SCHOOL OF GRADUATE STUDIES

THE EFFECT OF RISK MANAGEMENT PRACTICE AND PROJECT ORGANIZATION ON IT PROJECTS SUCCESS IN ETHIOPIA: THE CASE OF ETHIO TELECOM

BY

KASSAHUN GUMATAW

MAY, 2019

ADDIS ABABA, ETHIOPIA

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A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY COLLEGE, SCHOOL OF GRADUATE SUDIES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ART (PROJECT MANAGEMENT)

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Endorsement

This is to certify that Kassahun Gumataw carried out his project on the topic entitled "**THE EFFECT OF RISK MANAGEMENT PRACTICE AND PROJECT ORGANIZATION ON IT PROJECTS SUCCESS IN ETHIOPIA: THE CASE OF ETHIO TELECOM**". This work is original in nature and is suitable for submission for the award of Master Art in Project Management.

_____

Dejene Mamo (Asst. Prof.)

Declaration

I, Kassahun Gumataw, declare that this research entitled THE EFFECT OF RISK MANAGEMENT PRACTICE AND PROJECT ORGANIZATION ON IT PROJECTS SUCCESS IN ETHIOPIA: THE CASE OF ETHIO TELECOM, is the outcome of my own effort and study and that 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: Kassahun Gumataw

Signature_____

Date_____

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Acronyms

ACWP	*Actual Cost for Work Performed*
ANOVA	*Analysis of Variances*
ARPU	*Average Revenue per Users*
BCWS	*Budgeted Cost for Work Scheduled*
CIO	*Chief Information Officer*
CCTV	*Closed-Circuit Television*
DWH&BI	*Data Warehouse and Business Intelligence*
CPM	*Critical Path Method*
eCAF	*Electronic Customer Agreement Form*
EIR	*Equipment Identity Register*
ERP	*Enterprise Resource Planning*
Etopup	*Electronic top-up*
EVM	*Earned value management*
FAC	*Final Acceptance Certificate*
GTP	*Growth and Transformation Plan*
ICT	*Information Communication Technology*
ISO	*International Organization for Standardization*
IT	*Information Technology*
ITU	*International Telecom Union*
MCIT	*Ministry of Communication and Information Technology*
MMS	*Multimedia Messaging Service*
NGN	*Next Generation Network*
PERT	*Program Evaluation and Review Technique*
PMBOK	*Project Management Body of Knowledge*
PMI	*Project Management Institute*
RBS	*Risk Breakdown Structure*
SPI	*Schedule Performance Index*
SV	*Schedule Variance*
SPSS	*Statistical Package for Social Sciences*
TEP	*Telecom Expansion Program*
UK	*United Kingdom*
US	*United State*
ZTE	*Zhongxing Telecom Corporation*

Abstracts

Project risk management practice has been improved on the past decades due to the publication of different literatures in the area of the study. Companies all over the world persuade project risk management practices to achieve the project objectives within the budget, time, scope, and of quality product. The general objective of the study was to investigate the effect of project risk management practice and project organization on IT projects success in ethio telecom. The study adopted quantitative method and the descriptive as well as correlational research design. For the proper accomplishment of the study, the primary data were collected using Likert scale type questionnaire by distributing to and collecting from the IT project implementers and risk management employees in ethio telecom. The analysis includes descriptive, correlation, regression and ANOVA. The major finding of the study indicated that project risk management practice i.e. risk management planning, risk identification, risk analysis, risk response planning, and risk monitoring and control has significant effect on the success of IT projects in ethio telecom. On project organization the study also showed its significant effect on the success of the projects and on the practicing of risk management. However, project management practices are poorly practiced in the company in all aspect of the processes and the organization structure that is in use for project lacks to support the risk management process. Hence, to proactively avoid the challenges of poorly practiced project risk management variables, the researcher recommends to follow processes of risk management planning, identification, analysis, response, monitoring and control; to promote the use of standard and useful tools, techniques, and methods both qualitative and quantitative, to improve the involvement of stakeholder in risk identification, to enhance the project organization implementation in a way to support risk management, to have appropriate response plan and improve continuous monitoring and control of risk.

Key Words: *Project Success, Risk Management, Project Organization ethio telecom*

Chapter One

1. Introduction

1.1. Background of the study

ethio telecom is government owned telecom operator in Ethiopia. The company has been operating as a sole company for the telecom service since 1894 G.C. (ethio telecom, 2018). During these period ethio telecom had execute so many projects in order to fulfil its business objective and satisfy radically growing customer need and base. These projects helped the company to maximize its capacity and expand the products and services it provides (ethio telecom, 2018).

In 2007 G.C. the ethio telecom had execute a massive expansion project called NGN (next generation project) through vendor financing with Chinese integrator company call ZTE (ethio telecom, 2011). The project was aimed to support 30 million subscribers with voice, SMS, and Data related services (ethio telecom, 2011). The project was a three-year project and had budgeted $1.5billion (ethio telecom, 2011). Starting from 2010 the many projects like, ERP, eTop-up, eCAF, DWH&BI, EIR were executed to support the company operations and strategic initiatives (ethio telecom, 2011).

In 2015 the company had engaged companies for the second big expansion with a project called Telecom Expansion Program (TEP) (ethio telecom, 2016). The project was a two-year project and had budgeted $1.5billion. the main objective of the project was to support the rapidly growing customer base and the demand for new products and features with better quality (ethio telecom, 2016).

In executing more and more telecom projects companies face with more risk and uncertainty than ever before. Companies expect more and they do not want surprises in executing projects. These things make any company to think more about the relationship between these new risks and uncertainties and the success of the project they are executing and forced them to ask ―Does risk management contribute to project success? (Al-Shibly Associate prof, H. H., Louzi, B. M., & Hiassat, M. A., 2013) Risk management has become an important part of the management process for any project.

IT 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 IT services (TechTarget, 2015)

In addition to the normal problems that can cause a project to fail, factors that can negatively affect the success of an IT project include advances in technology during the project's execution, infrastructure changes that impact security and data management and unknown dependent relationships among hardware, software, network infrastructure and data (Bakker, K. De. 2011). IT projects may also succumb to the first-time, first-use penalty which represents the total risk an organization assumes when implementing a new technology for the first time. Because the technology hasn't been implemented or used before in the organization, there are likely to be complications that will affect the project's likelihood of success (TechTarget, 2015).

Risk management has become an important part of the management process for any project. In fact, Risk management came into the foreground of business literature during the last two decades of the 20th century (Al-Shibly, Louzi BM, Hiassat MA, 2013). Risk is one of key factors that can positively affect working effectively inside the firm if it was practiced in the proper (Al-Shibly, Louzi BM, Hiassat MA, 2013). By doing such organization can achieve capital value of rareness and capital value of limitability via which the firm can build stronger competitive advantage by developing maintaining and retaining core competencies; which can in its turn maximize the organization's success, reputation maximize stake holder goals and maintaining the maturity stage of the firm's life cycle in which it can maintain the peak stage for all of its activities by recognizing, encouraging and retaining the peak performance, (Al-Shibly, Louzi BM, Hiassat MA, 2013). An effective use of project management techniques such as risk and value management are considered as key supporting processes and to add to them quality, cost, time and change control; all together generate an integrated approach to the project success. While, project risk management is a scalable activity and should be commensurate with the size and complexity of the project under consideration. Yet, simpler projects mean utilizing simple qualitative analysis such as Project Management Online Guide in the Risk Management Plan spreadsheet, in similar vein, Larger more complex projects may wish to use more robust analysis techniques via Monte-Carlo simulation models. Risk management requires top-level management support, acknowledgment that risks are realities, and a commitment to identify and manage them. One discriminator of a successful

organization or project is the use of risk management to anticipate potential negative conditions, problems, and realities.

Project risk management is a continuous process of identifying, analyzing, prioritizing and mitigating risks that threaten a projects likelihood of success in terms of cost, schedule, quality, safety and technical performance. Organizations and owners often consider project risk management activities as "nice to have" on a project rather than as a core component of project controls, (Ward J, 2013). Additionally, there is some confusion between organizations and project teams as to what exactly constitutes risk management activities.

2017 Pulse of the Profession 2017 | PMI survey reveals that 33 percent more meet original goals and business intent, 43 percent more are completed within budget, and 58 percent more are completed on time where as 34 percent fewer experience scope creep 35 percent fewer are deemed failures. In this survey only 26% respondent respond that they use risk management practices and 36% respondent respond often. 26% of respondent respond they sometime use risk management practices while 11% uses rarely. 3% of the respondent never use risk management practices.
The main challenges facing management are to estimate the level risk by the position holder, also to estimate whether the management is aware of the risk and are they implying their knowledge in the avoiding risks, (Ward, J., 2013). Top management should investigate various types of risks facing it is business, and how to manage the risk via education or past experience and other sources, also we can know how risk can affect the success degree of projects.

Successful telecom project management was the most desirable for all organizations and stakeholders. Telecom and IT project success or failure had long been interesting for researchers over the past 20 years. According to Pimchangthong D, Boonjing V (2017). High failure rates of projects were caused by completion beyond budget, behind schedule, and without meeting requirements, and could threaten the very existence of the company.
As IT and telecom systems become an important competitive element in many industries, technology projects are getting larger, touching more parts of the organization, and posing a risk to the company if something goes wrong. Unfortunately, things often do go wrong. The McKinsey Global Institute (MGI) reported that in 2017, on average, large IT projects run 45 percent over budget and 7 percent over time, while delivering 56 percent less value than predicted. On average, projects with budgets above $1 billion are delivered one year behind schedule, and run 30 percent

over budget, Knox D, Ellis M, Speering R, Asvadurov S, Brinded T, Brow T (2017) and Bloch M, Blumberg S, Laartz J (2011).

Standish group (2015) reported that only 29% of projects had finished successfully. Randell AA, Spellman E, Ulrich W, Wallk J, Clark M, Elliott E (2014) described that "70% of software projects fail due to poor requirements with an associated rework spend just worth of $45 billion annually". Jenner BS (2015) elaborated on depressing project failure rates between 50% and 70%. With these high failure rates, there were several attempts to reduce those failure rates. Many researches were conducted on the factors related to IT project success. Among several factors, risk management was one of the important factors that affected project success. Project Experts' Goff mentioned that risk management was a key part of project management for any project size, Levinson M (2013). Didraga O. (2013) elaborated that risk management was the most important management tool a project manager can use to increase the likelihood of project success.

The risk of project is some unspecified impact or condition that, in the case of occurrence, has an (positive or negative) impact on the project (or on one of the project objectives), thus on its cost, scope or quality. And the telecom project risk management includes the processes associated with identifying, analyzing and responding to project risks in order to increase the probability and degree of impact of positive risks and to reduce the possibility and impact of negative events within the project. In addition, it should be borne in mind that the closer the project is to its completion, the more reduced the possibility of the occurrence of risks is, as well as the possibility of influence on the course of the project and its results.

Thus, the project risk management practice lies in that fact that in the analysis process, involving the detection and assessment of risks, comparing their effectiveness, it is necessary to define a method of impact. Then, after making a decision to carry out an impact on the risk, it is necessary to carry out subsequent control of the impact results.

This makes risk management practice which involve the planning, identification, analysis, response planning, monitoring and controlling is of the important aspect to study its influence on the success of IT projects. The relationship between the project organization and risk management and project success is also one of the area that require researches attention.

1.2. Statement of the Problem

Although there was high importance of risk management to IT project success, the adoption of these risk management methods in practice is inconsistent, (Bannerman PL. 2008 and Taylor H, Artman E, Woelfer JP, 2012). Project risk management is frequently overlooked yet is one of the more critical elements to successful project delivery (Ward, J. 2013). Generally, delivering a project's defined scope on time and within budget are characteristics of project success. Unfortunately, these success factors are often not achieved, especially for large complex projects like telecom expansion program where both external influences and internal project requirements may change significantly over time (Ward, J. 2013).

In IT, it is virtually not possible to record a zero risk. Risk is inherent in all IT project activities. The inherent nature of risks contributes to the inability in achieving the triple constraint factors of time, budget, and quality objectives (Loosemore, 2006). IT projects can be very complex and full of uncertainties due to the dynamic nature of the technology and complex requirement of clients. The risks and uncertainties can have potentially harmful effects on projects (Mills, 2001; Flanagan et al, 2006).

No or inconsistent project risk management practice in companies that execute many projects like ethio telecom causes undesirable consequences on the project in terms of scope, budget, time, and the realization of benefit that was aimed to be achieved through the project. As it is described by Mitikie, B. B., Lee, J., & Lee, T. S. (2017) lack of risk management in projects is one of the major setbacks for projects performance in Ethiopia. In Ethiopia such a problems are observed in almost every project that are sponsored by the government or private companies.

The main challenge facing management is to estimate extent of risk by the position holder, also to estimate whether the management is aware of the risk and if they have a practice of managing these risks (Al-Shibly Associate prof, H. H., Louzi, B. M., & Hiassat, M. A., 2013). Top management should investigate various types of risks in projects, and how they can manage risk, via education or past experience and other sources. It is always a multi-faced problem to know how risky the IT project is as it requires knowledge of technology, design, global trend of the technology and many more disciplines. Accordingly, this research sets sights on assessing the practice of risk management in IT projects analyzing it in different project organizational setup and describe its effect on the success of the project in the case of ethio telecom.

Different researcher has been studied the impact risk management practice on project performance and success (Bannerman PL. 2008, Taylor H, Artman E, Woelfer JP. 2012). Didraga O. (2013), Pimchangthong D, Boonjing V (2017) had assessed the effect of risk management practice on IT project success in countries. Researchers like Mitikie, B. B., Lee, J., & Lee, T. S. (2017) studied the impact of risk management practice on the construction projects in Ethiopia. There is no research that had been done on the study of the effect of risk management practice and project organization of the success of IT projects in Ethiopia. This study can contribute to fill this gap.

1.3. Basic Research Question

The basic problem of any company is to complete the project with the specified time, cost, scope and quality. Now the basic questions are:

1) To what extent risk management practices influence the success of IT projects?
2) what is the effect of project organizational structure to the success of IT Projects?
3) what are the major success factors of IT Projects in relation to risk management practices influence and project organizational structure?

1.4. Objective of the Study

General Objective

The objectives of this research were to describe risk management practices influencing the success of IT projects. The results from this study would provide guidance on the practical implementation of risk management concerns for IT project success.

Specific Objective

1. to investigate the influence of project risk management planning, identification, analysis, response planning, and monitoring and control on the success of IT project
2. to investigate the influence of project organizational structure on the success of IT project

1.5. Delimitation and limitation of the Study

The study has limited itself on assessing only the effect of risk management practices on the success of IT projects in ethio telecom. In addition, the study limits itself on the project which were implemented for the past five years. But there might be other factors that have effect of projects executed by ethio telecom like project management practice. The lack of previous study and experience in the area of IT in Ethiopia hinders the comparison of the results with those studies

and other operator's experience. The possible limitations of the study are inability to incorporate all projects implemented in ethio telecom. The study focused on Information Technology projects only due to time constraint and other resource limitations. Therefore, it is difficult to generalize the findings and results to the whole implemented project in ethio telecom.

1.6. Significance of the Problem

In developing countries like Ethiopia resource is scarce and wise usage of available resources is inevitable. Unfortunately, most of projects in developing countries experience failure that can be expressed in scope, time, and budget. The impact of this project failure limits the realization of benefits and goals that was planned to be achieved through the project. Findings of this study will benefit different stakeholders, such as, ethio telecom, the government, other organizations and further researchers. Therefore, the study's outcomes will benefit ethio telecom to improve and to evaluate its project risk management practices; the concerned government body will know how the project successfulness is in line with the targeted mission and objectives of the government on the sector. Future more, researchers can use this research's out come as a base to investigate more about the company's project risk management practice.

1.7. Organization of the Research Report

The research will be organized as follow

Chapter One: Introduction

This chapter contain background of the study, statement of the problem, basic research questions, objectives of the study, significance of the study, and delimitation/scope of the study.

Chapter Two: Literature Review:

This chapter deals with the literature relevant to study.

- **Chapter Three: Research design and Methodology**

Under this chapter, the research methodology is described including the type and design of the research; the subjects/participant of the study; the sources of data; the data collection tools/instruments employed; the procedures of data collection; the methods of data analysis used.

- **Chapter Four: Results and Discussion**

It summarizes the results/findings of the research, and interpret and/or discuss the findings.

- **Chapter five: Summary, Conclusions and Recommendations**

This chapter comprises four sections, which include summary of findings, conclusions, limitations of the study and recommendations.

Chapter Two

2. Literature Review

2.1. Introduction

Risk is defined as the 'effect of uncertainty on objectives'. An effect may be positive, negative, or a deviation from the expected. Also, risk is often described by an event, a change in circumstances or a consequence, ISO. ISO 31000:2018(en) (2018). In the context of project management, project risk is related to the occurrence of events, from internal or external origin, which may affect the achievement of the initial target. Referring to ISO 31000 standard, risk qualifies the effect of these events on the achievement of project objectives.

The term risk is defined in PMI Lexicon of Project Management Terms v3.2 (2017), as an uncertain event or condition that, if occurs, has a positive or negative effect on project's objectives. Although, PMI defined risk as an uncertainty, there are differences between risks and uncertainties. A risk represents an event or condition for which the probability of occurrence is known, the 'known unknowns', susceptible to analysis. And uncertainty is an event for which the probability is not known, being the 'unknown unknowns', not susceptible to analysis, Ward S, Chapman C (2003). During the project lifecycle it is common for project managers to find assessable risks and uncertainties that can't be assessed. As a result, they felt the necessity to improve project risk management practices by adopting broader perspectives in what concerns managing uncertainty, for instance, paying more attention to lack of knowledge that may bring uncertainty Ward S, Chapman C (2003).

Risk management assures that almost all problems are discovered early enough so that there is time to recover from them without missing schedules or overspending the budget Tamak J, Bindal D (2013). Leung, Chua and Tummala (1998) argue that formal risk management approaches can provide a useful insight into the project and provide more information to improve the quality of investment decisions.

2.2. Theoretical Review

2.2.1. Project Risk Management

Project risk management is the art and science of identifying, analyzing, and responding to risk throughout the life of a project and in the best interests of meeting project objectives Kluber M. (2017) Project risk management involved understanding potential problems that might occur on the project and how they might impede project success. Several research results indicated that poor risk management was a likely cause of project problems and failures. Risk management is an essential process for the successful delivery of IT projects. The body of research examining risk in IT projects spans over 30 years. Risk management researchers have focused on the examination of process models that provide prescriptions for risk management, typically including variations on the four processes of risk identification, assessment, response planning, and monitoring Taylor H., Artman E., Woelfer JP. (2012). Schwalbe K (2013) expressed six processes that were involved risk management as follows: planning risk management, risk identification, qualitative risk analysis, quantitative risk analysis, risk response planning, and risk monitoring & control.

Elkington and Smallman (2001) claim that project risk management is essential for the project's success. The authors carried out a study on a British utilities company to assess their project risk profiles. Based on the effects of risk, the authors developed a framework that might explain project success by: a) assessing the different kinds of projects' risks to measure the amount of risk management processes undertaken by a project manager, creating questionnaires to collect business risks, procurement risks, management risks and technical risks; b) assessing how and when the project manager applied risk management processes during the project; and c) determining the project managers' knowledge of risk management and their attitude towards it. A total of 10 of 20 questionnaires were responded completely by the project managers invited. They have identified that the most successful projects undertook more risk management practices. They also perceived that the earlier risk management is initiated, the more successful a project is.

A definition of a project risk management methodology normally enables risks identification, qualitative and quantitative assessment, response planning and monitoring, giving the project manager a set of tools and techniques which allow to increase the probability and impact of events that may appear as opportunities for the project and decrease the probability and impact of the ones that may cause negative effects on the project objectives (PMI, 2009).

2.2.2. Project Success

The success of IT project was an area of concern for many organizations around the world. There were a variety of approaches about the measurement of project success. Sudhakar (2012) expressed six measures for information system's project success as follows: system quality, user satisfaction, information quality, information use, organizational impact, and individual impact. Many researchers have suggested that projects should be rated as successful when they are completed within or near the estimated schedule and budget, and produce an acceptable level of performance PMI (2013), Martin, N.L. Pearson, J.M. Furumo, K.A. (2007). Mahaney and Lederer (2011) carried out a study using a project completed on time and within budget that worked as the measures to evaluate project success. Some studies were aware of the benefits, which were used as criteria to justify project success Iacovou, Charalambos L.

Benbasat, Izak, Dexter, Albert S. (1995). Gable GG, Sedera D, Chan T (2008), Jones MC, Zmud RW, Clark TDJ (2008) and Ward and Daniel (2012) used organizational impact and user satisfaction as the criteria to measure the ERP system success. According to Baccarini (1999), project success involves two components, such as project management success and product success. Process performance referred to time & budget, and product performance referred to requirements.

PMI, in its 2017 pulse of the profession survey, describes that the traditional measures of scope, time, and cost are no longer sufficient in today's competitive environment to measure project success. The ability of projects to deliver what they set out to do—the expected benefits—is just as important. So when determining project success, it looked at levels of benefits realization maturity as well as the traditional measures.

For the purpose of this research the project success is viewed in to dimension.

1. Process Performance: this measures the project success how much it meets the defined scope, time, and budget
2. Product Performance: this measures how much the project realizes the benefit it intended to deliver (meets beneficiaries intended, satisfied users, overall high quality and reliable)

2.2.3. Project Organization Structure

Organization can be defined as group of people who must coordinate their activities in order to meet organizational objectives. The coordination function requires strong communications and a

clear understanding of the relationships and interdependencies among people. Organizational structures are dictated by such factors as technology and its rate of change, complexity, resource availability, products and/or services, competition, and decision-making requirements. There is no such thing as a good or bad organizational structure; there are only appropriate or inappropriate ones.

Harvey & Levine (2002) mentions that there are three classic organizational structures available for dealing with projects these are the basic types of organizations:

- The Functional Organization: It is the traditional organization for performing ongoing work. Its focus is on operational discipline. It is best for routine work and the maintenance of standards.
- The Project Organization: It was designed for isolated kind of work with a strong focus on the project.
- The Matrix Organization: The limitations of both the classic functional organization and the pure project organization, it is understandable that a new type of organization would emerge. The matrix organization, which gained popularity in the 1970s, offers the best of both worlds solution but not without problems.

Vivian Kloosterman (2013) in her online article explain the project organizational structure as follow:

- **Functional Organizational Structure**. These firms are organized into functional divisions based on primary functions such as engineering, human resources, finance, IT, planning and policy. Each different functional division operates independently and isolated groups of workers in a division report to a functional manager. The functional manager generally both allocates and monitors the work and carries out tasks such as performance evaluation and setting payment levels. In this model project managers have very limited authority. Functional organizations are set up for ongoing operations rather than projects and so this organizational structure is often found in firms whose primary purpose is to produce standardized goods and services.

- **Matrix Organizational Structure.** In a matrix organization control is shared. The project manager shares responsibility for the project with a number of individual functional managers. Shared responsibilities can include assigning priorities and tasks to individual team members. But functional managers still make the final decisions on who will work on projects and are still responsible for administration. Project managers take charge of allocating and organizing the work for the designated project team. In this type of structure there is a balance between ongoing operations and projects, so it is a common structure for organizations that have these dual roles. For instance, local body organizations that are responsible for both maintaining existing infrastructure (ongoing operations) and commissioning the construction of new infrastructure (projects) often have matrix structures.

- **Projectised Organizational Structure.** In a projectised organization the project manager has full authority over the project. This includes the authority to set priorities, apply resources, and to direct the work of team members assigned to the project. All members of the project team report directly to the project manager and everybody is assigned to a project. After completion of the project, resources will be re-assigned to another project. This type of structure is common in firms that work on sizeable, long-term projects, such as in the construction industry.

2.3. Empirical Review

2.3.1. Project Success

Success Factors

Based on the researches of various authors (APM, 2006; Turner, 2002; Turner & Simister, 2001; among others), it was determined that the conventional view of project success based on cost, time and quality objectives were not sufficient. The various stakeholders involved in a project may each have a different view of what determines the successful project. Kerzner (2001) added two more criteria to determine the successful project. First, the project would effectively and efficiently utilize the resources. Secondly, it should be accepted by the customer. Turner (2002) discredits this conventional view of the project success based on time, cost and quality objectives as being a perspective from the point of view of the project team. He identified a wide range of success criteria, reflecting various stakeholders' interest and judged over different time scales. These views

though differing need to be aligned in order to achieve a successful project (Turner & Simister, 2001).

Critical Success

Factors Critical Success Factors are elements within the project context/ environment which should be controlled to increase the probability of a successful project outcome. The presence of these factors in a project does not guarantee a success but their absence may contribute to failure. Many authors (e.g. Rozenes et al., 2006; Dooley et al., 2005; Maylor, 2003; Turner, 2002; Kerzner, 2001) have identified the following as critical factors to the success of a project:

- Definition of clear goals.
- Management support.
- Detailed project plan.
- A defined control mechanism.
- Communication- client consultation and acceptance throughout the project lifecycle.
- Competent and technically able project team.
- Flexibility of the Project Manager to deal with uncertainty.
- The project owner should take an interest in the performance.

Appropriate planning of the project determines a baseline which outlines a course to steer in the execution of the project. In project execution, actual progress usually deviates from the baseline plan. Rozenes et al. (2006) stated that the deviations can be due to the following:

- Owner Interference/ Scope creep.
- Inadequate constructor experience.
- Financing and payments.
- Labour Productivity due to learning curve, sickness, absenteeism.
- Slow decision-making.
- Improper planning.
- Subcontractor’s late deliveries.

2.3.2. Risk Management and Project Success

To increase the chances of a proposed project succeeding, it is necessary for the organization to have an understanding of potential risks, to systematically and quantitatively assess these risks, anticipating possible causes and effects, and then choose appropriate methods of dealing with them (Mobey & Parker, 2002). To ensure that any potential risks are managed effectively, the risk process needs to be explicitly built into the decision-making process.

Risk management is thus an important tool to cope with such substantial risks in projects by: (a) assessing and ascertaining project viability; (b) analyzing and controlling the risks in order to minimize loss; (c) alleviating risks by proper planning; and (d) avoiding dissatisfactory projects and thus enhancing profit margins (Lam et al., 2007).

Applying principles of risk management supports the quality improvement and improves cost estimation by identifying and mitigating potential risks before a project begins. Risk management puts processes in place to ensure management receives organized risk information early enough to apply corrective actions that will allow realistic schedule and cost estimates and assure successful completion of the project (Tinnirello, 2000). Risk management principles increase team involvement by providing a mechanism for the reporting of potential problems and increasing the team's stake in the overall success of the project. The embedding of risk is a long-term exercise to ensure that risk consideration is at the heart of the decision-making process (Hodge, 2002). Failure to appreciate risk issues may give rise to serious consequences (Fraser & Henry, 2007).

Elkington & Smallman (2002) have identified that there is a strong link between the amount of risk management undertaken in a project and the level of success of the project - more successful projects use more risk management. Also the earlier that risk management was used in a project, the more successful it was. It is essential that the risks of a project be assessed at the Project Brief stage. Risks identified here will not only help the production of the necessary project products, but will increase the chance of overall project success. A significant risk that is not identified and mitigated will become a real problem at some point during the project life cycle (Tinnirello, 2000).

The Project Manager should establish a control system that will comply with the project success factors as recommended by several researchers (Kerzner, 2001; Maylor, 2003; Rory, 2003; Rozenes et al., 2006; among others).

Mitikie, B. B., Lee, J., & Lee, T. S. (2017) in their study on the impact of risk in Ethiopian construction concludes that risk management practice enhances achievement of project objectives, there by contributing to effective implementation of the project performance

2.3.2.1. Risk Management and IT Project Success

Didraga O (2013) developed a model to investigate the relationship between risk management and IT project success and the model consisted of risk management in four categories; risk identification, risk analysis, risk response planning, and risk monitoring & control. The research results found that risk identification and risk planning did not influence the subjective performance of the project in terms of reliability, easiness, flexibility, satisfaction and quality. There was no method of risk management that influenced the objective performance of the IT project in terms of cost, schedule and effort. Therefore, the conclusions couldn't be generalized to all IT companies due to the reduced sample size to an unacceptable error margin. Further research in this field is mandatory to formulate a solid conclusion regarding the role and effects of applying risk management in successful IT projects. Credar (2013) elaborated that every project had risk for example; resources left the organization, leadership changed and budgets got cut etc. There were many factors beyond control. However, many risks to projects can be mitigated or even eliminated with some forethought and ongoing management.

Pimchangthong D, Boonjing V. (2017) developed a model that incorporate organizational factors in both types and sizes fulfil the research gap by extending Didagra's, 2013, model. The results found that the differences on organizational types affected IT project success in all aspects. However, the differences on organizational sizes did not affect IT project success in the aspect of process performance. Risk identification and risk response planning influenced the process performance and the success of IT projects. Risk identification was the highest positive influence on product performance, followed closely by risk response, while risk analysis negatively influenced product performance.

To summarize researchers had identified that risk management practice which are project risk management planning, identification, analysis, response planning, monitoring and control, and project organization types (projectize, functional, and matrix) had effect on the IT project success. And their effective implementation and usage can contribute to the success of IT projects in meeting the intended project objectives.

2.4. Conceptual Framework

Conceptual framework is a hypothesized model identifying the concepts under the study and their relationships. Mugenda (2008) defines conceptual framework as a concise description of phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. According to Young (2009), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables.

This research intended to fulfil the research gap by extending Pimchangthong D, Boonjing V. (2017) model with the addition of project organizational structure factors and excluding the organization factors related to type and size.

The research framework was developed to explore the effect of project organizational structure factors and risk management practice to the success of IT project as shown in Figure 2-1. In this context the dependent variable is IT project Success, while project organization, risk management planning, risk identification, risk analysis, risk response plan, and risk monitoring and control independent variables. (See figure below)

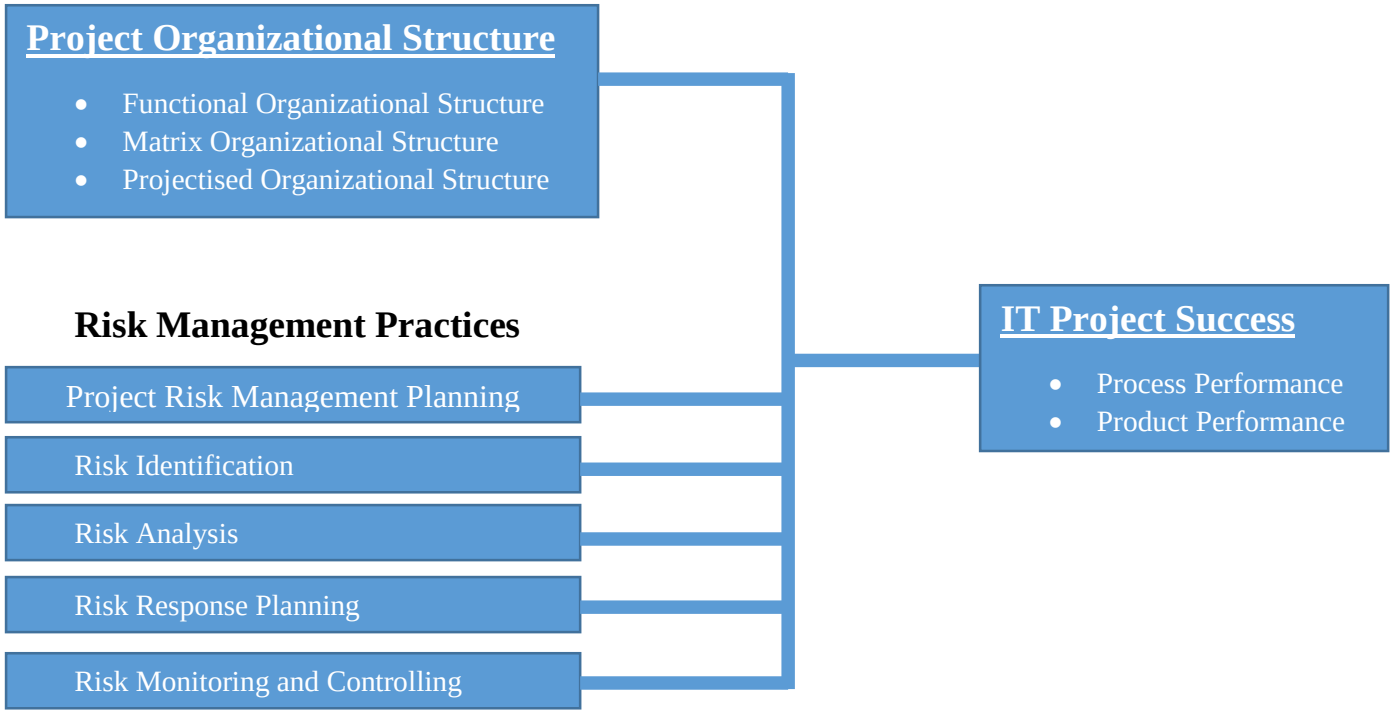

Figure 2-1 Research Framework

Chapter Three

3. Research Design and Methodology

3.1. Research Design

This research attempts to understand and describe the effect of risk management practice in IT projects by investigating the influence of risk management practice on the success of IT project and the influence of project organizational structure on the success of IT project.

Descriptive research designs help provide answers to the questions of who, what, when, where, and how associated with a particular research problem. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation.

3.2. The Population of the Study

Statistically, Population is explained to be units that have the chance to be involved in the survey sample. For the purposes of this study, the considered population is employee of ethio telecom who had worked in any IT project office within the last five years. This will benefit the study in providing the relevant information. The duration is set to be five year considering the average project time which is two years.

In ethio telecom different divisions involve in IT project management. The main project owner is information system division led by CIO. Information system division in ethio telecom is segmented into five departments by the nature of work these are: IT Service Design, IT Service Transition, IT Service Strategy and Program Management, IT Business Operation, and IT Corporate Operation. Among the five departments the target population of this study was IT Service Design, IT Service Transition and IT Service Strategy and Program Management as they are the one who manage IT projects. In addition, there is enterprise risk management department under information security. Totally there were six departments in two division selected as target population. As of March 21, 2019 the total employees in these six departments was 156.

The total target population selected for this research was stratified into two subpopulations. The stratums were categorized into management and non-management group.

There was no sampling mechanism to be used because the study takes all the population that can increase the generalizability of the finding to the company. Therefore, the subjects were all the 156 employees of six departments.

The total target population and the sample population is summarized as follow

Table 3-1 Target Population

Stratum	Project Office
Management	42
Non-Management	114
Total	156

3.3. Source of Data:

The study used both primary and secondary data. The primary data was collected from ethio telecom employees through questionnaires to investigating the effect of Project Risk Management practice and organizational structure on IT project success. The secondary data was collected from books, research journals and articles conducted on project management and other related titles, unpublished materials of ethio telecom and web addresses and/or internet.

3.4. Instruments and Measurement

Source of the data was the questioner response given by the respondent. Questioner will be published online for the respondents with the access which will be distributed then collected by the researcher. The collected data registered in Microsoft excel 2016.

The questionnaire was adopted as a means of collecting reliable and quantifiable data at a reasonable cost. The questionnaires will be categorized into four parts. In the first part, there were general questions that focus on the respondent profile and they will be check list questions. The second part of the questionnaires include questions about risk management practices as follows: risk management planning, risk identification, risk analysis, risk response planning, and risk monitoring & control. In the third part, there will be questions about the nature of risk management practice in the three types of project organization. The last part of the questionnaire was about project process performance that involved scope, budget & time and project product performance that involved project benefit realization. The second, third and the fourth parts of the questionnaires will use interval rating scale measurement with five-point Likert-Scale.

The Likert-Scale used in this study was a five point Likert Scale from (1) strongly disagree to (5) strongly agree. It is a widely used rating scale which requires the respondents to indicate a degree of agreement or disagreement with each of a series of statements or questions (Albaum, 1997 as cited in Samuel, 2006). This rating scale is easy to construct and administer and respondents readily understand how to use the scale (Malhotra & Birks, 2003, pp. 305 as cited in Samuel, 2006).

The items in the questionnaire were designed to be scored on a five point Likert type scale, 1 (strongly disagree) and 5 (strongly agree) and extremely dissatisfied (1) to extremely satisfied (5) for questionnaire part two, three, and four. Respondents were asked to choose any of the numbers to show their level of agreement with each statement.

3.5. Pilot Study

In survey based research it is important to validate the scales used for reliability and validity. Even if the measurement variables and scale questionnaires are adopted from highly validated instruments, checking it whether they can be applied in Ethiopian context is important. Gleam & Rosemary (2003) explained that oftentimes information gathered in the social sciences, marketing, medicine, and business, relative to attitudes, emotions, opinions, personalities, and descriptions of people's environment involves the use of Likert-type scales p.82. As individuals attempt to quantify constructs which are not directly measurable they oftentimes use multiple-item scales and summated ratings to quantify the construct(s) of interest. The present study validated the measurements using Internal Consistency and Predictive Validity.

3.5.1. Cronbach's Alpha

Cronbach's alpha is a coefficient (a number between 0 and 1) that is used to rate the internal consistency (homogeneity) or the correlation of the items in a test. A good test is one that assesses different aspects of the trait being studied. Cronbach's alpha will generally increase as the inter correlations among test items increase, and is thus known as an internal consistency estimate of reliability of test scores. Because inter correlations among test items are maximized when all items measure the same construct, Cronbach's alpha is widely believed to indirectly indicate the degree to which a set of items measures a single construct (Gleam & Rosemary, 2003). George and Mallery (2003) provide the following rules of thumb: — > .9 Excellent, > .8 – Good, > .7 Acceptable, > .6 Questionable, _ > .5 Poor, and < .5 Unacceptable p.231 (as cited in Gleam & Rosemary, 2003). If correlations between items are too low, it is likely that they are measuring

different traits and therefore should not all be included in a test that is supposed to measure one trait.

Cronbach's alpha for each value was established by the SPSS application and gauged against each other at a cut off value of 0.7 which is acceptable according to Cooper and Schindler (2008). The values were Project Organization (0.788), Project Risk Management Planning (0.840), Risk Identification (0.762), Risk Analysis (0.828), Risk Response Planning (0.768), and Risk Monitoring and Control (0.830). All the values were above 0.7 which concludes that the data collection instrument is reliable.

Table 3-2Cronbach's Alpha

Measurement	No of Items	Cronbach's Alpha
Project Organization	9	0.788
Project Risk Management Planning	6	0.840
Risk Identification	6	0.762
Risk Analysis	7	0.828
Risk Response Planning	7	0.768
Risk Monitoring and Control	7	0.830
IT Project Success	8	0.801

Source: Survey data, 2019

3.7.2. Correlation

Validity is the extent to which a score on a scale or test predicts scores on some criterion measure (Cronbach & Meehl, 1955; as cited in Gleam & Rosemary, 2003)

Table 3-3Validity – Correlation Matrix

Variables		Project Organization	Project Risk Management Planning	Risk Identification	Risk Analysis	Risk Response Planning	Risk Monitoring and Control	IT Project Success
IT Project Success	Pearson Correlation	.851**	.778**	.808**	.876**	.817**	.826**	1
	Sig. (2-tailed)	.002	.008	.005	.001	.004	.002	
	N	10	10	10	10	10	10	10

Note: All correlation coefficients are significant at 1%. *Source: Survey data, 2019*

The validity of the instrument was tested using correlation analysis. The Pearson correlation coefficient between the IT project success and independent variables of the instrument are shown in table 2. The table shows that all coefficients are significant at the 0.01 level. The present research employed two-tailed correlation to test the predictive validity of the variables. This method tries to see the correlation between all independent variables and the dependent validity.

As can be inferred from the above table, all independent variables were found to be significantly correlated with the dependent variables of project performance.

3.6. Method of Data Analysis

For completeness and consistency purpose the questionnaires were edited before analyzing the data. Quantitative data that was collected was analyzed with the help of SPSS version 24. The information was displayed by use of bar charts, graphs and pie charts and tables. Correlation analysis used to establish the relationship between the independent and dependent variables was employed. The purpose of doing correlation will be to allow the study to make a prediction on how a variable deviate from the normal.

Simple descriptive statistics (frequencies, percentages, means, and standard deviations) were used to show preliminary figures. Moreover; independent sample T-Test and One-way ANOVA was used to investigate the relationship between demographic variables (Employee Level) and project performance. In order to assess the influence of independent variables on dependent variable multiple linear regression is applied. The model applied to show this influence is presented as follows;

$$\mathbf{Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 4X5 + \beta 4X6 + \varepsilon}$$

Where:

Y = Dependent Variable

β0 = Intercept (value of Y when X= 0)

β1 = Slop

X1= Risk Management Planning

X2=Risk Identification

X3= Risk Analysis

X4= Risk Response Planning

X5= Risk Monitoring & Control

X6=Project Organization

ε = the error

Chapter Four

4. Results and Discussion

4.1. Descriptive Analysis

4.1.1 Background characteristics

Since the general characteristics of the respondents are vital to get insights to the overall study we shall start by seeing the demographic nature of the respondents. It is believed in many extant Literatures that demographic variables like Job position do have an effect on risk management practice. Thus, the respondents working in ethio telecom are summarized by the following table.

Table 4-1 Employee Category

Variable	Category	Frequency	Percent
Employee Category	Management	33	21.2%
	Non-Management	92	59.0%
	Total	125	100%

Note: The full result is presented in Appendix -1C
Source: Survey data,2019

It is important to note that from the total population 42 management who were expected to fill the questionnaire 33 responded which is 78.6% successful. As risk management is the main responsibility and accountability of management it is paramount in enabling the respondents to conceptualize issues related to risk management practice and the project organization impact. From the total respondents 59.0% were non-management category which is 69.2% of the total expected population. This respondent gives the view of the risk management practice in their daily project activities specially in the identification, response and monitoring activities.

4.1.2. Descriptive statistics of the Variables

Items under each dimension are aggregated to one to get the scores of the variable. As indicated in the table 4.2, all independent variables mean score is above the midpoint of the scale which is 3 except for project organization which is 2.92. From the six independent variables Project Risk Management Planning scores the highest (3.22). But the mean value of the dependent variable (IT Project Success) scored the lowest mean value (2.68). From the variables the highest range is Project Risk Management Planning and the lowest is of IT Project Success, 3.33 and 1.25 respectively.

The risk management were in the moderate level of practice with in all aspects of Project Risk Management Planning, Risk Identification, Risk Analysis, Risk Response Planning, and Risk Monitoring and Control (Mean = 3.22, 3.15,3.13,3.09, and 3.13 and S.D.= 0.78, 0.49, 0.54, 0.47, and 0.49) as shown in Table 4.2.

Though from Pimchangthong D, Boonjing V. (2017) result risk management practice is of a high importance for IT project success the result in this study showed it was not practiced well which imply that ethio telecom is suffering with poor risk management practice and affect the project success.

Table 4-2 Descriptive Characteristics of Variable

Variables	Range	Minimum	Maximum	Mean	Std. Deviation
Project Organization	2.11	2.00	4.11	2.9169	.47325
Project Risk Management Planning	3.33	1.67	5.00	3.2200	.77844
Risk Identification	1.84	2.33	4.17	3.1499	.49558
Risk Analysis	2.00	2.29	4.29	3.1335	.53826
Risk Response Planning	1.71	2.43	4.14	3.0919	.46916
Risk Monitoring and Control	1.57	2.14	3.71	3.1302	.48675
c	1.25	2.00	3.25	2.6770	.45353

Note: The full result for all is presented in Appendix -1D

Source: Survey data 2019

Project Organization

The study sought to find the effect of project organization on IT project success by analyzing the proper implementation of organizational structure for the project management. From the findings the study revealed that the project organization scores moderate in supporting effective risk management, effectiveness of Chain of command, Reporting and communication processes, and being vision driven (Mean= 2.98, 2.97, 3.51, and 2.98).

Table 4-3 Project Organization Descriptive Analysis

Project Organization	Range	Minimum	Maximum	Mean	Std. Deviation
The organization's structure supports effective risk management	2	2	4	2.98	.893
The organization is over controlled for the risks it faces	2	2	4	2.68	.691
The organization supports taking risks to achieve objectives	3	2	5	3.46	.818
Chain of command within the organization support the effective management of risk	3	2	5	2.97	.983
Reporting and communication processes between staff in the organization and its top management support the effective management of risk	3	2	5	3.51	.895
The current organizational structure contributes to institutional effectiveness	3	2	5	3.13	.880
The current organizational structure hinders institutional effectiveness	1	1	2	1.87	.335
The top management share vision of your company with everyone within your unit.	2	2	4	2.98	.893
The structure of the organization is clearly communicated to all staff throughout the organization	2	2	4	2.68	.691

From the total respondents 8% do not believe that the organization structure supports the effective risk management where 64.8% were neither agree to it nor disagree. Only 27.2% agree that the current organization structure supports effective risk management. 47.2% of the respondent disagree that the organization is over controlled for the risks it faces where 44% are neutral. The support chain of command within organization for effective management of risks was at moderate stage with 50.4% of neither agree nor disagree response.51.2% of the respondents respond that the

top management shares the vision to everyone where 54.4% says the structure of the organization was not clearly communicated. Even though 77.6% of respondent agreed that the current organizational structure contributes to institutional effectiveness, it lacks to support and effectiveness in management project risk.

Table 4-4 Project Organization Frequency Analysis

Project Organization	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The organization's structure supports effective risk management	0	27.2	64.8	8.0	0
The organization is over controlled for the risks it faces	0	8.8	44.0	47.2	0
The organization supports taking risks to achieve objectives	0	35.2	52.8	12.0	0
Chain of command within the organization support the effective management of risk	0	26.4	50.4	23.2	0
Reporting and communication processes between staff in the organization and its top management support the effective management of risk	15.2	26.4	25.6	32.8	0
The current organizational structure contributes to institutional effectiveness	0	77.6	22.4	0	0
The current organizational structure hinders institutional effectiveness	0	0	36.0	24.0	40.0
The top management share vision of your company with everyone within your unit.		51.2	10.4	38.4	
The structure of the organization is clearly communicated to all staff throughout the organization	0	36.8	0	54.4	8.8

Harvey & Levine (2002) in their research explained that organizational structures are dictated by such factors as technology and its rate of change, complexity, resource availability, products and/or services, competition, and decision-making requirements. There is no such thing as a good or bad organizational structure; there are only appropriate or inappropriate ones. Based on this thought ethio telecom project organization seems to be inappropriate in the aspect of risk management and project success support.

Project Risk Management Practice

The study sought to find the effect of project risk management on IT project success by analyzing the practice of risk management planning, risk identification, risk analysis, risk response plan, and risk monitoring and control of IT projects. From the findings the study revealed that the project risk management practice scores moderate level with lowest point 3.09 of Risk Response Planning practice and highest level point 3.18 of Project Risk Management Planning.

Table 4-5 Project Risk Management Practice Descriptive Analysis

Project Risk Management Practice	Range	Minimum	Maximum	Mean	Std. Deviation
Project Risk Management Planning	3.33	1.67	5.00	3.2200	.77844
Risk Identification	1.84	2.33	4.17	3.1499	.49558
Risk Analysis	2.00	2.29	4.29	3.1335	.53826
Risk Response Planning	1.71	2.43	4.14	3.0919	.46916
Risk Monitoring and Control	1.57	2.14	3.71	3.1302	.48675

Project Risk Management Planning

From the study finding the ethio telecom's practice of setting risk management objective and have project risk management planning process for all projects was at a moderate rate of mean point 3.14. From the result having a meeting with stakeholders to develop risk management plan scored slightly below the midpoint on mean=2.97. A practice of estimation of resources and costs needed for risk management activities and scheduling of risk management activities in the project schedule was found on the moderate level with points 3.13 and 3.05 respectively. The highest score was recorded with the practice of use of RBS is developed to define risk categories for projects followed by the use of standard and useful tools and techniques to plan on a mean value of 3.51 and 3.20 with standard deviation of 0.89 and 1.264 respectively.

Table 4-6 Project Risk Management Planning Descriptive Analysis

ID	Project Risk Management Planning	Mean	Std. Deviation
1	The organization's risk management objectives have been clearly set out and have project risk management planning process for all projects	3.46	.818
2	There is planning meetings to develop the risk management plan.	2.97	.983
3	In your organization RBS is developed to define risk categories for projects	3.51	.895
4	There is estimation of resources and costs needed for risk management activities and include them in the project budget	3.13	.880
5	Risk management activities define and include in the project schedule	3.05	1.217
6	Your organization uses standard and useful tools and techniques to plan	3.20	1.264

As it is shown below in the table there is inconsistency in setting on risk management objectives and implementation of project risk management planning process. Where 48% of the respondents claim that the practice of setting risk management objectives and having project risk management planning process 29.6% disagree and 22.4% on neutral. This difference could be the result of inconsistent implementation in all projects. This case is also expressed in the remaining points. The practice of planning meeting and usage of RBS to define risk categories also had inconsistency with 40% and 31.2% respondents agree and 43.2 and 35.2 disagree respectively.

Differing from the other the practice of scheduling risk management activities including it in the project schedule had 64.8% of agreement respondents and 35.2% disagreed.

Table 4-7 Project Risk Management Planning Frequency Analysis

ID	Project Risk Management Planning	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree(%)	Strongly Disagree (%)
1	The organization's risk management objectives have been clearly set out and have project risk management planning process for all projects	8.8	39.2	22.4	16.0	13.6
2	There is planning meetings to develop the risk management plan.		40.0	16.8	43.2	
3	In your organization RBS is developed to define risk categories for projects		31.2	33.6	35.2	
4	There is estimation of resources and costs needed for risk management activities and include them in the project budget		26.4	49.6	24.0	
5	Risk management activities define and include in the project schedule		64.8		23.2	12.0
6	Your organization uses standard and useful tools and techniques to plan		34.4	26.4	39.2	

Risk Identification

In risk identification practice the study finds that ethio telecom have a moderate level of practice. From the study finding the ethio telecom's practice of usage of standard tools and techniques and common definition of risk throughout the company had scored just on the midpoint with point 3.02 with standard deviation 0.97. This result showed that risks which were identified in one area or working unit of the company could be missed in the other. The other practice that respondents rate below the midpoint were identification of the main potential risks related to each project objectives, assessment of (likelihood, impact, prioritization, and creation and maintenance of risk register) risk on mean point of 2.72 and 2.99 with standard deviation of 0.67 and 087 respectively. Risk identification practice in the aspect of recognition and identification of changes, involvement of participant/stakeholders in risk identification, and use of scope statement, milestones, WBS and deliverables to identify risks had scored above the midpoint (Mean=3.50, 3.50, 3.14, and SD 0.50, 0.70, and 0.78).

Table 4-8 Risk Identification Descriptive Analysis

ID	Risk Identification	Mean	Std. Deviation
1	A common definition of risk is used throughout the organization and uses standard and useful tools and techniques to identify risks	3.02	.971
2	The organization identifies the main potential risks relating to each of its declared aims and objectives of the project	2.74	.671
3	Changes in risks are recognized and identified when the organization's roles and responsibilities change.	3.50	.502
4	The organization assess the likelihood of risks occurring and its potential impact, prioritize its main risks, and prepare risk register for each project	2.99	.866
5	All key project participants/stakeholders involved in risk identification	3.50	.703
6	Your organization use scope statement, milestones, WBS and deliverables to identify risks	3.14	.776

From the respondent 36% say there is no common definition of risk throughout the organization and do not use standard tools and techniques to identify risk where 50.4 we neither agree nor disagree. There is relatively good practice of identification of main potential risks to each objective if the project with 52.8% of agreed response and 47.2 we neither agree nor disagree. Inconsistency of recognizing changes in risks when organizational roles and responsibilities change in the company which is reflected by 42.4 agree and 35.2 disagree responses. The practice of assessing the likelihood of risks occurring and its potential impact, prioritize its main risks, and prepare risk register for each project was found agreed by 64% of respondents and 40.8% of the respondents says key project participants/stakeholders involved in risk identification process. 47.2% of respondents agree on the practice of using scope statement, milestones, WBS and deliverables to identify.

Table 4-9 Risk Identification Frequency Analysis

ID	Risk Identification	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
1	A common definition of risk is used throughout the organization and uses standard and useful tools and techniques to identify risks		13.6	50.4	36.0	
2	The organization identifies the main potential risks relating to each of its declared aims and objectives of the project		52.8	47.2		
3	Changes in risks are recognized and identified when the organization's roles and responsibilities change.		42.4	22.4	35.2	
4	The organization assess the likelihood of risks occurring and its potential impact, prioritize its main risks, and prepare risk register for each project		64.0	21.6	14.4	
5	All key project participants/stakeholders involved in risk identification		40.8	39.2	20.0	
6	Your organization use scope statement, milestones, WBS and deliverables to identify risks		47.2	13.6	24.0	15.2

Pimchangthong D, Boonjing V. (2017) finds risk identification practice of high importance for IT project success with a mean score of 3.96 and standard deviation 0.644

Risk Analysis

In risk analysis practice the study finds that ethio telecom have above moderate level of practice. From the study finding the ethio telecom's practice of usage of standard tools and techniques and had scored just on the midpoint with point 3.02 with standard deviation 0.97 which show relatively equivalent practice compared with risk identification. This results showed that risks which were identified in one area or working unit of the company could be missed in the other. Respondents also rate the availability of qualitative and quantitative risk analysis methods and tools above midpoint with score point 3.50. the study had showed also ethio telecom had above moderate practice of quantifying the possible outcomes for the project and their probabilities and

identification of realistic and achievable cost, schedule, or scope targets, given the project risks with a mean score of 3. and 3.02 respectively.

Those ethio telecom had above moderate mean score for most of risk analysis aspect it lacked overall risk ranking practice and assessment of probability of achieving specific project objectives with mean score of 3.14 and 3.02.

Table 4-10 Risk Analysis Descriptive Analysis

ID	Risk Analysis	Mean	Std. Deviation
1	Your organization uses standard and useful tools and techniques to analyze risks	3.02	.971
2	There are established qualitative and quantitative risk analysis methods and tools	2.74	.671
3	Your organization uses risk matrix that defines probability and impact exist	3.50	.502
4	Overall risk ranking is practiced in your organization	2.99	.866
5	Quantification of the possible outcomes for the project and their probabilities is practiced in your organization.	3.50	.703
6	Your organization do assess the probability of achieving specific project objectives.	3.14	.776
7	Your organization identifies realistic and achievable cost, schedule, or scope targets, given the project risks.	3.02	.971

Finding in Table 4-10 shows that 59.2% respondents use standard and useful tools and techniques to analyze risks. The standard deviation for this is 0.74 implying that majority of the respondents are not in disagreement. The practice of using qualitative and quantitative risk analysis methods and tools and risk matrix that defines probability and impact showed inconsistent with 46.4% and 48.8% agreement from the respondent with standard deviation of 0.87 and 0.94 respectively which indicate equivalent level of disagreement. Overall risk ranking practice and assessment of the probability of achieving specific project objectives showed a low rate of practice with 11.2% and 9.6% agreement response respectively. The standard deviation of these practices were 0.66 and 0.61 which imply the majority disagree or neutral with it.

Table 4-11 Risk Analysis Frequency Analysis

ID	Risk Analysis	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)
1	Your organization uses standard and useful tools and techniques to analyze risks		59.2	26.4	14.4	
2	There are established qualitative and quantitative risk analysis methods and tools		46.4	22.4	31.2	
3	Your organization uses risk matrix that defines probability and impact exist		48.8	12.0	39.2	
4	Overall risk ranking is practiced in your organization		11.2	47.2	41.6	
5	Quantification of the possible outcomes for the project and their probabilities is practiced in your organization.		47.2	52.8		
6	Your organization do assess the probability of achieving specific project objectives.		9.6	56.8	33.6	
7	Your organization identifies realistic and achievable cost, schedule, or scope targets, given the project risks.		76.8	12.8	10.4	

Bakker, K. De. (2011) in his study on Effects of Project Risk Management on Project Success concludes that risk analysis as being the most influential risk management activities though the practice in ethio telecom is on the moderate state.

Risk Response Planning

Once identified and analyzed the next step in risk management is to have risk response plan. This study sought to find out the effect of risk response planning practice on the success of IT projects. According to the finding the use of risk response plan process scored mean value of 2.74 which is slightly below the moderate level with a standard deviation of 0.671. This showed that the practice of planning to respond to risk is not appropriately and consistently implemented in the organization. The practice of assigning one or more responsible entity for each agreed to risk response is also scored below the midpoint on 2.99 with standard deviation 0.866 which show there were risk without owner take and follow up actions related to those risks.

The practice of response to risk which includes an evaluation of the effectiveness of the existing controls and risk management responses, action plans for implementing decisions about identified risks, an assessment of the costs and benefits of addressing risks, prioritizing of risks that need active management was found below moderate level with a mean score of 2.74 and standard deviation 0.671. On the contrary the practice of using decision tree analysis to choose the most appropriate response was found to be above moderate on a mean score of 3.50 and standard deviation .703.

Table 4-12 Risk Response Planning Descriptive Analysis

ID	Risk Response Planning	Mean	Std. Deviation
1	Your organization have risk response planning process.	2.74	.671
2	In your organization there are planned responses as opposed to considering risks as they arise	3.50	.502
3	Your organization assign one or more responsible entity for each agreed to risk response.	2.99	.866
4	Your organization use decision tree analysis to choose the most appropriate response.	3.50	.703
5	Your organization develop primary and backup strategies for the risk response plan.	3.14	.776
6	There is contingency reserve allocation practice for time and cost in your organization	3.02	.971
7	The organization's response to risk includes; An evaluation of the effectiveness of the existing controls and risk management responses, Action plans for implementing decisions about identified risks, an assessment of the costs and benefits of addressing risks, prioritizing of risks that need active management	2.74	.671

Pimchangthong D, Boonjing V. (2017) in their research on Effects of Risk Management Practice on the Success of IT Project, risk response planning had the greatest influence on predicting project management performance (the aspect of scope, time, budget)

Risk Monitoring and Control

On risk monitoring and control phase of risk management process it is expected to detailing and tracking identified risks as well as monitoring residual risk, and the identification of any new risks that may arise. Evaluating the efficacy of risk processes utilized during the entire project lifecycle is an important aspect of risk monitoring and control (PMBOK). This study sought to investigate the influence of risk monitoring and control on IT project success.

Based on the finding of this study ethio telecom had above moderate level in using risk monitoring and control process on mean score of 3.50 and standard deviation 0.502. this implies that the organization had developed and enforce risk monitoring and control process so that all project member understands how they monitor and controls risks and respond when it happens. On the contrary to this manager do not understand or lack the risks faced by the organization which they are responsible to managing with a mean score of 2.51 and standard deviation 0.714. This finding is in line with the finding in risk identification which showed there is no common definition of risk. According to the finding monitoring the effectiveness of risk management loosely an explicit integral part of routine management reporting processes with mean score of 3.13 and standard deviation of 0.595.

Table 4-13 Risk Monitoring and Control Descriptive Analysis

ID	Risk Monitoring and Control	Mean	Std. Deviation
1	There is risk monitoring and control process	3.50	.502
2	The organization monitors and reviews the risks in the achievement of its objectives	2.99	.866
3	Changes to the organization's risks are identified, assessed and reported on an ongoing basis as to their impact on objectives	3.50	.703
4	The organization has a clearly defined policy and process for the reporting of changing risks, incidents and control failings as they occur	3.14	.776
5	The organization routinely reviews the effectiveness of the controls in place to manage risks	3.14	.786
6	Monitoring the effectiveness of risk management is an explicit integral part of routine management reporting processes	3.13	.595
7	Managers in the organization understand the risks faced by the organization which they are responsible for managing	2.51	.714

Didraga O (2013) in their research on The Role and the Effects of Risk Management in IT Projects Success, risk monitoring and control had the greatest influence on predicting IT project success.

4.2. Regression Analysis

In addition, the researcher conducted a linear multiple regression analysis so as to test the relationship among independent variables and dependent variable. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study.

4.2.1. Linearity Test

Linearity test aims to determine the relationship between independent variables and the dependent variable is linear or not. The linearity test is a requirement in the correlation and linear regression analysis. Good research in the regression model there should be a linear relationship between the free variable and dependent variable. If the value sig. Linearity> 0.05, then indicating that there is a non-linear relationship between the independent variables and dependent. If the value sig. Linearity <0.05, then indicating that there is a linear relationship between the independent variables and dependent. The deviation from linearity shows that the consistency of the linear relationship between independent variables with the rank of Sig. <0.05 as good.

The linearity test showed that the there is a linear relationship between the independent and dependent variables with the Sig. level of 0.000 for linearity and maximum 0.049 for deviation from the linearity which acceptable for the research. The detail result can be found in Appendix 1H.

In addition to the linearity test the researcher had performed normality test to see the normal distribution of the data. An assessment of the normality of data is a prerequisite for many statistical tests because normal data is an underlying assumption in parametric testing.

Model Summary

Table 4-14 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.755[a]	.570	.548	.30481

Note: The full result for is presented in Appendix -1G
Source: Survey data, 2019

The adjusted R^2 is the coefficient of determination. This value explains how IT project success varied with Project Organization, Project Risk Management Planning, Risk Identification, Risk Analysis, Risk Response Planning, Risk Monitoring and Control. The six independent variables that were studied, explain that risk management practice and project organization had effect on the success of IT projects with the extent of contribution 57.0% as represented by the R^2. Therefore, a further research should be conducted to investigate the other factors (43.0%) that affects IT projects success in ethio telecom.

ANOVA

Table 4-15 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.542	6	2.424	26.086	.000[b]
	Residual	10.964	118	.093		
	Total	25.506	124			

According to Mugenda & Mugenda, 2003, ANOVA is a data analysis procedure that is used to determine whether there are significant differences between two or more groups or samples at a selected probability level. `An independent variable is said to be a significant predictor of the dependent variable if the absolute t-value of the regression coefficient associated with that independent variable is greater than the absolute critical t-value. In this study, the significance value is .000 which is less than 0.05 thus the model is statistically significant in predicting Project Organization, Project Risk Management Planning, Risk Identification, Risk Analysis, Risk Response Planning, Risk Monitoring and Control.

Coefficients

Table 4-16 Coefficients

Model		Unstandardized Coefficients	t	Sig.
		B		
1	(Constant)	0.429	1.614	0.079
	Project Organization	0.320	1.338	0.093
	Project Risk Management Planning	0.520	3.938	0.071
	Risk Identification	0.487	3.528	0.081
	Risk Analysis	0.529	1.450	0.050
	Risk Response Planning	0.524	4.821	0.062
	Risk Monitoring and Control	0.786	5.818	0.007

Source: Survey data, 2019

The researcher conducted a multiple regression analysis so as to determine the relationship between IT Project success and the six variables. As per the SPSS generated table above, the equation ($\mathbf{Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 4X5 + \beta 4X6 + \varepsilon}$) becomes:

$$\mathbf{Y = 0.429 + 0.520X1 + 0.487X2 + 0.529X3 + 0.524X4 + 0.786X5 + 0.320X6 + \varepsilon}$$

Where:

Y = Dependent Variable

β0 = Intercept (value of Y when X= 0)

β1 = Slop

X1= Risk Management Planning

X2=Risk Identification

X3= Risk Analysis

X4= Risk Response Planning

X5= Risk Monitoring & Control

X6=Project Organization

ε = the error

According to the regression equation established, taking all factors into account (Project Organization, Project Risk Management Planning, Risk Identification, Risk Analysis, Risk Response Planning, Risk Monitoring and Control) constant at zero, IT Project Success will be

0.429. The data findings analyzed also show that taking all other independent variables at zero, a unit increase in Project organization will lead to a 0.320 increase in IT Project success; a unit increase in Risk Management Planning support will lead to a 0.520 increase in IT Project success, a unit increase in Risk Identification will lead to a 0.487 increase in IT Project success; a unit increase in Risk analysis will lead to a 0.529 increase in IT Project success; a unit increase in Risk Response Planning will lead to a 0.524 increase in IT Project success and a unit increase in Risk Monitoring & Control will lead to a 0.786 increase in IT Project success

This infers that Risk Monitoring & Control had effect on IT Project success more followed by the Risk Analysis.

At 5% level of significance and 95% level of confidence, Project Organization had a 0.093 level of significance; Project Risk Management Planning showed a 0.071 level of significant, Risk Identification showed a 0.081 level of significant, Risk Analysis had a 0.050 level of significant; Risk Response Planning had a 0.062 level of significant; Risk Monitoring and Control had a 0.007 level of significant and hence the most significant factor is Risk Monitoring and Control.

Chapter Five

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary of the findings

From the analysis of the data collected, it can be summarized as:

- There is no significant relation between the descriptive variables; risk management practice and use of effective project organization. Being Staff or Manager by itself do not show statistically significant evidence to affect the success level of the IT projects success in ethio telecom.
- Risk Monitoring and Control practice and project successfulness are significantly and positively related. Furthermore, Risk Monitoring and Control is the highest predictor of factors affecting project success compared to other factors. So Risk Monitoring and Control is the main predictor that had highest effect of IT project success in ethio telecom.
- Risk Analysis is the second highest predictor of project success. Thus the data analysis reveals that the limitation of risk analysis practice that should have been done in a regular way for all IT projects to achieve their objective using standard and useful techniques and methods.
- The finding indicates that one of the factors that had effect on the success of IT projects of ethio telecom is Risk Response Planning. The results showed that the practice of planning to respond to risk is not appropriately and consistently implemented in the organization.
- The finding also indicates that there is positive and statistically significant relationship between Project Risk Management Planning Practices and project success. This result shows that Project Risk Management Planning Practices is one of the factors affecting project success in IT project of ethio telecom.
- The effect of Risk Identification practice on IT project success was showed a significant relation. The results show that there is a limitation of practicing risk identification in ethio telecom. Defining risk to be used consistently, using tools and techniques, incorporating changes and use of identification processes.

- Findings also showed that project organization is one of the factors that have effect in the success of IT projects in ethio telecom. Results show that the project organization used in ethio telecom lacks supporting effective risk management, effectiveness of Chain of command, Reporting and communication processes, and being vision driven.

5.2 Conclusion

The main objective of this study was to assess the effect of risk management practice on the success of IT projects in ethio telecom with the following specific objective.

1. To investigate the influence of risk management practice on the success of IT project
2. To investigate the influence of project organizational structure on the success of IT project

From the result it shows that the following factors have effect on the successfulness of IT projects in ethio telecom in order of ranking:

X5= Risk Monitoring and Control

X3= Risk Analysis

X4= Risk Response Planning

X1= Project Risk Management Planning

X2=Risk Identification

X6=Project Organization

The findings of the study showed a high effect of all the six variables on the success of IT projects in ethio telecom. The study found out that there was 57% of corresponding change in determining success of IT projects in ethio telecom for every change in all the six predictor variables jointly. Test of overall significance of all the six variables jointly, Project Organization, Project Risk Management Planning, Risk Identification, Risk Analysis, Risk Response Planning, Risk Monitoring and Control using ANOVA, at .05 level of significance found the model to be significant.

As a result, it can be concluded as:

1. Project risk management practices have effect on the success of IT projects in ethio telecom
2. The project organizational structure has influence on the risk management and the success of IT project

5.3. Recommendation

The following recommendations can be drawn from the analysis and conclusions made. It is presented in the reference to risk management practices and project organization which have significant effect on the success of IT project in ethio telecom.

Project risk management practice:

Project Risk Management Planning practice

For all IT projects ethio telecom is engaging the objective of the project should be communicated to all stakeholders and understanding on the scope and deliverable should be clearly stated. The risk management planning process should be developed and followed for all projects. There is planning meetings to develop the risk management plan. ethio telecom should develop Risk Breakdown Structure (RBD) to define risk categories for projects and appropriate resources to management the risks should be estimated and included in the project budget. Risk management activities should be planned and included in the project schedule and ethio telecom should improve the usage of standard and useful planning tool and techniques.

Project Risk Identification Practice

As the identification of risk starts with common definition of risk throughout the organization ethio telecom should define what a risk is to the company and communicate to all stakeholder of the risk management. Based on the objective of the projects it is executing ethio telecom should have a practice of identifying the main potential risks relating considering each project situation by involving project stakeholders. Role and responsibility change of the organization bring a new landscape of risk in which ethio telecom should recognize and identify it with its risk identification process.

ethio telecom should improve the practice of assessment of the likelihood of risks occurring and its potential impact, prioritize its main risks, and prepare risk register for each project.

Project Risk Analysis

ethio telecom should improve its risk analysis practice in the aspect of using qualitative and quantitative risk analysis methods, use of standard and useful tools and techniques to analyze risks and use of risk matrix that defines probability and impact exist. The practice of overall risk ranking quantification of the possible outcomes for the project and their probabilities, assessment of the probability of achieving

specific project objectives, identification realistic and achievable cost, schedule, or scope targets, given the project risks should be improved.

Project Risk Response Plan

ethio telecom should have a practice of developing planned responses as opposed to considering risks as they arise since it will make the company more proactive and manage the risks in an effective way. The use of tools like decision tree analysis will enable ethio telecom to choose the most appropriate responses for each risks and develop primary and backup strategies for the risk response plan. As a practice in responding to risks ethio telecom is advised to include an evaluation of the effectiveness of the existing controls and risk management responses, action plans for implementing decisions about identified risks, an assessment of the costs and benefits of addressing risks, prioritizing of risks that need active management

Project Risk Monitoring and Control

ethio telecom should improve the monitoring and review the risks in the achievement of its objectives, identify, assess and report changes to the organization's risks ongoing basis as to their impact on objectives. To have project risk monitoring and control practice in ground ethio telecom should have a clearly defined policy and process for the reporting of changing risks, incidents and control failings as they occur and routinely reviews the effectiveness of the controls in place to manage risks. These activities should be integral part of routine management reporting processes and managers in the organization understand the risks faced by the organization which they are responsible for managing.

Project Organization

ethio telecom should make sure its project structure supports effective risk management by ensuring Chain of command within the organization support the effective management of risk. Reporting and communication processes between staff in the organization and its top management should support the effective management of risk and the top management should continuously share vision of ethio telecom to all employees and stakeholder so that they can support the company to achieve its objectives. ethio telecom should communicate structure of the organization is clearly to all staff throughout the organization.

5.4. Limitation and Implications for further research

While these results are valuable, the limitation of this study must also be considered. A potential limitation of this research is the possibility that the results are not generalizable due to the particular industry it studied. Since the questionnaire survey instrument was employed through Likert rating scale some of the dependent variable i.e. IT project success statements responded according to the respondent's perception. The population considered of IT project implementers and employees working in risk management activities only, but it is feasible the relations among these variables are quite different for project implementers in other environments such us Construction projects, engineering projects, etc.

Therefore, the results have to be interpreted taking this limitation into account. Future studies can examine the proposed relationships by bringing some contextual variables and additional dimensions into the model in order to fill the observed gap.

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APPENDIX

APPENDIX 1: RESULT OF SPSS

Appendix 1A: Cronbach's Alpha

Reliability
Scale: Project Organization

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.788	9

Reliability
Scale: Risk Management Planning

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.840	6

Reliability
Scale: Risk Identification

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.762	6

Reliability
Scale: Risk Analysis

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.828	7

Reliability

Scale: Risk Response Plan

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.768	7

Reliability

Scale: Risk Monitoring and Control

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics	
Cronbach's Alpha	N of Items
.830	7

Reliability

Scale: IT Project Success

Case Processing Summary			
		N	%
Cases	Valid	15	100.0
	Excluded[a]	0	.0
	Total	15	100.0

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

Reliability Statistics	
Cronbach's Alpha	N of Items
.801	8

Appendix 1B: Predictive Validity

Correlations

Correlations								
		Project Organization	Project Risk Management Planning	Risk Identification	Risk Analysis	Risk Response Planning	Risk Monitoring and Control	IT Project Success
Project Organization	Pearson Correlation	1	.924**	.943**	.933**	.938**	.852**	.386**
	Sig. (2-tailed)		.000	.000	.000	.000	.000	.000
	N	125	125	125	125	125	125	125
Project Risk Management Planning	Pearson Correlation	.924**	1	.910**	.921**	.860**	.879**	.190*
	Sig. (2-tailed)	.000		.000	.000	.000	.000	.034
	N	125	125	125	125	125	125	125
Risk Identification	Pearson Correlation	.943**	.910**	1	.986**	.982**	.924**	.424**
	Sig. (2-tailed)	.000	.000		.000	.000	.000	.000
	N	125	125	125	125	125	125	125
Risk Analysis	Pearson Correlation	.933**	.921**	.986**	1	.952**	.944**	.387**
	Sig. (2-tailed)	.000	.000	.000		.000	.000	.000
	N	125	125	125	125	125	125	125
Risk Response Planning	Pearson Correlation	.938**	.860**	.982**	.952**	1	.846**	.475**
	Sig. (2-tailed)	.000	.000	.000	.000		.000	.000
	N	125	125	125	125	125	125	125
Risk Monitoring and Control	Pearson Correlation	.852**	.879**	.924**	.944**	.846**	1	.385**
	Sig. (2-tailed)	.000	.000	.000	.000	.000		.000
	N	125	125	125	125	125	125	125
IT Project Success	Pearson Correlation	.851**	.778**	.808**	.876**	.817**	.826**	1
	Sig. (2-tailed)	.002	.008	.005	.001	.004	.002	
	N	125	125	125	125	125	125	125
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								

Appendix 1C: Respondents Profile

Frequency Table

Employee category					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Management	33	21.2	26.4	26.4
	Non-Management	92	59.0	73.6	100.0
	Total	125	80.1	100.0	
Missing	System	31	19.9		
Total		156	100.0		

Appendix 1D: Descriptive

Descriptive Statistics

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
Project Organization	125	2.11	2.00	4.11	2.9169	.47325
Project Risk Management Planning	125	3.33	1.67	5.00	3.2200	.77844
Risk Identification	125	1.84	2.33	4.17	3.1499	.49558
Risk Analysis	125	2.00	2.29	4.29	3.1335	.53826
Risk Response Planning	125	1.71	2.43	4.14	3.0919	.46916
Risk Monitoring and Control	125	1.57	2.14	3.71	3.1302	.48675
IT Project Success	125	1.25	2.00	3.25	2.6770	.45353
Valid N (listwise)	125					

Appendix 1E: Independent sample T-Tests

T-Test

Group Statistics					
	Employee category	N	Mean	Std. Deviation	Std. Error Mean
IT Project Success	Management	3	3.0833	.28868	.16667
	Non-Management	12	2.5625	.46922	.13545

Independent Samples Test										
		Levene's Test for Equality of Variances	t-test for Equality of Means							
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
IT Project Success	Equal variances assumed	1.679	.218	1.808	13	.094	.52083	.28804	-.10144	1.14310
	Equal variances not assumed			2.425	5.109	.059	.52083	.21477	-.02771	1.06938

Appendix 1F: ANOVA
One way

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.542	6	2.424	26.086	.000[b]
	Residual	10.964	118	.093		
	Total	25.506	124			
a. Dependent Variable: IT Project Success						
b. Predictors: (Constant), Risk Monitoring and Control, Risk Response Planning, Project Risk Management Planning, Project Organization, Risk Analysis, Risk Identification						

Appendix 1G Frequency Table

Risk Identification					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	15	9.6	12.0	12.0
	Neither Agree Nor Disagree	79	50.6	63.2	75.2
	Agree	31	19.9	24.8	100.0
	Total	125	80.1	100.0	
Missing	System	31	19.9		
Total		156	100.0		

Risk Analysis					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	15	9.6	12.0	12.0
	Neither Agree Nor Disagree	90	57.7	72.0	84.0
	Agree	20	12.8	16.0	100.0
	Total	125	80.1	100.0	
Missing	System	31	19.9		
Total		156	100.0		

Risk Response Planning					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	15	9.6	12.0	12.0
	Neither Agree Nor Disagree	94	60.3	75.2	87.2
	Agree	16	10.3	12.8	100.0
	Total	125	80.1	100.0	
Missing	System	31	19.9		
Total		156	100.0		

Risk Monitoring and Control					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	15	9.6	12.0	12.0
	Neither Agree Nor Disagree	78	50.0	62.4	74.4
	Agree	32	20.5	25.6	100.0
	Total	125	80.1	100.0	
Missing	System	31	19.9		
Total		156	100.0		

IT Project Success					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Disagree	47	30.1	37.6	37.6
	Neither Agree Nor Disagree	78	50.0	62.4	100.0
	Total	125	80.1	100.0	
Missing	System	31	19.9		
Total		156	100.0		

Statistics								
		Project Organization	Project Risk Management Planning	Risk Identification	Risk Analysis	Risk Response Planning	Risk Monitoring and Control	IT Project Success
N	Valid	125	125	125	125	125	125	125
	Missing	31	31	31	31	31	31	31
Mean		2.9169	3.2200	3.1280	3.0400	3.0080	3.1360	2.6240
Std. Deviation		.47325	.77844	.59536	.52976	.49994	.60032	.48633
Minimum		2.00	1.67	2.00	2.00	2.00	2.00	2.00
Maximum		4.11	5.00	4.00	4.00	4.00	4.00	3.00

Appendix 1H Linear Regression Analysis

Regression

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method
1	Risk Monitoring and Control, Risk Response Planning, Project Risk Management Planning, Project Organization, Risk Analysis, Risk Identification	.	Enter
a. Dependent Variable: IT Project Success			
b. All requested variables entered.			

Model Summary										
					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.755[a]	.570	.548	.30481	.570	26.086	6	118	.000	2.662
a. Predictors: (Constant), Risk Monitoring and Control, Risk Response Planning, Project Risk Management Planning, Project Organization, Risk Analysis, Risk Identification										
b. Dependent Variable: IT Project Success										

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.542	6	2.424	26.086	.000[b]
	Residual	10.964	118	.093		
	Total	25.506	124			

a. Dependent Variable: IT Project Success

b. Predictors: (Constant), Risk Monitoring and Control, Risk Response Planning, Project Risk Management Planning, Project Organization, Risk Analysis, Risk Identification

Coefficients						
		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Model		B	Std. Error	Beta		
1	(Constant)	.429	.266		1.614	0.079
	Project Organization	.320	.239	.334	1.338	0.093
	Project Risk Management Planning	.520	.132	.892	3.938	0.071
	Risk Identification	.487	.988	.810	3.528	0.081
	Risk Analysis	.529	.365	.628	1.450	0.050
	Risk Response Planning	.524	.731	.646	4.821	0.062
	Risk Monitoring and Control	.429	.307	.917	5.818	0.079

Linearity and Normality Test

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
IT Project Success * Project Organization	Between Groups	(Combined)	13.286	17	.782	5.213	.000
		Linearity	5.884	1	5.884	39.249	.000
		Deviation from Linearity	7.402	16	.463	3.086	.000
	Within Groups		16.042	107	.150		
	Total		29.328	124			

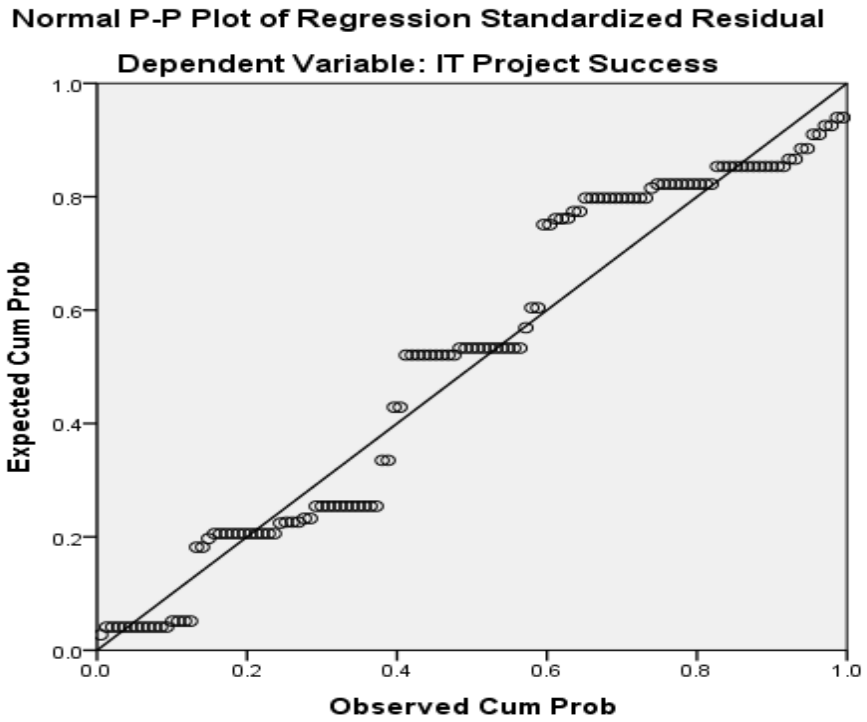
ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
IT Project Success * Project Risk Management Planning	Between Groups	(Combined)	12.141	15	.809	5.133	.000
		Linearity	3.181	1	3.181	20.173	.000
		Deviation from Linearity	8.960	14	.640	4.059	.000
	Within Groups		17.187	109	.158		
	Total		29.328	124			

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
IT Project Success * Risk Identification	Between Groups	(Combined)	8.849	2	4.425	26.360	.000
		Linearity	8.227	1	8.227	49.014	.000
		Deviation from Linearity	.622	1	.622	3.706	.057
	Within Groups		20.479	122	.168		
	Total		29.328	124			

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
IT Project Success * Risk Analysis	Between Groups	(Combined)	7.528	2	3.764	21.065	.000
		Linearity	6.362	1	6.362	35.607	.000
		Deviation from Linearity	1.166	1	1.166	6.523	.012
	Within Groups		21.800	122	.179		
	Total		29.328	124			

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
IT Project Success * Risk Response Planning	Between Groups	(Combined)	8.222	2	4.111	23.761	.000
		Linearity	7.628	1	7.628	44.094	.000
		Deviation from Linearity	.593	1	.593	3.429	.049
	Within Groups		21.106	122	.173		
	Total		29.328	124			

ANOVA Table							
			Sum of Squares	df	Mean Square	F	Sig.
IT Project Success * Risk Monitoring and Control	Between Groups	(Combined)	8.610	2	4.305	25.351	.000
		Linearity	.651	1	.651	3.831	.043
		Deviation from Linearity	7.959	1	7.959	46.870	.000
	Within Groups		20.718	122	.170		
	Total		29.328	124			



APPENDIX 2: QUESTIONNAIRE ITEMS

St. Mary's University
School of Graduates
Master of Project Management

QUESTIONNAIRE

Dear respondents, the purpose of this questionnaire is to gather data on the effect of risk management practice on IT project success in the case of ethio telecom. The study is purely for academic purpose and thus not affects you in any case. So, your genuine, frank and timely response is vital for successfulness of the study. Therefore, I kindly request you to respond to each items of the question very carefully.

In order to investigate effect of risk management practice on IT project success in ethio telecom, the researcher prepared the following questions, please tick (√) on the appropriate question number to indicate the extent to which you agree or disagree with each statement.

The item has five-point Likert type scales, the scales have the following meaning

1 = strongly disagree,
2 = disagree,
3 = neither agree nor disagree,
4 =agree,
5 = strongly agree,

General Instructions

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

Contact Address

If you have any query, please do not hesitate to contact me and I am available as per your convenience at (Mobile: 0911-50-97-71 or e-mail: kassrom@gmail.com')

Thank you in advance for scarifying your precious time!

Part I: Demographic Information

1. Employee category
   - ☐ Management
   - ☐ Non-Management

Part II: Question related to Project Organization

	1. Project Organization	**Strongly Disagree (1)**	**Dis-agree (2)**	**neither agree nor disagree (3)**	**Agree (4)**	**Strongly Agree (5)**
1.1	The organization's structure supports effective risk management					
1.2	The organization is over controlled for the risks it faces					
1.3	The organization supports taking risks to achieve objectives					
1.4	Chain of command within the organization support the effective management of risk					
1.5	Reporting and communication processes between staff in the organization and its top management support the effective management of risk					
1.6	The current organizational structure contributes to institutional effectiveness					
1.7	The current organizational structure hinders institutional effectiveness					
1.8	The top management share vision of your company with everyone within your unit.					
1.9	The structure of the organization is clearly communicated to all staff throughout the organization					

Part III: Questions Related to Project Risk Management Practice

		Strongly Disagree (1)	**Dis-agree (2)**	**neither agree nor disagree (3)**	**Agree (4)**	**Strongly Agree (5)**
1	**Project Risk Management Planning**					
1.1	The organization's risk management objectives have been clearly set out and have project risk management planning process for all projects					
1.2	There is planning meetings to develop the risk management plan.					

1.3	In your organization RBS is developed to define risk categories for projects					
1.4	There is estimation of resources and costs needed for risk management activities and include them in the project budget					
1.5	Risk management activities define and include in the project schedule					
1.6	Your organization uses standard and useful tools and techniques to plan					
2	**Risk Identification**					
2.1	A common definition of risk is used throughout the organization and uses standard and useful tools and techniques to identify risks					
2.2	The organization identifies the main potential risks relating to each of its declared aims and objectives of the project					
2.3	Changes in risks are recognized and identified when the organization's roles and responsibilities change.					
2.4	The organization assess the likelihood of risks occurring and its potential impact, prioritize its main risks, and prepare risk register for each project					
2.5	All key project participants/stakeholders involved in risk identification					
2.6	Your organization use scope statement, milestones, WBS and deliverables to identify risks					
3	**Risk Analysis**					
3.1	Your organization uses standard and useful tools and techniques to analyze risks					
3.2	There are established qualitative and quantitative risk analysis methods and tools					
3.3	Your organization uses risk matrix that defines probability and impact exist					
3.4	Overall risk ranking is practiced in your organization					
3.5	Quantification of the possible outcomes for the project and their probabilities is practiced in your organization.					
3.6	Your organization do assess the probability of achieving specific project objectives.					

3.7	Your organization identifies realistic and achievable cost, schedule, or scope targets, given the project risks.					
4	**Risk Response Planning**					
4.1	Your organization have risk response planning process.					
4.2	In your organization there are planned responses as opposed to considering risks as they arise					
4.3	Your organization assign one or more responsible entity for each agreed to risk response.					
4.4	Your organization use decision tree analysis to choose the most appropriate response.					
4.5	Your organization develop primary and backup strategies for the risk response plan.					
4.6	There is contingency reserve allocation practice for time and cost in your organization					
4.7	The organization's response to risk includes; An evaluation of the effectiveness of the existing controls and risk management responses, Action plans for implementing decisions about identified risks, an assessment of the costs and benefits of addressing risks, prioritizing of risks that need active management					
5	**Risk Monitoring and Control**					
5.1	There is risk monitoring and control process					
5.2	The organization monitors and reviews the risks in the achievement of its objectives					
5.3	Changes to the organization's risks are identified, assessed and reported on an ongoing basis as to their impact on objectives					
5.4	The organization has a clearly defined policy and process for the reporting of changing risks, incidents and control failings as they occur					
5.5	The organization routinely reviews the effectiveness of the controls in place to manage risks					

5.6	Monitoring the effectiveness of risk management is an explicit integral part of routine management reporting processes					
5.7	Managers in the organization understand the risks faced by the organization which they are responsible for managing					

Part IV: Questions Related to IT Project Success

1. IT Project Success		**Strongly Disagree (1)**	**Dis-agree (2)**	**neither agree nor disagree (3)**	**Agree (4)**	**Strongly Agree (5)**
1.1	In your organization, IT Projects meet the expected objectives of the project.					
1.2	In your organization, IT projects are delivered on time and within the budget.					
1.3	In your organization, IT projects meet the required specification.					
1.4	In your organization, IT projects are delivered based on the scope and expected standard.					
1.5	In your organization, IT projects output products/services meets stakeholders intend.					
1.6	In your organization, End users of IT projects are always satisfied by the delivery of the product/service from the project.					
1.7	In your organization, the products/services delivered by the project are always reliable flexible and easy to use.					
1.8	In your organization, the products/services delivered by the project overall quality is as stakeholder expectation.					