have experience relevant to the project					
21.	The team members are provided with required training					
22.	Each participant in the project has a clear role, responsibility, authority and report relationship with others					
<i>F. User Requirement Issues</i>						
23.	Users can state their requirements clearly					
24.	User requirements and expectations are realistic					
25.	Users can involve project actively as necessary					
26.	Users have the ability to use the deliveries of project					
<i>G. Communication Issues</i>						
27.	The project stakeholders are well informed about status of the project and necessary information					
28.	There are good communication, mutual respect, and effective conflict resolution within project team members					
29.	There is adequate and effective communication between users and project team					
30.	The project manager has sufficient communication with top management					

Ser. No.	Critical Success Factors	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
<i>H. Change Management Issues</i>						
31.	A formal change management process exists in organization to manage project changes					
32.	Project scope changes are managed well					
33.	Users requirement changes are handled and managed effectively					
<i>Challenges to Leading Successful projects</i>						
34.	Management make decision promptly					
35.	Issues on transcend on different projects attended well					
36.	There exist experts with profound skills for project development and management					
37.	There is effective ongoing analysis of the cost benefits of various investments to correct failures					
38.	Project vendors can provide sufficient support for the project					
39.	There are good communication, mutual respect, and effective conflict resolution with vendors					
40.	The culture and language utilized by project vendors are well accepted by the project team					
41.	There exists clearly defined vendor management process in place					

Appendix 3: Results of SPSS

Appendix 3.1: Item Statistics

Item Statistics			
	Mean	Std. Deviation	N
Gender of Respondents	1.1607	.37059	56
Educational Qualification of Respondents	2.3750	.48850	56
Project Management Training	1.2857	.45584	56
Service Year	2.6071	.86715	56
Position in the organization	1.3393	.72052	56
Project Experience	2.0000	1.06173	56
The project has a clear and realistic project goal	3.8036	.99854	56
The project has a clear defined project scope	3.8571	.92301	56
There is broad consensus of project goal and scope among key stakeholders	3.4643	.93350	56
The project has agreed-upon success criteria among stakeholders	3.6071	.77878	56
The project has an easily understood master plan with well-set milestones	3.4821	.85261	56
The project plan and milestones are agreed-upon and accepted by all key participants	3.3036	.87219	56
The project progress is monitored closely by efficient tracking method	2.8036	1.01658	56
There are effective information feedback channels during project execution	3.0893	.97751	56
Project deviations off plan are well-handled in time	2.6250	.96413	56
Senior management would like to offer necessary help and support for the project when requested	3.3571	.96160	56
Senior management commits to provide sufficient resources required for the project	3.0357	.95278	56
The project manager has sufficient PM Knowledge and relevant experience	2.8393	.91008	56
The project manager has enough expertise relevant to project	2.8393	.84803	56
The project manager leads his team with appropriate project leadership	2.7857	.90883	56
The project manager is capable of acquiring adequate resources for the project	3.0536	.86170	56
The project manager is able to allocate appropriately and make the best use of project resources	2.8393	.84803	56
The project manager is authorized with appropriate power	2.8571	1.01674	56
The project team is staffed with skilled team players who possess the expertise the project requires	3.0179	.92424	56

Item Statistics			
	Mean	Std. Deviation	N
The team members are motivated and committed to a shared goal	3.4286	.89152	56
The technical members have experience relevant to the project	3.3393	.83724	56
The team members are provided with required training	2.7857	.94800	56
Each participant in the project has a clear role, responsibility, authority and report relationship with others	3.0357	.95278	56
Users can state their requirements clearly	3.1786	1.04633	56
User requirements and expectations are realistic	3.1250	.93541	56
Users can involve in project actively as necessary	3.3571	.96160	56
Users have the ability to use the deliveries of project	3.5893	.82631	56
The project stack holders are well informed about status of the project and necessary information	3.1964	.98016	56
There are good communication, mutual respect, and effective conflict resolution within project team members	3.2679	.99984	56
There is adequate and effective communication between users and project team	3.0000	.85280	56
The project manager has sufficient communication with top management	3.2143	.88860	56
A formal change management process exists in organization to manage project changes	3.3571	.99870	56
Project scope changes are managed well	3.1071	1.05621	56
Users requirement changes are handled and managed effectively	3.0536	.92283	56
Management make decision promptly	2.8036	.96143	56
Issues on transcend on different projects attended well	2.8571	.86189	56
There exist experts with profound skills for project development and management	3.0714	.96967	56
There is effective ongoing analysis of the cost benefits of various investments to correct failures	2.7679	.93402	56
Project venders can provide sufficient support for the project	3.1607	.94920	56
There are good communication, mutual respect, and effective conflict resolution with venders	3.1964	.88255	56
The culture and language utilized project venders are well accepted by the project team	2.8929	.90812	56
There exists clearly defined vender management process in place	2.8929	1.00324	56

Appendix 3.2: Descriptive Statistics of challenges in leading projects

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Management make decision promptly	56	1.00	5.00	2.8036	.96143
Issues on transcend on different projects attended well	56	1.00	4.00	2.8571	.86189
There exist experts with profound skills for project development and management	56	1.00	5.00	3.0714	.96967
There is effective ongoing analysis of the cost benefits of various investments to correct failures	56	1.00	4.00	2.7679	.93402
The culture and language utilized project venders are well accepted by the project team	56	1.00	5.00	2.8929	.90812
There exists clearly defined vender management process in place	56	1.00	5.00	2.8929	1.00324
There are good communication, mutual respect, and effective conflict resolution with venders	56	1.00	5.00	3.1964	.88255
Project venders can provide sufficient support for the project	56	1.00	5.00	3.1607	.94920
Valid N (listwise)	56				

Frequency Table

Management make decision promptly

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	5	8.9	8.9	8.9
Disagree	16	28.6	28.6	37.5
Neutral	21	37.5	37.5	75.0
Agree	13	23.2	23.2	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

Issues on transcend on different projects attended well

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	3	5.4	5.4	5.4
Disagree	16	28.6	28.6	33.9
Valid Neutral	23	41.1	41.1	75.0
Agree	14	25.0	25.0	100.0
Total	56	100.0	100.0	

There exists clearly defined vender management process in place

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	6	10.7	10.7	10.7
Disagree	12	21.4	21.4	32.1
Valid Neutral	21	37.5	37.5	69.6
Agree	16	28.6	28.6	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

There is effective ongoing analysis of the cost benefits of various investments to correct failures

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	6	10.7	10.7	10.7
Disagree	14	25.0	25.0	35.7
Valid Neutral	23	41.1	41.1	76.8
Agree	13	23.2	23.2	100.0
Total	56	100.0	100.0	

Appendix 3.3: Descriptive Statistics of Project Manager

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
The project manager has sufficient PM Knowledge and relevant experience	56	1.00	4.00	2.8393	.91008
The project manager has enough expertise relevant to project	56	1.00	4.00	2.8393	.84803
The project manager is able to allocate appropriately and make the best use of project resources	56	1.00	5.00	2.8393	.84803
The project manager is authorized with appropriate power	56	1.00	5.00	2.8571	1.01674
The project manager is capable of acquiring adequate resources for the project	56	1.00	5.00	3.0536	.86170
Valid N (listwise)	56				

The project manager has sufficient PM Knowledge and relevant experience

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	3	5.4	5.4	5.4
Disagree	19	33.9	33.9	39.3
Valid Neutral	18	32.1	32.1	71.4
Agree	16	28.6	28.6	100.0
Total	56	100.0	100.0	

The project manager has enough expertise relevant to project

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	2	3.6	3.6	3.6
Disagree	19	33.9	33.9	37.5
Valid Neutral	21	37.5	37.5	75.0
Agree	14	25.0	25.0	100.0
Total	56	100.0	100.0	

The project manager is capable of acquiring adequate resources for the project

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	2	3.6	3.6	3.6
Disagree	12	21.4	21.4	25.0
Neutral	24	42.9	42.9	67.9
Agree	17	30.4	30.4	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

The project manager is able to allocate appropriately and make the best use of project resources

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	3	5.4	5.4	5.4
Disagree	15	26.8	26.8	32.1
Neutral	27	48.2	48.2	80.4
Agree	10	17.9	17.9	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

The project manager is authorized with appropriate power

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	4	7.1	7.1	7.1
Disagree	20	35.7	35.7	42.9
Neutral	13	23.2	23.2	66.1
Agree	18	32.1	32.1	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

The project manager leads his team with appropriate project leadership

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	3	5.4	5.4	5.4
Disagree	20	35.7	35.7	41.1
Neutral	20	35.7	35.7	76.8
Agree	12	21.4	21.4	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

Appendix 3.4: Frequency Table of Project Planning and Monitoring

The project has an easily understood master plan with well-set milestones

	Frequency	Percent	Valid Percent	Cumulative Percent
Disagree	8	14.3	14.3	14.3
Neutral	18	32.1	32.1	46.4
Valid Agree	25	44.6	44.6	91.1
Strongly Agree	5	8.9	8.9	100.0
Total	56	100.0	100.0	

The project plan and milestones are agreed-upon and accepted by all key participants

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	1	1.8	1.8	1.8
Disagree	11	19.6	19.6	21.4
Valid Neutral	15	26.8	26.8	48.2
Agree	28	50.0	50.0	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

The project progress is monitored closely by efficient tracking method

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	4	7.1	7.1	7.1
Disagree	22	39.3	39.3	46.4
Valid Neutral	12	21.4	21.4	67.9
Agree	17	30.4	30.4	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	

There are effective information feedback channels during project execution

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	1	1.8	1.8	1.8
Disagree	18	32.1	32.1	33.9
Neutral	15	26.8	26.8	60.7
Agree	19	33.9	33.9	94.6
Strongly Agree	3	5.4	5.4	100.0
Total	56	100.0	100.0	

Project deviations off plan are well-handled in time

	Frequency	Percent	Valid Percent	Cumulative Percent
Strongly Disagree	6	10.7	10.7	10.7
Disagree	21	37.5	37.5	48.2
Neutral	18	32.1	32.1	80.4
Agree	10	17.9	17.9	98.2
Strongly Agree	1	1.8	1.8	100.0
Total	56	100.0	100.0	