ADDIS ABABA UNIVERSITY
COLLEGE OF BUSINESS AND ECONOMICS
SCHOOL OF COMMERCE

Effect of Project Risk Management Practices on Project Success: The Case of Safaricom Telecommunication Ethiopia Project (STEP)

A Research Project submitted to the Project Management Unit, Postgraduate Program, School of Commerce, Addis Ababa University, in partial fulfillment of the requirements for the Degree of Master of Art in Project Management.

Bruck Kebede (GSR/1559/14)
Advisor: Seifu Mamo (PHD)

Jun 2023
Addis Ababa, Ethiopia

DECLARATION

I, Bruck Kebede, declare that this research project entitled "Effect of Project Risk Management Practices on Project Success: In Safaricom Telecommunication Ethiopia Project (STEP)" is the outcome of my own effort and study. All sources of materials used for the study have been duly acknowledged. This study has not been presented for a degree in any university.

Bruck Kebede Jembere

Signature: ----------

Date: ----------

LETTER OF CERTIFICATION

This is to certify that Bruck Kebede has carried out this research on the topic " Effect of Project Risk Management Practices on Project Success: In Safaricom Telecommunication Ethiopia Project (STEP)" under my supervision. This work is original in the nature and suitable for submission in partial fulfillment of the requirement for the award of Master of Arts Degree in Project Management and the student has my permission to present it for assessment.

Advisor: Seifu Mamo (PHD**)**

Signature: ----------

Date: ----------

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

DEPARTEMENT OF PROJECT MANAGEMENT

EFFECT OF PROJECT RISK MANAGEMENT PRACTICES ON PROJECT SUCCESS: IN SAFARICOM TELECOMMUNICATION ETHIOPIA PROJECT (STEP)

This is to certify that the research project presented by Bruck Kebede entitled: "The Effect of Project Risk Management Practices on Project Success: In Safaricom Telecommunication Ethiopia Project (STEP)" and submitted in partial fulfillment of the requirements for the degree of Masters of Art in Project Management complies with the regulation of the University and meets the accepted standards with respects to originality and quality.

Approval Board Committee

Examiner (Internal)……. Signature ……...Date…….

Examiner (External)…….…. Signature ……Date……..…….

Advisor…….……. Signature ……...…Date……...…...

Chair of Department or Graduate Program Coordinator

ACKNOWLEDGEMENTS

I would like to acknowledge Dr. Seifu Mamo for taking me through the research process from proposal writing to presentation and analysis. Her skillful guidance, constructive criticism, patience, and suggestions supported the efforts to get this research project successfully completed. I would like to acknowledge my family and my intimate friends who were with me in times of difficulties. Moreover, I would like to extend my gratitude to staffs of Safaricom Telecommunication Ethiopia for their prompt response given to me to conduct this research.

ABSTRACT

Telecommunications companies worldwide are upgrading and expanding their network technologies to enhance performance and increase capacity. However, this modernization comes with inherent risks. This study aimed to identify the factors that require attention during the implementation of the Safaricom Telecommunication Project. The research focused on how Project Risk Management Practices affect project success by gathering data from Safaricom Ethiopia project team members. A questionnaire survey was distributed to project managers, supervisors, and related personnel, and 118 questionnaires were analyzed after being tested for validity and reliability. The study used purposive sampling to select respondents with sufficient knowledge and significant roles in the projects. The research question was analyzed using the Statistical Package for Social Sciences (SPSS). The study found that the effective implementation of project risk management practices has a significant impact on project success, which was measured by project schedule, budget, quality objectives, and scope and goals. Risk planning, planning risk response, and monitoring risks during a project's lifecycle show a moderate correlation, while the correlation between risk identification and project success is weak. The regression model effectively determined the relationship, revealing that risk management practices account for 81% of the variation in the STEP project success.

Key words: Project Risk Management, Risk Identification, Risk Planning, Plan Risk Response, Risk Monitoring and Control

Table of Contents

List of Figures

List of Tables

Acronyms and Abbreviations

STEP	Safaricom Ethiopia Telecommunication Project
PMBOK	Project Management Body of Knowledge
PM	Project Manager
SPSS	Statistical Package for Social Science
PRM	Project Risk Management
PMO	Project Management Office
RA	Risk Analysis
RP	Risk Planning
RI	Risk Identification
RM	Risk Monitoring
PRR	Planning Risk Response
IRR	Implement Risk Response
RMP	Risk Management plan
PRR	Plan Risk Response
CSF	Critical Success Factors
SD	Standard Deviation

CHAPTER ONE: INTRODUCTION

This chapter consists of the research background, problem description, research questions, research goals, research significance, scope and limits, definitions of terms, and research structure.

1.1 Background of the study

The telecom industry plays a crucial role in any country's economy as it enables economic and social changes, improves access to essential services, fosters connectivity, and creates job prospects. (Dutta, 2015). This industry has been recognized as one of the sectors that are vulnerable to swift technological advancements. (Nelson & Winter, 2008). As a result, telecommunications companies must consistently initiate new projects to develop innovative products and sustain their competitive advantage. (Thapar, 2016)

Project refers to a set of tasks that are connected, complex, and unique, with a shared objective or goal. The completion of these tasks is expected within a specific timeframe, allocated budget, and in accordance with predefined specifications (Wysocki, 2014). Nonetheless, taking risks is an unavoidable aspect of projects since all projects involve change, and any change brings uncertainty and consequently, risk. Telecommunication projects are known for their high capital intensity and the associated high-risk environment (Grishunin & Suloeva, 2015).

All variables are subject to uncertainty as a result of possible delays, budgetary exceedances, errors, fluctuations in customer demand, and other related factors (Oehmen & Seering, 2011). Thus, in the terms of Kaplan and Miles (2012), organizations need to develop and employ sound risk management processes to mitigate and respond to these risks and increase the likelihood of a successful, profitable project.

So basically, project risk management is all about finding, examining, and dealing with potential risks that could happen during a project. It's like a mix of art and science because it requires both creativity and knowledge to make sure the project stays on track and meets its goals (PMBOK, 2017). Burek P. (2016) suggests that experienced risk managers understand that risks can have either good or bad consequences, so they consider both possibilities when they manage risks. They also believe that the focus of risk management should be on increasing the likelihood and

benefits of positive outcomes for the project, while reducing the likelihood and negative effects of the negative outcomes on the project. So, making sure to manage risks is important when a company is working on a project. If risks aren't handled properly, it could seriously impact how well the project turns out. That's why it's a big part of the company's management plan.

This study is to examine the potential impact of project risk management practices on the successful delivery of required project outcomes within the context of the Safaricom Ethiopia Telecommunication Project. Through a thorough analysis of relevant data and information, this research aims to shed light on the extent to which effective risk management strategies can contribute to the overall success of a project, particularly in the telecommunications sector. By exploring the relationship between project risk management and the achievement of project deliverables. This study seeks to provide valuable insights into the importance of risk management practices in ensuring project success and identifying potential areas for improvement in this critical aspect of project management.

1.2 Background of Safaricom Ethiopia Telecommunication Project

Safaricom is a Kenyan telecommunications company that operates primarily in Kenya, but recently expanded its operations to Ethiopia. In 2021, Safaricom was awarded a license to launch telecommunications services in Ethiopia, one of the largest untapped markets in Africa to initiate Safaricom Telecommunication Ethiopia Project (STEP).

The expansion into Ethiopia presents both opportunities and challenges for Safaricom Ethiopia. With this assumption company is carried out major activities network infrastructure expansion project. For the assessment of project risk management practice of the company, the Safaricom's Project have been selected as the focus of the researcher and the researcher assessed its practices and challenges in line with planning risk management, risk identification, analysis, response planning, response implementation, and that of monitoring employed in the project. The project is being implemented through two vendors (Nokia and Huawei). Safaricom Ethiopia is building a wholly owned mobile network and has infrastructure sharing and interconnection agreements in place with Ethio Telecom.

1.3 Problem statement

Organizations start projects to meet business needs, but this exposes the project environment to risk. A project management process should identify potential risks to the project and develop actions to minimize or mitigate their impact. (PMBOK, 2017). Telecom projects often involve diverse teams from various departments, each with unique backgrounds and skills. This is necessary for rapid development of new products or services but can also introduce additional risks to the project. (Maritim, 2018)

Although project risk management has been identified as an important factor in the performance of ICT projects, the adoption of these risk management practices in projects is inconsistent (Taylor et al, 2012). On the PMI (2017) pulse of the profession survey, 40% of the project managers surveyed acknowledged that they rarely or never use project risk management practices on their projects. Safaricom's entry into the Ethiopian market comes with several risks. Here are some of the potential risks include the country's its complex political environment, unfamiliar regulatory framework, large and attractive market, relatively underdeveloped infrastructure, volatile currency, diverse cultural landscape, inflation, and other economic risks that could impact its project (Nima, Abdi, 2022). This has left a knowledge gap in the key area of influence of risk management on projects success. The study therefore sought to bridge this knowledge gap. Thus, this study assessed the influence of project risk management practices on performance of one of the big private telecommunication projects in Ethiopia: Safaricom Telecommunication Ethiopia Project.

This research addresses the effect of the six processes on project risk management (risk planning, risk identification, risk analysis, planning risk response, implementing risk response and monitoring project risk) used by Safaricom Telecommunication Ethiopia Project (STEP) to achieve a successful project. How can Safaricom Ethiopia Plc. manage project risks so that projects are delivered successfully? And, what is the effect of risk implementation on project success on STEP? Besides being an employee of one of the vendors for the Safaricom Ethiopia Plc. and entry of the new private market as telecommunication operator in the country inspired the researcher to analyze the effects of risk management process that are used to tackle possible risk areas on that of project deliverables.

1.4 Research Questions

The research examines and will provide answers to the following questions:

Main Research Question:

- How does project risk management process affect the success of Safaricom Telecommunication Ethiopia Project?

Sub-research Questions:

1. How does risk management planning affect the success of Safaricom Telecommunication Ethiopia Project?
2. How does risk identification affect the success of Safaricom Telecommunication Ethiopia Project?
3. How does risk analysis affect the success of Safaricom Telecommunication Ethiopia Project?
4. How does planning risk response planning affect the success of Safaricom Telecommunication Ethiopia Project?
5. How does implementing risk response planning affect the success of Safaricom Telecommunication Ethiopia Project?
6. How does risk monitoring affect the success of Safaricom Telecommunication Ethiopia Project?

1.5 Objective Of the study

15.1 General Objective

The general objective of this study is to assess the effect of Project Risk Management Practices on Project Success in the case of Safaricom Telecommunication Ethiopia Project (STEP). In addition, the research will provide possible recommendations that help to improve project risk management process in Safaricom Ethiopia to improve future project performance.

15.2 Specific Objectives

The specific objectives of the study are:

- To assess the effect of planning risk management on the success of STEP

- To assess the effect of risk identification on the success of STEP
- To assess the effect of risk analysis on the success of STEP
- To assess the effect of planning risk response on the success of STEP
- To assess the effect of implementing risk response on the success of STEP
- To assess the monitoring risk on the success of Safaricom STEP

1.6 Significance of the Study

This study sought to find out the effect of project risk management that influence the success of telecommunication project by Safaricom Ethiopia Plc. The findings and recommendations of this study could serve as an ingredient and be informative to the project under examination as well as to concerned bodies. It could also give a general insight to the academic & professional society regarding the challenges of risk management aspects in the Ethiopian telecommunication sector.

Moreover, the study will provide information on how risk management was implemented and lists all the observed challenges during the risk management process, assist staff and divisions to assess the strength and weakness of the area of risk management implementation, give rise to a new idea to tackle those identified factors affecting the risk management process of the organization, serve as reference material for those who wish to make similar study in the area and also serve as a stepping ground for further investigation on the area.

1.7 Scope of the Study

The main objective of the study was to investigate the influence of project risk management on the success of Safaricom Telecommunication Ethiopia's implementation projects. The study exclusively focused on the role of project risk management in achieving project success and did not consider other success factors for projects or investigate the role of project risk management in other organizations or sectors. It should also be noted that the study was cross-sectional and utilized non-probability sampling. The data for the study was collected through primary sources using questionnaires, as well as secondary sources such as reports, theses, dissertations, journals, and organizational papers, to establish a comprehensive baseline of information.

1.8 Limitations of the study

The study faced limitations in both the study area and methodology employed for research. The data collection and analysis methodology were also restricted due to the nature of the project staff. Time and budget constraints further restricted this study to a selection of projects implemented in a single organization, making it difficult to confidently generalize findings to projects in other organizations. Additionally, locating respondents within their respective office locations within the limited time available posed a challenge for the researcher.

1.9 Operational Definition of terms

- **Telecommunication industry:** The telecommunication industry is a sector that provides communication services through electronic devices such as phones, computers, and other communication devices. (Gyemang & Emeagwali, 2020)
- **Project:** is a temporary endeavor undertaken to create a unique product, service, or result (PMI, 2017).
- **Project management—**is the discipline of initiating, planning, executing, controlling, and closing the work of a team to achieve specific goals and meet specific success criteria with applying of knowledge, skills, tools, and techniques to project activities (PMBOK, 2017).
- **Project life cycle**: A project life cycle is the sequence of stages in which a project moves from its beginning to its completion (PMBOK, 2017).
- **Risk**: An uncertain event or condition that, if it occurs, has a positive or negative effect on a project's objectives. (PMBOK, 2017)
- **Uncertainty**: is a doubt as to the occurrence of a certain desired outcome.
- **Project Risks**: Factors that may cause a failure to meet the project's objectives. Risks may be associated with opportunities (PMBOK, 2017)
- **Residual Risk**: A risk that remains after risk responses have been implemented. Project Management Glossary of Terms (2007)
- **Risk Management**: An organized assessment and control of project risks. Project Management Glossary of Terms (2007)
- **Project Risk Management**: The process of identification, assessment, allocation, and management of project risks. Management Glossary of Terms (2007)

- **Risk Management Plan**: The document describing how project risk management will be structured and performed on the project. Management Glossary of Terms (2007)
- **Risk identification**: The process of determining which risks might affect the project and documenting their characteristics. (PMBOK, 2017)
- **Risk Analysis**: An examination of risk areas or events to assess the probable consequences for each event (or combination of events in the analysis) and determine possible options for avoidance. (PMBOK, 2017)
- **Risk Response Planning** is the process for developing options and actions to enhance opportunities, and to reduce threats to project objectives. Management Glossary of Terms (2007)
- **Risk Register**: The document containing the results of the qualitative risk analysis, quantitative risk analysis, and risk response planning. (PMBOK, 2017)
- **Risk Response**: Actions taken to enhance opportunities and reduce threats to the achievement of project objectives. (PMBOK, 2017)
- **Risk Monitoring and Control:** The process of tracking identified risks, monitoring residual risks, identifying new risks, executing risk response plans, and evaluating their effectiveness throughout the project life cycle. (PMBOK, 2017)

1.10 Organization of the Study

The present study consists of five main chapters. The first chapter serves as an introduction, wherein the study's introductory context, problem statement, research questions, and overall purpose are presented. The second chapter provides a comprehensive review of relevant literature, including both empirical and theoretical sources, then conceptualizes the interrelationship among variables. In Chapter three, the research design and methodology are discussed in detail, with a focus on how they align with the study's objectives. Chapter four is dedicated to the analysis of the results obtained from the research, followed by a discussion of the findings. Finally, chapter five concludes the study by presenting suggestions and recommendations based on the main research findings.

CHAPTER TWO: LITERATURE REVIEW

2.1 Theoretical Review

This chapter will provide valuable insights into the concept of project risk management and project success by reviewing the existing theoretical and empirical literature which has been serving as the bases of this study. This will enable to contextualize the best method in undertaking the study the effect of project risk management risk management practices over the project success on area of interest.

2.1.1. What is a project?

The term "project" is often misused to refer to any attempt, endeavor, or business. However, a project is a specific course of action that involves a sequence of synchronized and controlled activities with a defined start and end time to achieve a particular goal while meeting specific requirements, such as time, cost, and resources. Essentially, a project is a process that involves implementing individual activities in successive steps. (Honzírková, 2017)

2.1.2. Overview of Project Management

According to the PMI definition on (PMI, 2017) project management has been defined as “the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.” Project management enables organizations to execute projects effectively and efficiently. This definition of project management does provide a good understanding of project management, but it does not help us understand project success.

This definition focuses on delivering a product or service to the client that meets expectations rather than project specifications. It is possible to meet all project specifications and not meet client expectations or fail to meet one or more specifications and still meet or exceed a client’s expectations.

To make it clearly understandable (Wysocki, 2014) defined project management as an organized common-sense approach that utilizes the appropriate client involvement in order to meet sponsor needs and deliver expected incremental business value. Here, the business value is the responsibility of the client through their requirements statements. The project manager is

responsible for meeting those requirements. Meeting requirements is the cause and incremental business value is the effect.

2.1.3. Project Management Knowledge Areas

As per the PMBOK (2017), Project Management Knowledge Areas (PMKA's) are specific fields or areas that are commonly employed in project management. Each knowledge area consists of a group of processes that correspond to a particular topic in project management. It is essential to understand, manage, and implement these areas throughout the entire project's duration, as their significance varies based on the project type. (Gasik, 2016)

According to (PMI, 2017), a knowledge area is an identified area of project management defined by its knowledge requirements and described in terms of its component processes, practices, inputs, outputs, tools, and techniques in the figure below.

Figure 1 Project Management Knowledge Areas Source (PMI, 2017)

Accordingly, the ten knowledge areas identified in the (PMBOK, 2017) guide have been used in most projects are described as follows:

1. ***Project Integration Management***: ensures synchronization and timely communication across various areas. (Pheng, L. S. 2017)
2. ***Project Scope Management:*** ensure that the required work and only the required work is included and performed in the project. (Sanghera, P. 2018)

3. ***Project Schedule Management:*** includes the processes required to complete the project in a timely manner. (Sanghera, P. 2018)
4. ***Project Cost Management:*** includes the processes of planning, estimating, budgeting, financing, funding, managing, and controlling costs so the project can be completed within the approved budget. (PMI, 2017)
5. ***Project Quality Management:*** deals with processes for incorporating quality policy in project and product planning to meet stakeholder expectations. (PMI, 2017)
6. ***Project Resource Management:*** Includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project. (PMI, 2017)
7. ***Project Communications Management:*** ensure that stakeholders get the right information to the right person at the right time and in a cost-effective manner. (Kerzner, 2017)
8. ***Project Procurement Management:*** Includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team. (Sanghera, P. 2018)
9. ***Project Stakeholder Management:*** involves identifying stakeholders, analyzing expectations, and developing management strategies for effective stakeholder engagement in project decisions and execution. (PMI, 2017)
10. ***Project Risk Management:*** Includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project. This is the focus area of this study and we will see in detail in the subsequent part of the literature. (PMI, 2017)

2.1.4. Risk and Risk Management Concepts

2.1.4.1. What is Risk?

According to Wysocki (2014), risk is a future event that could have a positive or negative impact on the project. (Newton, 2015) defines risk as a future event that may impact scope, schedule, budget, or quality. Project risk is an uncertain event or condition that may affect at least one project objective (OSPMI, 2007). Agreeably, (Kerzner, 2017) states that risk is a measure of the probability and consequences of not achieving a project goal.

Risk is an inherent part of project management, as all projects involve change, and change brings uncertainty and risk (Trocki, 2012). Regardless of the size or sector of a project, risks are present in all of them, and no project is entirely free from risks. Failure to properly analyze risks and develop strategies to address them can lead to project failure (Darshan et al. 2017). Effective risk management does not involve eliminating risks, which may seem like the most cost-effective option (Befrouei, 2015)

2.1.4.2.Project Risk Management

(El-Karim, et al., 2017) defined risk management as a methodical process that involves identifying, evaluating, and responding to project risks by increasing the likelihood of positive outcomes and decreasing the likelihood of negative outcomes. (Serpell, et al., 2015) also described risk management as a proactive approach that aims to minimize the occurrence of unsatisfactory outcomes in various stages of a construction project, including design, construction, and operation.

(Taofeeq, et al., 2019) identified risk management as a process that involves identifying hazards, assessing them both qualitatively and quantitatively, and responding with an effective control and treatment strategy. (Banaitiene & Banaitis, 2012) further elaborated it as a sound and systematic methodology and a breadth of knowledge and expertise are crucial for effective and efficient risk management.

Therefore, risk management is not a distinct project office task assigned to a separate department, but rather, an integral part of effective project management. He also characterizes effective risk management as proactive and positive, aiming to enhance the chance of project success (Kerzner, 2017).

2.1.5. The Project Risk Management Process

The (PMBOK, 2017) defines a risk management process as the systematic process of identifying, analyzing, and responding to project risks. The model for the risk management process is shown in below.

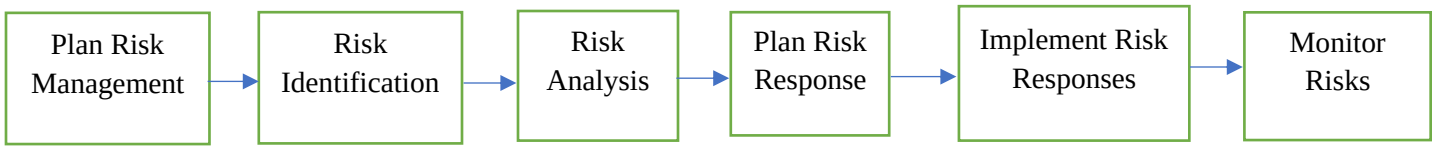

Figure 2 Project Risk Management Process, Source (PMI, 2017)

2.1.5.1.Plan Risk Management

Risk Management Planning is the first step in performing successful risk management processes. It involves deciding how to approach and conduct risk management activities for a project. It's important to plan risk management processes to make sure they match the level, type, and visibility of risk, as well as the project's importance to the organization. This ensures that there are enough resources and time for risk management activities and establishes a basis for evaluating risks (PMBOK, 2017).

(PMBOK, 2017) and (Kerzner, 2017), agree that Risk Management Planning The process should be completed early during project planning since it is crucial to successfully perform the other processes described in the preceding processes. Proper and in time planning and management of risk are the two factors contributing to the success of large-scale projects, so these factors need to be managed appropriately. (Alchammari & lshammare, 2021)

2.1.5.2.Risk Identification

Risk identification involves identifying project risks and sources of overall project risk and documenting their characteristics. This process documents the existing individual project risks and sources of overall project risk and enables the project team to respond appropriately to the identified risks (PMBOK, 2017) Thus, risk identification is crucial for the risk planning process. The project team must recognize specific risks that may impact project success. This involves documenting risk attributes and their potential effects on the project outcome. (Kloppenborg, T. J. , 2014)

Consequently, understanding the scope of the possible risk will help project managers in developing more realistic and cost-effective strategies for dealing with such risk factors. So, the

success of any project depends on proper identification of all types of risks factors without limit to the obvious (Mwangi, 2016).

Risk identification is an ongoing process and the proposed framework allows organizations to handle increasing complex risks and/or identifying them based on how the organizational resources may be exposed over time. (Mishra, 2019). In the early life-cycle phases, the total project risk is high in part because of the lack of information which may preclude comprehensive and accurate risk identification and because risk response plans have yet to be developed and implemented. In the later lifecycle phases, financial risk is generally substantial both because of investments made (such as cost) and because of foreclosed options (Kerzner, 2017).

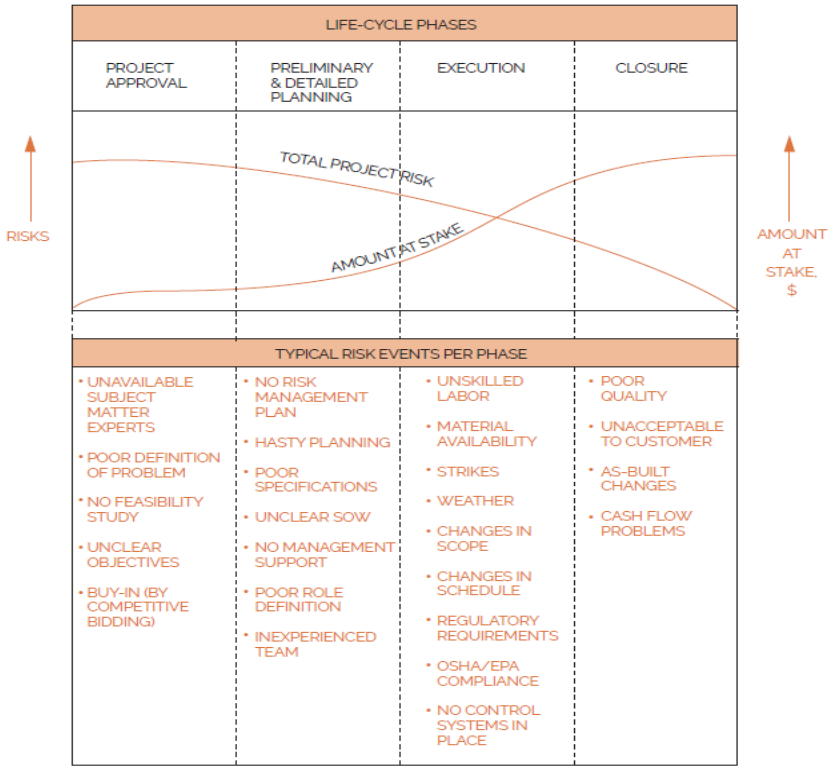

Figure 3 Life-cycle risk analysis, Source: (Kerzner, 2017)

Different techniques can be used for risk identification, but successfully identifying risk management techniques will greatly improve the probability of mitigating risk (Elzamly, 2015). The choice and decision depend on the level of accuracy and the time and experts available for the process. Generating a list of potential risks and using expert judgment as a tool for risk identification can be effective if you have good enough experts in risk management. Data

gathering techniques, brainstorming, checklists, interviews, root cause analysis, assumption analysis, and SWOT analysis can also be used for risk identification (PMBOK, 2017)

Involving as many as possible stakeholders who have a stake in the project will enhance our looking of risks from different perspectives. (PMBOK, 2017). It is important that all project personnel are involved with risk identification. Designating a small subset of people to perform risk identification almost always diminishes the results from both a technical and behavioral perspective and can lead to decreased risk management effectiveness. This defective risk identification practice should be avoided whenever possible (Kerzner, 2017). Therefore, stakeholders' perceptions of risk have consequences for how risk is perceived and acted upon in the market (Baudot, 2020).

Risk identification is a single risk management activity that positively influences objective and perceived project success (Bakker, et al., 2014). In fact, risk identification practice has the highest influence on product performance and IT project success. The results indicate the importance of risk identification; therefore, it needs to be completed first. The project managers should be aware of this practice to improve IT project success rate (Urbański & Oino, 2019).

2.1.5.3.Risk Analysis

Risk analysis should be performed as soon as the potential risks have been identified to allocate resources to more serious risks. It should use the probability and impact matrix (PIX) to rank and prioritize risks and place them back on the risk register. Regularly, new risks may be identified, and existing risks may change. (Newton, 2015)

Also (Kerzner, 2017) agree that risk analysis should start with a thorough assessment of the risks that have been identified and approved for further evaluation. The aim is to collect sufficient information about the risks, estimate their likelihood and potential impact, and then convert the values into a corresponding risk level. With the same book he also recommended to convert results after performing the analysis into risk levels through quantitative and qualitative risk analysis.

A. Qualitative Risk Analysis

The process of qualitative risk analysis entails assessing the likelihood and impact of different risks and identifying those that require priority attention to enhance project performance. The prioritization of identified risks is determined by considering the likelihood or probability of their occurrence, the potential impact if they do occur, and the urgency of the required risk response. (Nadaf, et al., 2018). It is the process of prioritizing individual project risks for further analysis or action by assessing their probability of occurrence and impact as well as other characteristics (PMBOK, 2017).

B. Quantitative Risk Analysis

The objective of the quantitative risk assessment method is to quantitatively estimate the likelihood, effects, and magnitude of each risk on the project's overall risk (Karim, 2012). To determine the size of the cost and schedule contingency reserves that may be required, as well as to identify the risks that require the most attention by quantifying their relative contribution to project risk, this approach uses a variety of techniques and decision analysis. It also sets realistic and attainable goals for cost, schedule, and scope.

In addition, according to the most recent edition of the PMBOK, quantitative risk analysis is the process of numerically evaluating the cumulative impact of all identified project risks as well as other sources of uncertainty on the overall project objectives.

2.1.5.4.Plan Risk Responses

Planning risk responses (risk handling) includes specific methods and techniques to deal with known risks and opportunities, identifies who is responsible for the risk or opportunity, and provides an estimate of the resources associated with handling the risk or opportunity, if any. It involves planning and execution with the objective of reducing risks to an acceptable level and exploiting potential opportunities. (Harold Kerzner 2013).

PMI (2017) described Plan Risk Responses as the process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as to treat individual project risks.

The benefits of effective and appropriate risk responses are minimizing individual threats, maximize individual opportunities, and reduce overall project risk exposure. Risk responses should be appropriate for the significance of the risk, cost-effective in meeting the challenge, realistic within the project context, agreed upon by all parties involved, and owned by a responsible person. The strategy or mix of strategies most likely to be effective should be selected for each risk. Structured decision-making techniques may be used to choose the most appropriate response.

A critical part of risk response planning involves refining and selecting the most appropriate response option(s) and specific implementation approach(s) for selected risks (often those with medium or higher risk levels) and opportunities. The selected risk response option coupled with the specific implementation approach is known as the risk response (handling) strategy, which is documented in the risk response (handling) plan Harold Kerzner (2009). The risk mitigation plan captures the risk mitigation approach for each identified risk event and the actions the project management team will take to reduce or eliminate the risk.

Harold (2017) summarized of risk response options for risks and opportunities in the table below. For risks this includes acceptance, avoidance, mitigation (control), and transfer while for opportunities this includes acceptance, enhance, exploit, and share. In addition, contingent responses are possible for both risks and opportunities.

Type of Response	Use for Risk or Opportunity	Description
Avoidance	Risk	Eliminate risk by accepting another alternative, changing the design, or changing a requirement. Can affect the probability and/or impact
Mitigation	Risk	Reduce probability and/or impact through active measures.
Transfer	Risk	Reduce probability and/or impact by transferring ownership of all or part of the risk to another party, use of insurance and warranties, by redesign across hardware/software or other interfaces, etc.
Exploit	Opportunity	Take advantage of opportunities.
Share	Opportunity	Share with another party who can increase the probability and/or impact of opportunities
Enhance	Opportunity	Increase probability and/or impact of opportunity.
Acceptance	Risk and Opportunity	Assume the associated level of risk or opportunity without engaging in any special efforts to control it. Budget, schedule, and other resources must be held in reserve in case the risk occurs, or opportunity is selected.

Table 1 Summary of Response Options for Risk and Opportunities

Source: (Kerzner, 2017)

2.1.5.5.Implement Risk Responses

Implement Risk Responses is the process of implementing agreed-upon risk response plans. It would have a key benefit that ensures the agreed-upon risk responses are executed as planned in order to address overall project risk exposure, minimize individual project threats, and maximize individual project opportunities. This process is performed throughout the project. A common problem with Project Risk Management is that project teams spend effort in identifying and analyzing risks and developing risk responses, then risk responses are agreed upon and documented in the risk register and risk report, but no action is taken to manage the risk. Only if risk owners give the required level of effort to implementing the agreed-upon responses will the overall risk exposure of the project and individual threats and opportunities are managed proactively (PMI, 2017). The deliverables from this process will be a change request to the cost and schedule baselines or other components of the project management plan and Project

documents which is directly observed on lesson learned register, risk register, risk report, issue log and project team assignment.

2.1.5.6. Monitor Risks

After risk is identified, then it is assessed the probability and impact of the risks and planned what to do if the risk event occurs, you need to monitor and control the project risks. The monitoring and control process systematically track and evaluates the effectiveness of risk response actions against established metrics (Wysocki, 2014). PMBOK (2017) described risk monitoring as the process of monitoring the implementation of agreed-upon risk response plans, tracking identified risks, identifying and analyzing new risks, and evaluating risk process effectiveness throughout the project.

Although project monitoring has well-established principles and policies, the process may not always be efficient due to practical problems that exist or arise during the project. Identifying and addressing these practical problems in the implementation of project monitoring and control can help recognize areas for improvement and establish a control process to correct any deviations. (Tom, 2013)

The benefit of this process is that it enables project decisions to be based on current information about overall project risk exposure and individual project risks. According to (Harold Kerzner 2017), monitoring results may also provide a basis for developing additional risk response strategies, or updating existing risk response strategies, and reanalyzing known risks.

2.1.6. Project Success

The idea of success in project management is a widely researched concept, as noted by (Ika, 2009) Success, as defined by (Taylor, 2000), involves delivering all the specified requirements to the sponsor within the agreed-upon quality, time, and cost parameters. Therefore, project performance alone does not determine the success or failure of a project. (Cooke-Davies, 2002) clarifies that project success and performance are distinct concepts. Project success cannot be determined until the project is completed, whereas project performance can and should be measured throughout the project's life cycle.

Defining success can be a challenging endeavor, as it can be perceived differently depending on the perspective of the individuals involved in a project (Lim et al. 1999). Success may be defined differently by managers, employees, and other stakeholders. For instance, a customer may be content with a project even if the end-user benefits are minimal. Numerous studies have indicated that success is achieved when a project meets all the criteria associated with budget, schedule, and functionality. This implies that the project is completed within the allotted time and budget, while providing the promised results. Conversely, failure is considered to occur when a project fails to meet these same criteria (Dalcher, 2014).

Nevertheless, few people would disagree with the statement that project success is interpretable in many ways. It is, simply put, a rather elusive concept (Prabhakar, 2008). Most early research on project success seems to emphasize the three traditional dimensions: (within) time, (within) budget and (within) specification (Albert, et al., 2017) also known as the known iron triangle. starting around the early 80s of last century, other criteria of success emerged from literature, such as measuring success after delivery that involves looking at the benefits or effectiveness of the project from the perspective of the stakeholder (Jugdev & Müller, 2005). Based on a structured review of relevant studies, Ika (2009) analyzed the development of criteria used to assess project success. Figure 1 visualizes the development of success criteria he identified.

The complexity of project management lies in the fact that not every project is exactly identical (Grosse, 2007). Every project has a certain degree of distinction; this particular disparity is almost as unique as a fingerprint, that no two are ever identical. Therefore, to achieve successful results in project management, certain fundamental factors must be exercised, in addition to meeting the remaining of the project's unique conditions. Yang (2011), explains that Project Managers need to consistently ensure that project results are in line with the organization's long-term goals. They should focus on how well the project aligns with both the long-term objectives of the organization and the short-term goals of the project.

In recent time, organizations activities are becoming more project based. The implication is that organization tends to split routine work into programs of project in order to quickly achieve organizational goal of value added. Good management of these projects is essential if the organization is going to succeed. Equally important to individual project success is ensuring that

the right projects are carried out. Directing all the projects successfully will ensure we are doing the right projects. Jugdev and Müller (2005) in their article mentioned that in order to define what success means in a project context is like gaining consensus from a group of people on the definition of "good art." Project success is a topic that is frequently discussed and yet rarely agreed upon (Baccarini, 1999). On were limited to the implementation phase of the project life cycle to definitions that reflect an appreciation of success over the entire project and product life cycle (Judges and Muller, 2005). Rowe et al, (1982) say that "Key result areas (KRAs) and critical success factors (CSFs) provide clue that help to answer the question of whether the organization is able to effectively mobilize its resources where there are conflicting sub goals, environmental uncertainty, and internal politics and constraints".

Wideman (2000) determines project success as a multi-dimensional construct that inevitably means different things to different people. He believes that success is better expressed at the beginning of a project in terms of key and measurable criteria upon which the relative success or failure of the project may be judged. He gives the following principle ―The measure of project success, in terms of both process and product, must be defined at the beginning of the project as a basis for project management decision making and post-project evaluation. First and foremost, project success needs to be defined in terms of the acceptability of the project‘s deliverables, for example scope, quality, relevance, effectiveness, and so forth; secondly in terms of its processes, for example time, cost, and so forth.

2.1.7. Project Success Factors

Project success is generally analyzed using success factors and success criteria. Success factors are those aspects of management that directly or indirectly lead to the success of the project, while success criteria are defined as the standards by which the success or failure of a project or company is judged. (Cooke-Davies, 2002). According to Lai (1997) the factors that contribute directly to project success is the ability to stay within the cost, time, and performance specifications of the project.

Various authors came up with factors that influence project success this includes: support from senior management and adequate funds (White & Fortune, 2002); adequate resources (Posner, 1987); and the importance of planning, monitoring and controlling, technical, commercial and external issues

(Morris et al., 2000). Ashley et al (1987) examine the links between success criteria and success factors, finding a direct cause and effect relationship between some factors and criteria. What counts as a successful project depends on how that success is measured? It has been found that the traditional measures of success, time, cost and goal specifications, are the most cited in the project management literature and were used most regularly as practical judges to project success (White & Fortune, 2002). There is a tendency to rely on time and cost as measures for easy measurement (Pinto & Slevin, 1988).

2.1.8. Critical success Factors (CSFs)

Critical success factors (CSFs) are key elements that can play a crucial role in ensuring the success of a project. These factors can be defined as specific characteristics, conditions, or variables that, if properly sustained, maintained, or managed, can have a significant impact on the outcome of the project. As a result, project managers must identify and prioritize these CSFs to effectively plan, execute, and monitor the project. By doing so, they can increase the likelihood of achieving project objectives and delivering high-quality results. Understanding and managing CSFs is an essential component of effective project management and can help ensure project success (Milosevic & Patanakul, 2005)

Different studies have identified different CSFs and a lack of consensus among researchers on the criteria for judging project success and the factors that influence that success (Fortune and White, 2006). The CSFs approach has been established and popularized over the last 20 years (Chan, 2004)Nevertheless, many of the studies focus on the traditional ―iron triangle which are cost, quality and schedule (criteria for measuring project success) of conventional construction process rather than sustainable buildings (Walker & Shen, 2002).

The concept of the Iron Triangle is an effective way of communicating the interrelationships between these central success criteria. It is typically depicted as a triangle with the criteria on the vertices. Movement of one criterion, for example, in response to client demands or resource limitations, can put pressure on the other criteria. Failure in one constraint will likely lead to negative pressure on one or both other two (Mokoena et al., 2013).

2.2 Empirical Literature Review

The search results indicate that there is currently no specific information available regarding project risk management in Safaricom Ethiopia's telecommunication project. However, a study conducted by Maritim (2018) on the impact of project risk management practices on the performance of telecommunication network modernization projects on Safaricom Plc's in Kenya may provide some valuable insights. The findings revealed that project risk management practices have a significant positive impact on the performance of telecommunication network modernization projects. As a result, the study recommended that telecommunication operators prioritize project risk management practices to ensure the successful implementation of network modernization projects.

The process of risk management is a crucial part of project management that is often overlooked and given insufficient attention in Ethiopia. Research conducted by Bereket N. (2017) reveals that Risk Management practices in Ethiopia are not well developed and are not considered important. Similarly, he highlighted that formal Risk Management is not effectively practiced in the construction of Ethiopian federal road projects through insurance. Straw (2015) emphasizes that the area of Risk and Uncertainty is critical in Project Management and is a natural part of all projects. Thus, Risk Management should be given significant consideration in almost all projects. Kalkidan A. (2017) conducted a research paper titled "Assessment of Project Management Competency: The Case of Ethio Telecom". The study found that project risk management was considered a difficult skill for Project Managers at Ethio Telecom, and it was an area of weakness for the company. However, the study did not provide details on the specific aspect of risk management that was poorly executed, nor did it suggest a comprehensive plan to address the issue.

The present study conducted an in-depth investigation of the assessment of project risk management associated with Safaricom Telecommunication Project success. The primary objective of this research was to evaluate the effect of Project Risk Management of Safaricom Telecommunication Project in accordance with the theoretical frameworks. Through this study, a detailed analysis of the Project Risk Management of Safaricom Telecommunication Project has been carried out to identify its strengths and weaknesses among the variables. The findings of

this study are useful for Safaricom to improve its Project Risk Management practices and ensure the successful completion of future projects.

2.3 Conceptual framework of the study

Based on a review of literature, the researcher has created a conceptual framework for the current study. The study aims to investigate the correlation between six independent variables, namely risk management plan, risk identification, risk analysis, plan risk response, implement risk response, and monitor and control project risks, with the dependent variable of project success. The conceptualization of the interrelationships between these variables is presented in Figure 2.

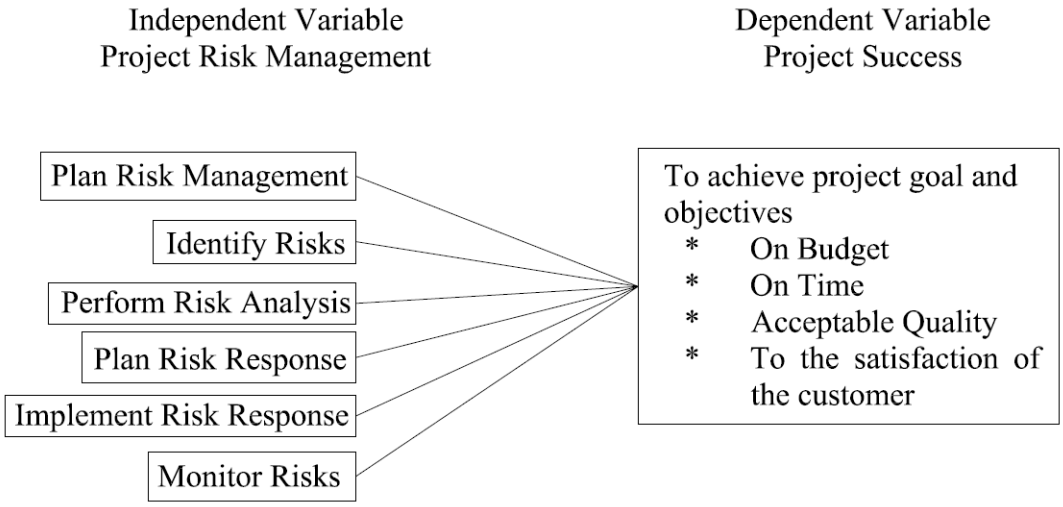

Figure 4.3 Conceptual Framework overview

Source (Thomas, 2018)

2.4 Research Hypotheses

The following hypotheses have been tested in this study:

- H_1: Planning risk management has a positive significant effect on the success of STEP.
- H_2: Risk identification has a positive significant effect on the success of STEP.
- H_3: Risk Analysis has a positive significant effect on the success of STEP.
- H_4: Planning risk response has a positive significant effect on the success of STEP.
- H_5: Implementing risk response has a positive significant effect on the success of STEP.
- H_6: Monitoring risk has a positive significant effect on the success of STEP.

CHAPTER THREE: RESEARCH METHODOLOGEY

The methodology section of the study will be covered in this chapter. Starting from the study area description other sections including the research approach, research design, population and sample, data source and types, data collection procedures, ethical consideration, and data analysis will be described.

3.1 Description of the study area

The study on the "Effects of project risk management practices on project success in the case of Safaricom Telecommunication Ethiopia Project" tried to identify the possible cause and effect relationship between the dependent and the independent variables.

Safaricom Ethiopia Plc received a license in May 2021, making it the first license private operator. To get a strategic edge over a rival, Safaricom Ethiopia started to strive to expand communication technology and bring operational excellence with the goal of becoming the chosen operator by initiating a Safaricom Telecommunication Ethiopia Project (STEP).

3.2 Research Design

The study utilized both explanatory and descriptive research designs. Explanatory research is used to establish causal relationships between variables, as noted by (Mark, S., Lewis, P. and Thornhill, A, 2019). As this study aimed to determine the cause-and-effect relationship between variables, employed an explanatory research design. Furthermore, the study sought to gather both internal and external insights to provide a more comprehensive understanding of the data. This aspect of the research takes a descriptive approach, which aims to create an accurate profile of events, persons, or situations, as described by (Mark, S., Lewis, P. and Thornhill, A, 2019)

3.3 Research Approach

According to (Creswell, 2017), there are three research methods namely qualitative, quantitative, and mixed. Most researchers argued that the best method to use for a study depends on the purpose of the research, researcher data and the accompanying research questions. The mixed research technique can be defined as research in which the investigator collects and analyses

data, integrates the findings and draws inferences using both qualitative and quantitative approaches or methods in a single study. (Tashakkori, 2007)

The advantage of using mixed method is that quantitative data can yield generalizable results and qualitative data can provide extensive insights (Zhang, 2014). So, for the purpose of conducting the research the researcher will apply the mixed approach because the best will be captured from both.

3.4 Population, Sample Size and Sampling Techniques

3.4.1. Population of the study

According to (Blumberg, 2014), the target population refers to individuals, events, or records that possess the necessary information and can provide responses to the measurement queries. In the context of this study, the target population of interest comprised 118 employees from nine distinct departments - Legal and Risk Management, Project Management Office (PMO), Deployment, Planning, Network Operation and Control, Procurement, Facility, Health and Safety, External Affair- all of which were actively involved in the project.

3.4.2. Sample Size

To determine the sample size of the study two sample size calculation techniques were used. Krejcie and Morgan table and Stratified random technique as shown in table 2. The Krejcie and Morgan table is constructed using the following formula for determining sample size.

$$s = X^2NP(1-P) + d^2(N-1) + X^2P(1-P)$$

where,
s = required sample size,

X^2 = the table value of chi square for one degree of freedom at the desired confidence level

N = the population size

P = the population proportion (assumed to be 0.50 since this would provide the maximum sample size)

d = the degree of accuracy expressed as proportion

source: (Krejcie & Morgan, 1970)

After the total sample size is determined, stratified random sampling is used to sample among the departments as below.

Sample size for each layer = size of layer x (size of whole sample/size of population).

No.	Department	No. of Employee	Sample size
1	Legal and Risk Management	16	11
2	Project Management Office (PMO)	12	8
3	Deployment	45	30
4	Planning	23	15
5	Network Operation and Control	34	22
6	Procurement	12	8
7	Facility	15	10
8	Health and Safety	13	9
9	External Affair	9	6
	Total	**179**	**118**

Table 2 Calculation of Sample size

3.4.3. Sampling Techniques

The study sampled 118 respondents. Samples of members Legal and Risk Management Project Management Office (PMO), Deployment, Planning, Network Operation and Control, Procurement, Facility, Health and Safety and External Affair departments of the three levels of management will be purposively sampled from Safaricom Ethiopia Private Limited staff involved in implementation of STEP.

3.5 Data Source and Types

The study has used both primary and secondary data sources; the primary data was collected from the field survey using questionnaires. Questionnaires were distributed for customer service division staffs. Secondary data was obtained through the analysis of various documents relevant to the study. It included reports, thesis, dissertations, journals, historical records, and organizational papers which provide baseline information for the study.

3.6 Data Collection Procedures

To evaluate the impact of project risk management techniques on the success of the project in STEP, a combination of primary and secondary data sources will be utilized. Primary data will be gathered from Safaricom Telecommunication Ethiopia's primary office and telecom sites using web-based

questionnaires. This approach is deemed necessary due to the possibility of project employees not being present in the study area at the time of data collection. Web-based questionnaires provide a convenient method of data collection that allows respondents to complete the questionnaire at their own convenience.

The information utilized in this study was obtained from employees who participated in various project-related activities such as planning, design, execution, monitoring and control, as well as risk management. Primary data collection method was employed to gather this information, which involved the distribution of questionnaires to a select sample of directors, managers, and staff. The questionnaire consisted of 29 closed-ended questions and was used as a measuring instrument.

To bolster the research efforts, secondary data sources data sources have been utilized which include a variety of materials such as books, journals, reports, magazines, and unpublished materials obtained from the project management office. By incorporating these sources of information, the research can draw from a wider range of perspectives and insights, ultimately leading to a more comprehensive and well-rounded analysis.

3.7 Validity and Reliability Test

Questionnaires are widely used as a means of collecting data, particularly in social science research. The main objective of using questionnaires in research is to gather pertinent information in a dependable and efficient manner. Therefore, ensuring the accuracy and consistency of the survey or questionnaire is crucial to the research methodology, as it affects the validity and reliability of the findings. (Taherdoost, 2016)

3.7.1. Reliability Test

Reliability relates to the extent to which the measurement of a phenomenon yields stable and consistent results (Carmines, 1979). It is also related to repeatability. Reliability testing is important because it concerns the consistency of all parts of the instrument (Huck, 2007). Items on a scale are said to be "related" and have high internal consistency if they measure the same structure (Robinson, 2009). The most used internal measure of consistency is the Cronbach alpha coefficient. This is the most appropriate measure of reliability when using the Likert scale

(Robinson, 2009). There are no absolute rules for internal consistency, but most agree on a minimum internal consistency factor of 0.70 (Robinson, 2009).

Soden (2004) have suggested four cut-off points for reliability, which includes excellent reliability (0.90 and above), high reliability (0.70-0.90), moderate reliability (0.50-0.70) and low reliability (0.50 and below).

No.	Variables	Number of Items	Cronbach's Alpha (α) Coefficient	Reliability Range
1	Risk Planning	6	0.684	Moderately Reliable
2	Risk Analysis	3	0.683	Moderately Reliable
3	Plan Risk Response	2	0.800	Highly Reliable
4	Implement Risk Response	3	0.810	Highly Reliable
5	Risk Monitor	4	0.757	Highly Reliable
6	Project Success Factors	6	0.712	Highly Reliable

Table 3 Reliability Statistics

The second independent variable, risk identification, has been found to have low reliability of 0.503. This means that different reviewers may have different interpretations of the variable, leading to inconsistent or unreliable results. As a result, it became appropriate to consider removing this variable from the analysis. The impact of removing the variable risk identification on the analysis and the overall model was accessed. This involves considering the importance of the variable in the analysis and the potential impact of removing it on the relationships between the other variables.

3.7.2. Validity Test

Validity basically means "measuring what should be measured (Field, 2013). From many type of validity test the study adopted contentment validity, it is defined as "the degree to which items in an instrument reflect the content universe to which the instrument will be generalized" (Boudreau, et al., 2001). It involves evaluation of a new survey instrument to ensure that it includes all the items that are essential and eliminates undesirable items to a particular construct domain. Surveys on project risk management techniques adapted and modified from (Kuma,

2006) and (Degaga, 2020) studies. The updated works of (Desalegn, 2018) were adopted for project risk factors to incorporate all the components that are crucial for the subject matter.

According to (Connelly, 2008) existing literature suggests that a pilot study sample should be 10% of the sample projected for the larger parent study. Depending on the instrument being used for the purpose of determining the effectiveness and validity of the instruments, the researcher conducted a participating pretesting with 10 respondents which is approximately 10% of the respondents as (Kothari, 2004) suggested. This procedure revealed questions that were vague and allowed for their review until they conveyed the same meaning.

3.8 Ethical Issue

Before deploying the questionnaire, an official letter from Addis Ababa University, School of Commerce Department of Project Management will be cast off to get the consent of the respondents to collect the necessary data. Respondents will be guaranteed that the information they provide will not be used against them, their identities will not be disclosed, and that the information obtained will not be shared with third parties or used for purposes other than research. Also, respondents will be informed that they have the right to decline to respond or to fill out the questionnaire.

3.9 Data Analysis

For this research the data was collected using questionnaires and the collected data were analyzed quantitatively using numerical value and qualitatively using a description to identify the problems. Data was analyzed and presented in a way to answer the research questions and meet the objective of the study from which conclusions and recommendations were drawn. Analysis of the data collected from primary source using questionnaire were analyzed using descriptive statistics of SPSS software version 27 to present the collected data in frequency, percentage, tables, and charts. For the multiple response questions the researcher also used SPSS Dichotomy group tabulated at value 1, in which responses recoded into formats suitable to put in the SPSS.

CHAPTER FOUR: RESULTS, DISCUSSION, AND INTERPRETATION

This chapter presents analysis, interpretation of results and discussion of the study as indicated in the research methodology. The data was gathered exclusively from questionnaire as an instrument. The questionnaire was designed in line with the objectives of the study. To enhance quality of data obtained, the respondents itemized the extent to which the variables were practiced in a five-point Likert scale. Descriptive statistics were then used to analyze the demographic factors and project risk management practices. The study also conducted Correlation analysis, specifically Pearson correlation to measure the relationship between different variables under consideration. Regression analysis was also used to test the effect of the independent and dependent variables.

4.1. Response Rate

Overall, 118 questionnaires were deployed and all of them were returned. This study presented a response rate of close to 100%, which happens to be valid and used for analysis (Fowler, 2002). The data were presented and analyzed using SPSS a statistical software.

4.2. Demographic Information of the Respondents

The researcher first tried to determine the general information on the employees of Safaricom Ethiopia taking part in the study with regards to the gender, age, level of education and years of project experience. This information reveals the respondents' suitability in answering the questions on the project risk management practices and their effect on the project success.

As the table below portrays the gender distribution of respondents at Safaricom Ethiopia covers 78.8% of males and 21.2% of females respectively.

Demographic Characteristics	Alternative	Frequency	Percent (%)	Valid Percent (%)
Gender	Female	25	21.2	21.2
	Male	93	78.8	78.8
	Total	118	100	100
Age	26-35	33	28.0	28.0
	36-45	75	63.6	63.6
	46-55	10	8.4	8.4
	Total	118	100	100
Years of Project Experience	>26	4	3.4	3.4
	11-15	70	59.3	59.3
	16-20	14	11.9	11.9
	20-25	6	5.1	5.1
	6-10	24	20.3	20.3
	Total	118	100	100
Educational Background	Bachelor	43	36.4	36.4
	Masters	75	63.6	63.6
	Total	118	100	100

Table 4 Demographic information of the respondents

As shown on the table above with regards to the age group of respondents, the highest portion of the respondents that is 63.6% with where respondents were in the age range of 36-45, the second highest age range being 26-35 with a 28%. Age range of 46-55 come with 8.4% and no respondents with age range between 20-25.

It is evident that 59.3% of the respondents have 11-15 years of project experience which is the highest percentage whereas 5.1% of the respondents have 20-25 years of project experience which is the lowest part among the respondents. The rest are depicted in the table. This implies that most of the respondents have enough experience at the organization and that they can provide concrete information about it.

As seen from the table, most of respondents' educational background is above degree level with 63.6% having master's degree and 36.4% having a bachelor's degrees. Implies that most of the respondents they are qualified personnel and they could effortlessly understand and fill out the questionnaire.

4.3. Descriptive Analysis

This portion of the study deal with the descriptive analysis for the quantitative data collected. It mainly focuses on the perception of respondents on the risk management practice (risk identification, risk analysis, planning risk response, implementing risk response and monitoring risk) and project success (budget, time acceptable quality and customer satisfaction) The study applied IBM SPSS version 27 to find mean and standard deviation for the dependent and independent variable.

According to Field (2013), the calculated mean values range from 1 to 1.80, implies strong disagreement. The mean ranges of 1.81 to 2.6 indicate respondent's tending to disagree. Additionally, the mean range 2.61 to 3.4, 3.41 to 4.2, and 4, 21 to 5.00 reflect respondents' perceptions of: neutral, tending to agree, and strong agreement respectively. A value of 0.8 served as a cutoff for each measure in the five-point Likert scale questionnaire.

Coming to the standard deviation of the variables small variance indicates that data are close to the mean whereas a large variance indicates that the points are distant from the Mean. Standard deviation is a measure of how well the mean represents the data. In other words, Standard deviation shows how different the responses of respondents are for a given idea. High Standard Deviation means that the data is widespread, which means that respondents give variety of opinion and low standard deviation means that respondents had almost similar opinion (Field, 2013).

4.3.1. Response on Risk Planning

The average score for all statements related to risk planning reveal that almost all respondents agree that there is a good risk planning practice. Among the statements its evident that the involvement of expert judgment or meetings are considered when planning for risks that may arise in the project with a mean of 3.96. Despite risk management plan incorporation, the presence of relevant stakeholders is in the planning and implementation of risk management is less.

From the above table we can see that most of the respondents were agree (mean = 3.87) to the question if there is a systematic approach or careful planning applied to perform risk management in

the project. This imply that there is no, or poor systematic approach or planning performed to manage risks in the project.

The inclusion of environmental factors in risk planning to account for uncertainties was the remaining response to be answered. To this statement the high portion of the respondents agree giving an implication that environmental factors are well considered while planning for risks.

	N	Mean	Std. Deviation
There is a systematic planning approach to perform risk management in the project	118	3.87	0.621
Relevant stakeholders are involved in the planning and implementation of risk management.	118	3.19	0.743
Expert judgment or meetings are considered when planning for risks that may arise in the project.	118	3.96	0.721
Environmental factors are included in planning to account for uncertainties.	118	3.26	0.697
The risk management plan is integrated into the project plan	118	3.80	0.674
Valid N (listwise)	118		

Table 5 Response on Risk Planning

4.3.2. Response on Risk Analysis

In almost every response on the risk analysis, the respondents are slightly above the neutral response on all the processes on the risk analysis. It shows that fair work has been done in:

- Considering the characteristics of the risk before analyzing the identified risk.
- Developing a is a measurement system to analyze the risk and
- Updating the project documents after assessment of the risk that might occur

	N	Mean	Std. Deviation
Characteristics of the risk are considered before analyzing the identified risk.	118	3.96	0.709
There is a measurement system to analyze the risk	118	3.09	1.013
Project documents are updated after assessment of the risk that might occur	118	3.58	0.909
Valid N (listwise)	118		

Table 6 Response on Risk Analysis

4.3.3. Response on Planning Risk Response

Responses on the planning of risk response reveal that the organization have a good practice of considering factors such as budget, schedule and resources while responding to risk, with a mean

value of 4.08. But when it comes to developing a well-developed strategy within the project to respond to risks, the response is slightly above neutral, which shows that there's a room for improvement in this area.

	N	Mean	Std. Deviation
There is a well-developed strategy within the project to respond to risk	118	3.68	0.846
Factors such as budget, schedule and resources are considered while responding to risk	118	4.08	0.863
Valid N (listwise)	118		

Table 7 Response on Planning Risk Response

4.3.1. Response on Implement Risk Response

The overall risk implementation of the risk responses is better than the rest of responses. As per the respondent's information, Safaricom Ethiopia PLC gives high priority to the risks which has high negative impact on the objectives of project, which is very important for prioritizing and executing risk responses based on risk's weight. It is also evident that there is a clearly defined strategies are established by the company to avoid the identified risks in project. Lastly thee company have set an insurance for coverage of property damage and/or personnel injury during project execution.

	N	Mean	Std. Deviation
The company gives high priority to the risks which has high negative impact on the objectives of project	118	4.1186	0.85903
Clearly defined strategies are established by the company to avoid the identified risks in project	118	4.1102	0.68916
The company have insurance for coverage of property damage and/or personnel injury during project construction	118	4.1610	0.69147
Valid N (listwise)	118		

Table 8 Response on Implement risk response

4.3.2. Response on Monitoring Risk

The descriptive statistics regarding the risk monitoring and control is shown below on table below. Statements concerning the project monitor and review process risk management to ensure that it complies with standards and procedures and risks that occur within the project are controlled in a way that goes with the goal and objective of the project have a high and same mean of 4.01.

This indicates, the organization have a good practice of controlling risks in a way that goes with the goal and objective of the project he risks identification at initial stage of the project. It is also evident that the company's project monitor and review the process for risk management to ensure that it complies with standards and procedures are satisfactory according to the respondents. The bottom average among the responses in this variable is 3.01 it's from a statement based on the current result of the project, risks monitored and controlled well. It shows that the general aspects of project risk monitoring and control required much attention.

	N	Mean	Std. Deviation
Based on the current result of the project, risks monitored and controlled well.	118	3.01	0.673
The project monitor and review process risk management to ensure that it complies with standards and procedures.	118	4.01	0.862
Available information or history of the project is used to supplement risk control.	118	3.49	0.519
Risks that occur within the project are controlled in a way that goes with the goal and objective of the project.	118	4.01	0.620
Valid N (listwise)	118		

Table 9 Response on Monitoring Risk

4.3.3. Response on Project Success Factors

Generally, the respondent's response on the statements of project success factors viewed from the descriptive statistics result reveal that much have to be done. It can be seen from the result that the project is not progressing within the initially approved budget and is difficult to say that project stayed within the schedule. This is because for the two statements the respondent's responses are the lowest, with a mean of 2.94 and 2.48 respectively.

A response close to neutral (mean of 3.13) was given to statements of project's quality objectives were met, which depicts that we can hardly say the project is completed within the required quality. However, statements regarding the overall developed product on the project and have satisfied the requirements are relatively better that the other project success factors, they are not convincingly showing that the respondents are agreeing on them.

	N	Mean	Std. Deviation
The project was completed on schedule	118	2.48	0.676
The project was completed within the initially approved budget	118	2.94	0.658
The project quality objectives were met	118	3.13	1.000
The project stayed within the documented scope	118	3.42	0.840
The product satisfied the requirements	118	4.16	0.691
Overall, the project was a successful	118	4.21	0.885
Valid N (listwise)	118		

Table 10 Response on project success factors

The overall mean of all the dependent variable and independent variable can be shown the table below. As it can be inferred from the result, implementing risk response have the highest value compared to other variables, whereas the dependent variable, project success factor, have the lowest value of response.

	N	Mean	Std. Deviation
RP	118	3.7225	0.48677
RA	118	3.5480	0.69392
PRR	118	3.8856	0.77463
IRR	118	4.1299	0.63908
RM	118	3.6292	0.45141
PSF	118	3.3898	0.51346
Valid N (listwise)	118		

Table 11 The overall mean of the variables.

4.4. Variable Relationship Analysis

This part of the chapter includes inferential analysis such as correlation analysis and regression analysis. It was intended to achieve both general and specific objectives in establishing the relationship that exists between independent and dependent variables. In addition, the results regarding the proposed hypotheses are also presented**.**

4.4.1 Correlation Analysis

Correlation, also known as correlation analysis, is a term that describes the association or relationship between two (or more) quantitative variables (Gogtay & Thatte, 2017). In this study, correlation analyzes were performed to meet the specific objectives of the study and to determine the effect of risk identification, risk analysis, planning risk response, implementing risk response and monitoring risks on the overall project success in STEP.

The study has used Pearson correlation coefficient also known as Pearson product- moment correlation coefficient used to measure the strength and direction of a linear association between two quantitative variables.

		RP	RA	PRR	IRR	RM	PSF
RP	Pearson Correlation	1	.515**	.351**	0.179	.408**	.573**
	Sig. (2-tailed)		0.000	0.000	0.053	0.000	0.000
	N	118	118	118	118	118	118
RA	Pearson Correlation	.515**	1	.200*	.277**	.288**	.665**
	Sig. (2-tailed)	0.000		0.030	0.002	0.002	0.000
	N	118	118	118	118	118	118
PRR	Pearson Correlation	.351**	.200*	1	.730**	.678**	.564**
	Sig. (2-tailed)	0.000	0.030		0.000	0.000	0.000
	N	118	118	118	118	118	118
IRR	Pearson Correlation	0.179	.277**	.730**	1	.610**	.721**
	Sig. (2-tailed)	0.053	0.002	0.000		0.000	0.000
	N	118	118	118	118	118	118
RM	Pearson Correlation	.408**	.288**	.678**	.610**	1	.560**
	Sig. (2-tailed)	0.000	0.002	0.000	0.000		0.000
	N	118	118	118	118	118	118
PSF	Pearson Correlation	.573**	.665**	.564**	.721**	.560**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	118	118	118	118	118	118

Table 12 Correlation Analysis

The SPSS output provides a correlation coefficient matrix for the six variables and the diagonal values of the matrix are all 1, indicating a perfect positive correlation. As shown in Table12.
Based on the information presented in the table above, the implementation of risk response strategies and conducting a thorough risk analysis are highly correlated with achieving project success in STEP, with Pearson correlation values of .721** and .665** respectively. According to the results obtained from the correlation, there is a moderate correlation between risk planning (.573**), planning risk response (.564**), and monitoring risks (.560**), with that of project success throughout the project lifecycle.

4.4.2 Regression Analysis

A multiple linear regression analysis is included in this section of the chapter. It was done to put the theories to the test as formulated in the Chapter one of the thesis. Before running the regression, the following seven assumptions are tested in the following portion.

Regression analysis studies how one or more variables affect changes in another variable. And it is the exploration of functional relationships between two or more variables. Regression analysis is a method of predicting an outcome variable using one predictor (single regression) or multiple predictors (multiple regression). Therefore, the purpose of this analysis is to make predictions about the dependent variable based on its covariance with all affected independent variables (Field, 2013). This study has more than two independent variables and is subject to multiple regressions

1. **Sample Size Adequacy**

Green (1991) suggests that to test the overall fit of a regression model (by testing the R square), the minimum acceptable sample size can be determined using the formula 50 + 8k, where k represents the number of predictors in the model. So, for the five numbers of predictors (risk planning, risk analysis, planning risk response, implementing risk response and monitoring risk), a sample size of 50 + 8*6 = 98 is required. Hance the number of samples is 118 is above the minimum acceptable number, it satisfied the sample size adequacy.

2. **Multicollinearity Test**

The Variance Inflation Factor (VIF) serves as a useful tool for measuring and quantifying the extent of such an increase in the variance. According to Daoud, J.I., 2017, VIF value between 1-

5 is acceptable and are moderately correlated and above 5 indicate the independent variables are highly correlated. On the other hand, Miles, J., 2014, described tolerance, in which it is the reciprocal of the VIF. A rule of thumb that is sometimes given regarding tolerances and VIF is that the tolerance should not be less than 0.1 and therefore the VIF should not be more than 10.

	Model	Tolerance	VIF
1	RP	0.595	1.682
	RA	0.594	1.683
	PRR	0.332	3.013
	IRR	0.369	2.712
	RM	0.469	2.130

a. Dependent Variable: PSF

Table 13 Collinearity Statistics

As demonstrated in table above, the VIF values range from 1.264 to 0.013 while the tolerance values range from 0.332 to 0.791. According to Miles (2014), based on the tolerance and VIF values noted in the table, there are no significant issues with multicollinearity.

3. Homoscedasticity

In regression analysis, homoscedasticity is a fundamental assumption that requires the residuals at each level of the predictor variable(s) to have similar variances. Field (2013) highlighted that the residuals must exhibit the same variance or homogeneity of variance at each level of the independent variable. Essentially, homoscedasticity testing refers to having the same error variance across all levels of the independent variable. This further implies that the error should be uniformly distributed among the variables, and at each level of the predictor, the residual term's variance should be constant.

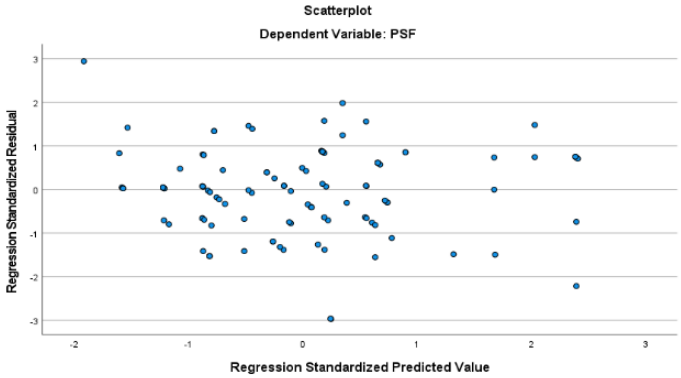

Figure 5 Scatterplot Diagram

To check for homogeneity of variances, one can visually examine the standardized residuals plotted against the standardized predicted values from regression. The figure above demonstrates such a plot, where the points are uniformly scattered across the graph, indicating that the assumption of homoscedasticity is fulfilled.

4. Linearity Test

Linearity in regression analysis refers to the dependent variable being a linear function of the independent or predictor variables, which means that the mean outcome variable for each increment of the predictor follows a straight line, according to Field (2013). One can test this assumption by using a scatter or dot chart in SPSS version 27. The notice provided in Appendix F reveals that there exists a linear relationship where the dots tend to follow the straight fitted line for each independent variable concerning the dependent variable. This implies that the linearity assumption is satisfied for both variables.

In addition, for a regression analysis the test of linearity can also be seen from the scatter plot above in which points are randomly and evenly dispersed throughout the plot indicating that assumption of linearity is also satisfied.

5. Autocorrelation

The lack of correlation between residual terms from two observations is important to ensure accurate results in regression analysis. This lack of correlation, or independence, can be determined through the Durbin-Watson test. This test examines whether adjacent residuals are correlated and yields a value ranging from 0 to 4, with 2 indicating uncorrelated residuals. To satisfy the assumption of independent errors, the Durbin-Watson measure should be between 1.5 and 2.5. In the model summary, the Durbin-Watson value is shown to be 1.94, which falls within the acceptable range and confirms fulfillment of the autocorrelation assumption.

6. Normality Distribution test

Hair (2010) stresses the importance of examining the values of skewness and kurtosis when checking for normal distribution. The author suggests that a skewness or kurtosis value of zero indicates normal distribution in the variable being assessed. Conversely, non-zero values for these tests indicate deviation from normality, but values within ±2.56 are acceptable. From the table below Skewness Statistic value (-0.439 to 0.711) and Kurtosis Statistic value (-1.247 to

0.597) found to be within the acceptable range and emphasizes it is approximately normally distributed.

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std. Error	Statistic	Std. Error
RP	118	0.574	0.223	0.597	0.442
RA	118	0.579	0.223	0.005	0.442
PRR	118	-0.086	0.223	-1.247	0.442
IRR	118	-0.439	0.223	-0.580	0.442
RM	118	0.442	0.223	-1.025	0.442
PSF	118	0.711	0.223	0.158	0.442
Valid N (listwise)	118				

Table 14 : Normality Distribution test

Additionally, the histogram (Appendix G) appears to be bell-shaped, indicating that residuals follow a normal distribution.

7. Model Fit Analysis

To test the effects of project risk management practices (project risk planning, project risk identification, project risk analysis, plan risk response, implement risk response and project risk control) on project success, the researcher employed linear regressions. Thus, the finding from the summary of the model is presented in the following tables.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.903[a]	0.816	0.808	0.22594	1.942

a. Predictors: (Constant), RM, RI, RA, RP, IRR, PRR

b. Dependent Variable: PSF

Table 15 Model Summary

In the above table, R is the correlation coefficient between the dependent variable (project success factors) and independent variables (risk management practices). The R value greater than 0.4 is taken for further analysis. In this case, the value is .903, which is good. R-square shows the total variation for the dependent variable that could be explained by the independent variables. A

value greater than 0.5 shows that the model is effective enough to determine the relationship. In this research, the value is 0.816 which reveals that model is effective enough to determine the relationship. Adjusted R-square shows the generalization of the results i.e. the variation of the sample results from the population in multiple regression. Its value is 0.806. This means that predictors risk management practices) accounts for 81.6% of the variation in STEP project success. The remaining of the variation in project success cannot be explained by the project risk management practices. This means that the remaining 18.4% of the variation in STEP performance cannot be explained by the indicated risk management practices. It is required to have a difference between R-square and Adjusted R-square minimum. In this case, the value is 0.806, which is not far off from 0.816, so it is good.

8. ANOVA

The ANOVA test evaluates if the model can accurately predict the outcome variable. According to table below, the p-value is less than 0.05 which means that the overall regression model is significant in predicting how project risk management practices can influence the success of STEP.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	25.178	5	5.036	99.520	.000[b]
	Residual	5.667	112	0.051		
	Total	30.846	117			

a. Dependent Variable: PSF

b. Predictors: (Constant), RM, RI, RA, RP, IRR, PRR

Table 16 ANOVA analysis

4.7.2 Statistical Significance Analysis of the Regression Coefficients

The regression coefficient table tells which variables significantly influence the dependent variable and which variables significantly predict the dependent variable. The table 4.10 below shows the B value for each predictor variables. The B-values tell us about the relationship between STEP project risk management practices and each predictor. Positive B value is observed in the explanatory variables (RP, RA, IRR and RM), which indicate these five predictors and the outcome variables have a positive relationship. So, as risk planning practice increases, the project success on STEP increases; as risk identification practice increase the

project success on STEP increases, and the same is true for risk analysis, implement risk response and risk monitoring practice. On the other hand, planning risk response is negatively related with the project success. The B-values also indicate to what degree each predictor affects the outcome if the effects of all other predictors are held constant. This represents a one unit increase in risk planning practice there will be an increase in project success performance by 0.32 units, assuming the rest of the variables are held constant.

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	0.609	0.212		2.877	0.005
RP	0.320	0.055	0.304	5.783	0.000
RA	0.258	0.039	0.348	6.595	0.000
PRR	-0.041	0.045	-0.061	-0.896	0.372
IRR	0.495	0.054	0.616	9.188	0.000
RM	0.002	0.067	0.002	0.037	0.970

Table 17 Coefficients Analysis

To evaluate the impact of predictor variables on the model, a t-test is employed. If the t-test related to the B-value is deemed significant, indicated by a value less than 0.05 in the 'Sig.' column, then that specific predictor has a significant influence on the model. As outlined by Field (2013), predictors with smaller 'Sig.' values and larger t-values contribute more significantly to the model.

For the above regression model, risk planning ($t(118) = 5.759$, $p = .000$), risk identification ($t(118) = 0.141$, $p = .888$), risk analysis ($t(118) = 6.595$, $p = .000$), plan risk response ($t(118) = -0.900$, $p = .370$), implement risk response ($t(118) = 9.188$, $p = .000$) and risk monitoring ($t(118) = 0.033$, $p = .974$ are significant predictors of project success performance except mitigation practice ($t(85) = .466$, $p = .643$) which has p value greater than .05 makes it less significant in predicting the outcome variable.

The Beta value (β) which is in standardized units indicates the number of standard deviations by which the dependent variable changes corresponding to a shift in the standard deviation of an independent variable. Beta values quantified in standard deviations give better understanding to the relevance of predictors utilized in the model (Field, 2013). The beta values for response

(β=.214) and recovery (β=.256) suggest that these two predictors have a close magnitude of significance in the model.

4.7.3 Hypothesis Testing Result and Discussion

For each hypothesis, the SPSS output provides a matrix of correlation coefficients for the variables under consideration, as well as the results of regression analysis. The correlation coefficients provide information about the strength and direction of the relationship between the variables, while the regression analysis provides information about the cause-and-effect relationship between the variables. These are explained below.

- **H_1: Planning risk management has significant effect on the success of STEP.**

The goal of this study was to understand how risk management practices affect project success within the Safaricom Telecommunication Project (STEP). The results of the study have shown that there is a strong and positive correlation between risk planning and project success. This means that when the project team takes the time to develop a thorough risk management plan, it increases the likelihood of the project being successful. In Addition, the study has found that there is a cause-and-effect relationship between risk planning and the overall project success in STEP. This means that the development of a risk management plan has a direct impact on the success of the project within the STEP framework. In other words, by planning for potential risks and taking steps to mitigate them, the project team can improve the overall outcome of the project.

These findings highlight the importance of planning risk management practices in project management. By taking the time to identify, analyze, plan for, and respond to potential risks, project teams can increase the likelihood of project success. This is particularly important in complex projects like the Safaricom Telecommunication Project, where there are many potential risks and uncertainties that can impact the outcome of the project.

- **H_2: Risk identification has significant effect on the success of STEP.**

The second hypothesis found a positive correlation between risk identification and project success in STEP, but the reliability of the risk identification variable was low among individual reviewers, suggesting inconsistent or unreliable results. After considering its significance and

potential influence on other variables, has become necessary to remove the variable, but the impact on the analysis and model is evaluated.

H_3: Risk Analysis has significant effect on the success of STEP.

One of the key findings of the study is a strong and positive correlation between risk analysis and project success. This indicates that when the project team conducts a thorough risk analysis, which involves identifying, assessing, and prioritizing potential risks, it has a significant impact on the project's success. The analysis supports the idea that risk analysis is an essential component of project management, as it helps the team to anticipate and prepare for potential risks that may arise during the project's lifecycle.

The results of the study highlight the importance of risk analysis in project management and demonstrate its significant impact on project success. By conducting a thorough risk analysis, project teams can proactively identify potential issues and develop strategies to mitigate them, which can ultimately lead to a more successful project outcome.

Furthermore, the strong and positive correlation between risk analysis and project success supports the idea that risk management practices are critical in complex projects such as the Safaricom Telecommunication Project. These findings emphasize the importance of incorporating risk analysis as a core component of project management to improve the likelihood of project success.

- **H_4: Planning risk response has significant effect on the success of STEP.**

The third goal of this study was to examine the role of planning risk response in the success of the Safaricom Telecommunication Project (STEP). The analysis of the data obtained from the SPSS output shows that there is a positive but moderate correlation between planning risk response and the success of STEP. This suggests that when the project team takes the time to develop a plan for responding to potential risks, it can have a positive impact on the project's success.

However, the regression analysis has revealed an insignificant and negative cause-and-effect relationship between planning risk response and the overall project success in STEP. This means

that while planning for risk response is important, it may not have a significant impact on the overall success of the project within the STEP framework.

Based on these findings, it can be concluded that the hypothesis related to the role of planning risk response in the success of STEP can be dropped. While planning for risk response is an important part of project management, it may not be as critical to the overall success of the project as other risk management activities, such as risk planning and analysis.

- **H_5: Implementing risk response has significant effect on the success of STEP.**

The fifth hypothesis of this study aimed to investigate how implementing risk management practices affect the success of the Safaricom Telecommunication Project (STEP). The analysis of the data obtained from the study has revealed a strong and positive correlation between implementing risk response and the success of STEP. This indicates that when the project team takes proactive steps to respond to potential risks, it can have a significant impact on the project's success. Furthermore, the regression analysis has revealed a significant and positive cause-and-effect relationship between implementing risk response and the success of the project. This means that implementing risk response is a critical factor in determining the success of the project within the STEP framework. In other words, by taking proactive steps to manage and respond to potential risks, project teams can improve the likelihood of project success.

These findings highlight the importance of implementing risk response strategies as part of the overall risk management plan. Effective risk response strategies can help project teams to minimize the impact of potential risks on the project's success. Implementing risk response strategies can involve a range of activities, such as developing contingency plans, establishing risk mitigation measures, and regularly monitoring and reviewing risk responses.

- **H_6: Monitoring risk has significant effect on the success of STEP.**

The last hypothesis of this study aimed to investigate the relationship between project risk monitoring and project success within the Safaricom Telecommunication Project (STEP). The analysis of the data obtained from the study has revealed a positive moderate correlation between

project risk monitoring and the project success of STEP. This indicates that when the project team actively monitors potential risks, it can have a positive impact on the overall success of the project.

Furthermore, while the cause-and-effect relationship between project risk monitoring and project success was less significant compared to other risk management activities, it was still found to be present. This means that project risk monitoring is a critical factor in determining the success of the project within the STEP framework. By actively monitoring potential risks, project teams can take proactive steps to mitigate the impact of these risks on the project's success.

The results of this study highlight the importance of project risk monitoring as an essential part of the overall risk management plan. By actively monitoring potential risks, project teams can improve the likelihood of project success and deliver projects that meet stakeholder expectations.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This study was mainly focused on assessment of the role of project risk management practices for project success by taking projects implemented in the Safaricom Ethiopia. In the previous four chapters, different aspects about the background of the study; different literatures related with the topic of the study; methodology employed to collect and analyze data; sample and sampling techniques used were discussed. In chapter four, the collected by different methods were discussed and analyzed by using different data analysis techniques specified in the methodology part.

This chapter, being the final chapter of this thesis, places the value question, with which the introduction of this thesis began, in a central position. Thus, in this chapter the summary of the major finding of the study, the conclusion that should be drawn from data analysis and recommendations, that the researcher propose about the risk management practice of the project to enhance effective implementation of the project by stakeholders was forwarded

5.1 Summary of Basic findings

In this study, researcher took sample projects undertaken in the Safaricom Ethiopia to analyze the role of risk management practices on project success. The result from the study provides good understanding about the practice of each risk management process group (risk planning, risk identification, risk analysis , planning risk response and risk monitor and control) by reviewing different literatures and discussing the practical experiences in the real projects.

The study adopted a purposive sampling method to 118 questionnaires to the project team members involved in the project. From this, 118 were retrieved and subjected to the investigation to answer the research questions. In the study, the first part of data analysis employed descriptive statistics in order to explain the general demographic of the respondents, the success level of their projects experience and educational preparedness of those projects and that in this part project success indicators and risk management practices were discussed separately. The second part of the study was undertaken by using quantitative analysis of correlation and regression.

This part mainly discussed the level of correlation between project risk management practices and project success by regressing the independent variables (risk planning, risk identification, risk analysis , planning risk response and risk monitor and control) against the dependent variable, project success factors.

The summary of results of the study includes:

- There is a good risk planning practice. Expert judgment or meetings are considered when planning for risks that may arise in the project. Despite risk management plan incorporation, the presence of relevant stakeholders is in the planning and implementation of risk management is less.

- The practice of risk analysis is slightly above average as indicated in chapter four of this study. According to the response from most of the participants of the study, formal risk analysis with their likelihood of occurrences and level of impacts were not practiced well in most activities of the STEP.
- The organization have a good practice of considering factors such as budget, schedule and resources while responding to risk. But when it comes to developing a well-developed strategy within the project to respond to risks, there's a room for improvement
- The risk implementation of risk responses is better than other responses. According to the respondent, Safaricom Ethiopia PLC gives priority to risks with high negative impact on project objectives, which is important for prioritizing and executing risk responses based on their weight. The company has clearly defined strategies to avoid identified risks in the project. Lastly, the company has set insurance to cover property damage and/or personnel injury during project execution.
- Project monitor and review process risk management to ensure that it complies with standards risks that occur within the project are controlled in a way that goes with the goal and objective of the project. But the general aspects of project risk monitoring and control required much attention.
- Much work to be done on project success factors. The project is not progressing within the initially approved budget and it's difficult to determine if the project stayed within the

schedule. The statement regarding the project's quality objectives being met received a response close to neutral, indicating that it's hard to say if the project was completed with the required quality. Although the statements regarding the overall developed product on the project and satisfaction with the requirements are relatively better than other project success factors, they do not show that respondents are fully in agreement with them.

- Similarly, the influence of each of project risk management practices on each project outcome was identified using correlation and regression analysis from the gathered data. The independent variables in this study for the risk management process have positive and significant correlation with the overall project success (especially on project time, cost, schedule, scope, meeting quality objectives, targets and satisfaction of requirements), which implies that the variables had effect on the successful completion of the sample projects.

- The study highlights the strong and positive correlation between developing a thorough risk management plan and project success, with a cause-and-effect relationship in the STEP. The reliability of the risk identification variable was low, and its impact on other variables was evaluated before removal. The study also emphasizes the significant impact of risk analysis and implementing risk response in proactively identifying potential issues and developing strategies to mitigate them, improving the likelihood of success. In addition, active monitoring of potential risks was found to have a moderate positive correlation with project success, highlighting the importance of project risk monitoring in overall risk management planning.

5.2 Conclusion

This study has been conducted in the assessment of the role of project risk management on project success by taking projects in the Safaricom Telecommunication Ethiopia as a sample. The results provide supports for the important role of project risk management for project successes. Moreover, the influence of each of project risk management practices (risk planning, risk analysis, plan risk response implement risk response and risk monitoring) on each project success indicator was identified using correlation and regression analysis from the gathered data.

According to the finding from the study, not all risk management process groups are equally practiced in the sample taken project. It remains remarkable that there is such a large gap between project risk management in theory and project risk management in practice. Project management Bodies of Knowledge (PMI, 2017) advocate the use of the complete risk management process, including planning, identification, and analysis, response planning response acting and risk monitoring . Findings from this research indicate that the complete risk management process is often followed well.

5.3 Recommendation

- The project is not advancing as per the initially approved budget, and it is challenging to ascertain if the project is adhering to the schedule. The statement concerning the fulfillment of the project's quality objectives received a response that is nearly neutral, indicating that it is challenging to determine if the project was completed to the required quality standards. Although the statements regarding the overall product development and satisfaction with the requirements are comparatively better than other project success factors, they do not indicate full agreement among respondents.

- The organization should focus on enhancing their risk response planning by developing a well-defined strategy within the project that can help them effectively respond to risks. This improvement can help the organization better address potential risks and ultimately lead to a higher success rate in achieving project objectives.

- Compared to other responses, the implementation of risk responses is superior, and the company prioritizes risks with a significant negative impact on project objectives. The project monitoring and review process is designed to ensure compliance with standards, but the general aspects of project risk monitoring and control demand significant attention.

- The study found that in most activities of the STEP, formal risk analysis with their likelihood of occurrences and level of impacts were not executed appropriately. This means that the organization did not have a systematic and structured approach to identify and assess potential risks associated with the project. Therefore, it is crucial for organizations to adopt formal risk analysis practices to ensure the successful delivery of projects. This involves implementing structured and systematic approaches to identify and assess potential risks, to prioritize risks based on their likelihood and impact, and to develop and implement effective risk response strategies. By doing so, organizations can improve their ability to manage risks, minimize the negative impact of risks on the project, and increase the likelihood of achieving project objectives.

5.4 Suggestion for Further Researches

The outcome of the study is solely dependent on the individual responses of the respondents that participated in the study. Moreover, as the sample is small compared to the total population, the results might not be generalizable beyond the specific division from which the sample is drawn. Hence, the research result may differ if it is conducted in other time. The limitation of sample size implied that the finding cannot be generalized across all projects in telecommunication projects practiced in other different sectors. In addition to the above, researcher recommends that further research be conducted on the subject by using projects from different fields of study and perspectives to assess the practice of risk management in the project and explore its impacts on perceived project success.

References

Albert, M., Balve, P. & Spang, K., 2017. Evaluation of project success: a structured literature review. *International Journal of Managing Projects in Business,* 10(4), pp. 796-821.

Alchammari, K. A. B. & lshammare, J., 2021. The relationship between project Planning, risk management and knowledge integration on project success. *Academy of Strategic Management Journal,,* 20(4).

Baccarini, D., 1999. The logical framework method for defining project success. *Project management journal,* 30(4), pp. 25-32.

Bakker, D., K., B. A. & Wortmann, H., 2014. The communicative effect of risk identification on project success.. *International Journal of Project Organisation and Management,* 6(1-2).

Banaitiene, N. & Banaitis, 2012. Risk Management in Construction Projects. In Risk Management—Current Issues and Challenges. *InTech Open.*

Baudot, L. H. Z. &. W. D., 2020. Stakeholder Perceptions of Risk in Mandatory Corporate Responsibility Disclosure. *Journal of Business Ethics.*

Befrouei, M. A. R. &. T., 2015. Identification and management of risks in construction projects. *American Journal of Civil Engineering,* pp. 170-177.

Blumberg, B. C. D. a. S. P., 2014. *Business Research Methods.* s.l.:McGraw Hill.

Boudreau, M., Gefen, D. & Straub, D., 2001. Validation in IS research: A state-of-the-art assessment.. *MIS Quarterly.*

Burek, P., 2016. Uncovering all of the risks on your projects. *PM World Journal,* Volume 5.

Carmines, E. a. Z. R., 1979. Reliability and validity assessment. Sage publications.. *Sage publications.*

Chan, A., 2004. Benchmarking: an international journal. *Key performance indicators for measuring construction success.*

Connelly, L., 2008. Pilot studies: Mesuring nursing. 17(6), p. 411.

Cooke-Davies, T., 2002. The “real” success factors on projects.. *International journal of project management,* 20(3).

Creswell, J. a. C. J., 2017. *Research design: Qualitative, quantitative, and mixed methods approaches. Sage publications.*. s.l.:s.n.

Dalcher, D., 2014. Who needs project requirements. *PM World Journal,* 3(4).

Degaga, C., 2020. An Assessment on the Risk Management Practice Of construction Projects. *Master's thesis.*

Desalegn, T., 2018. The Effect Of Project Integration Management Process On Project Success: The Case Of Berhan Bank Data Center Project. *Master's thesis* .

Dutta, S. G. T. a. L. B., 2015. *Information Technology Report,* s.l.: World Economic Forum.

El-Karim, M., El Nawawy, O. & Abdel-Alim, 2017. *Identification and assessment of risk factors affecting construction.* s.l.:s.n.

El-Karim, M., El Nawawy, O. & Abdel-Alim, A., 2017. *Identification and assessment of risk factors affecting construction projects.* s.l.:s.n.

Elzamly, A. &. H. B., 2015. Classification and Identification of Risk Management Techniques for Mitigating Risks with Factor Analysis Technique in Software Risk Management.

Field, A., 2013. *Discovering statistics using IBM SPSS statistics.* s.l.:s.n.

Field, A., 2013. *Discovering statistics using IBM SPSS statistics.*. s.l.:s.n.

Gasik, S., 2016. Are public projects different than projects in other sectors? Preliminary results of empirical research.. *Procedia Computer Science.*

Ghauri, P. & Gronhaug, K., 2005. Research methods in business studies: A practical guide. In: s.l.:Essex: Pearson education limited.

Gogtay, N. & Thatte, U., 2017. Principles of correlation analysis.. *Journal of the Association of Physicians of India,* pp. 78-81.

Grishunin, S. & Suloeva, S., 2015. *Project controlling in telecommunication industry. In Internet of Things, Smart Spaces, and Next Generation Networks and Systems.* St. Petersburg, Russia, Springer International Publishing.

Gyemang, M. D. & Emeagwali, O. L., 2020. The roles of dynamic capabilities, innovation, organizational agility and knowledge management on competitive performance in telecommunication industry.. *Management Science Letters,* Volume 1.

Honzírková, E., 2017. Risk management in construction projects. *Master's thesis.*

Huck, S. W., 2007. Reading statistics and research. *Allyn & Bacon.*

Ika, L., 2009. Project success as a topic in project management journals.. *Project management journal.*

Jugdev, K. & Müller, R., 2005. A retrospective look at our evolving understanding of project success. *Project management journal,* 36(4), pp. 19-31.

Kalkidan Abebe, 2017. An Assessment of project management competency: the case of ethio telecom. *Unpublished Master's Thesis.*

Kaplan, R. S. & Mikes, A., 2012. Managing Risks: A New Framework. *Harvard Business Review* , Volume 6.

Kerzner, H., 2017. *Project management: a systems approach to planning, scheduling, and controlling.* 12th ed. Hoboken, New Jersey: John Wiley & Sons..

Kloppenborg, T. J. , 2014. Contemporary Project Management. Volume 3.

Kothari, C. R., 2004. Research methodology: Methods and techniques. New Age International.

Krejcie, R. & Morgan, D., 1970. Determining sample size for research activities.. *Educational and psychological measurement,* 30(3).

Kuma, G., 2006. The Role of Project Risk Management Practices for Project Success: The Case of Projects in the Commercial Bank of Ethiopia. *Master's thesis.*.

Maritim, S. &. C. K., 2018. Influence Of Project Risk Management Practices On Performance Of Telecommunication Network Modernisation Projects In Kenya.

Maritim, S. a. C. K., 2018. Influence Of Project Risk Management Practices On Performance Of Telecommunication Network Modernization Projects In Kenya. *European Journal of Business and Strategic Management,* 3(7).

Mark, S., Lewis, P. and Thornhill, A, 2019. *Research Methods for Business Students.* s.l.:s.n.

Miles, J., 2014. Tolerance and variance inflation factor. Wiley statsref: statistics reference online.

Milosevic, D. & Patanakul, P., 2005. International journal of project management. *Standardized project management may increase development projects success,* 23(3), pp. 181-192.

Mishra, B. R. E. S. A. &. M. M., 2019. A framework for enterprise risk identification and management: the resource-based view. *Managerial Auditing Journal.*

Mwangi, N. J. &. K. J., 2016. Influence of Risk Management Practices on Successful Implementation of Projects in Public Secondary Schools in the County Government of Kiambu, Kenya. *The International Journal of Business & Management,* Volume 3, p. 4.

Nadaf, J., Nadaf, M., Jamadar, B. & Thejaswi, K. P., 2018. Qualitative Risk Analysis for Construction Projects. *International Research Journal of Engineering and Technology (IRJET),* 5(6).

Narang, D. & Chetty, P., 2015. *Linear regression analysis using SPSS.* s.l.:s.n.

Nelson, R. & Winter, S., 2008. Innovation systems, path dependency and policy. *Journal of Newtown square, USA,* Issue Project Management Inc..

Newton, P., 2015. *Principles of project management.* s.l.:s.n.

Nima, Abdi, 2022. Effect of Strategic Positioning on Sustainable Competitive Advantage at Safaricom Plc. *PhD diss.*

Oehmen, J. & Seering, W., 2011. "Risk-Driven Design Processes: Balancing Efficiency with Resilience", In: Birkhofer, H. (Ed.),. *The Future of Design Methodology.*

OSPMI, O. o. S. P. M. I., 2007. *Project Risk Management Handbook Threats and Opportunities.* s.l.:s.n.

Pinto, J. & Slevin, D., 1988. Project management handbook. *Critical success factors in effective project implementation*, pp. 167-190.

PMBOK, 2017. *A Guide to the Project Management Body of Knowledge: PMBOK Guide.* 6th ed. s.l.:Int. J. Prod..

PMI, 2017. PMI's Pulse of the Profession In-Depth Report. *Pulse of the Profession. Newtown Square.*

Prabhakar, G., 2008. What is project success: a literature review. *International Journal of Business and Management*, 3(9), pp. 3-10.

Robinson, O., 2009. On the social malleability of traits: Variability and consistency. *Journal of Individual Differences, 30(4), pp.201-208.*.

Rogelberg, S. & Stanton, J., 2007. Introduction: Understanding and dealing with organizational survey nonresponse. *Organizational research methods,* 10(2), pp. 195-209.

Serpell, A., Ferrada, X., Rubio, L. & Arauzo, S., 2015. Evaluating RiskManagement Practices in Construction Organizations. *Elsevier*.

Soden, P. K. A. a. H. M., 2004. Recommendations for designers and researchers resulting from the world-wide failure exercise.. *In Failure criteria in fibre-reinforced-polymer composites.*

Straw, W., 2015. Some things a scene might be: Postface. *Cultural studies*, 29(3), pp. 476-485..

Taherdoost, H., 2016. Sampling methods in research methodology; how to choose a sampling technique for research.. *How to choose a sampling technique for research.*

Tahir, A. R. R. a. I. M., Nov 2011. Review of the Literature on Enterprise Risk Management". Business Management Dynamics. Volume 1, pp. pp.08-16.

Taofeeq, K., Adeleke, D. & Hassan, 2019. Factors Affecting Contractors risk attitude from Malaysia construction industry. *Soc. Sci. Humanit. J.,* Issue 3, p. 1281–1298.

Tashakkori, A. a. C. J., 2007. The new era of mixed methods. Journal of mixed methods research, 1(1), pp.3-7.. 1(1).

Taylor, A., 2000. IT projects: sink or swim. *ITNOW,* 42(1).

Thapar, S. K. P., 2016. Performance evaluation of LTE network: An energy saving.

Thomas, D., 2018. The Effect of Project Integration Management Process On Project Success: The Case Of Berhan Bank Data Center Project. *Masters dissertation.*

Tom, A. &. P. S., 2013. Project Monitoring and Control using Primavera.. *International Journal of Innovative Research in Science, Engineering and Technology.*

Trocki, M., 2012. Comprehensive Project Evaluation. *Studies and Works of the College of Management and Finance,.*

Urbański, M. H. A. & Oino, I., 2019. The moderating role of risk management in project planning and project success: Evidence from construction businesses of Pakistan and the UK. Engineering Management in Production and Services. 11(1).

Walker, D. & Shen, Y., 2002. Project understanding, planning, flexibility of management action and construction time performance. 20(1), pp. 31-44.

Walliman, N., 2011. Your research project: Designing and planning your work. *Sage Publications.*

White, D. & Fortune, J., 2002. International journal of project management. *Current practice in project management—An empirical study*, 20(1), pp. 1-11.

Wysocki, R. K., 2014. *Effective Project Management: Traditional, Agile, Extreme*. 7th ed. s.l.:Indianapolis: John Wiley & Sons.

Zhang, W. a. W.-G. S., 2014. Using mixed methods effectively in prevention science: Designs, procedures, and examples. *Prevention science*, Volume 15.

Appendices

APPENDIX 1: Introduction Letter

Dear Sir/ Madam,

RE: REQUEST TO FILL OUT QUESTIONNAIRES

Hello, I'm Bruck Kebede, a postgraduate student at Addis Ababa University. As a partial fulfillment of the program requirement, I am undertaking a research on **The Effect of Project Risk Management Practices on Project Success: The Case of Safaricom Telecommunication Project (STEP)**. Accordingly, I prepared this survey questionnaire.

Your honest responses to each question and statement are extremely valuable to the outcome of this research. The information you provide is totally sought for academic purposes and shall be kept strictly confidential. would like to thank you in advance for your kind participation, genuine and on time response to the questionnaire.

Thank you!
Bruck Kebede

Questionnaire Google Form Link: https://forms.gle/cCkFTMBvJ6ebohBG7

APPENDIX 2: Table for Determining Sample Size from a Given Population

Table for Determining Sample Size for a Given Population

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
"S" is sample size.

Source: Krejcie & Morgan, 1970