



**ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
MASTER OF ART IN PROJECT MANAGEMENT**

**ASSESSING THE EFFECT OF COMMUNICATION
ON PROJECT SUCCESS:
A CASE OF ETHIO TELECOM**

A Project Work Submitted to Addis Ababa University School of Commerce in Partial Fulfillment of the Requirements for the Award of Master of Arts in Project Management

By: Behailu Wakewayya

Advisor : Teklegiorgis Assefa (Asst. professor)

**January 2021
Addis Ababa**

**ADDIS ABABA UNIVERSITY
SCHOOL OF COMMERCE
MASTER OF ARTS IN PROJECT MANAGEMENT**

**ASSESSING THE EFFECT OF COMMUNICATION
ON PROJECT SUCCESS:
A CASE OF ETHIO TELECOM**

By: Behailu Wakeway

Approved Board Committee:

_____	_____
Examiner	Signature
_____	_____
Examiner	Signature
_____	_____
Advisor	Signature

CERTIFICATION

This is to certify that Behailu Wakeway has carried out this Project work entitled “*Assessing the Effect of Communication on Project Success: A Case of Ethio Telecom*”. The Project work is original and is suitable for the award of Master of Arts Degree in Project Management.

Advisor: Teklegiorgis Assefa (Asst. professor) _____

DECLARATION

I declare that the work in this project research work titled “ *ASSESSING THE EFFECT OF COMMUNICATION ON PROJECT SUCCESS: A case of Ethio Telecom* ” has been carried out by me in the department of project management. The information derived from the literature has been duly acknowledged in the paper and a list of reference provided. No part of this research work was previously presented for another degree or diploma at this or any other institution.

Behailu Wakewayya

Date

ACKNOWLEDGEMENTS

My completion of this project work could not have been accomplished without the support of Bahran Asrat (Phd)- thank you for your valuable support and comments. I would like to express my gratitude to all, who have contributed directly or indirectly to this research work. Special thanks to my mother, my wife and my son for your kind support, and I would also like to thank Bahlat for your special care.

I would like to thank all Ethio Telecom managers and staffs who have participated and willing to cooperate in responding the questionnaires and share their ideas on the research topic during the project work.

Table of Contents

Declaration..... iii

Declaration..... iv

Acknowledgment v

List of figures..... viii

List of Tables ix

Acronyms and Abbreviations x

Abstract..... xi

Chapter 1: INTRODUCTION 1

 1.1 Background of the study 1

 1.2 Statement of the Problem4

 1.3 Research Question..... 5

 1.4 Research Objectives 6

 1.4.1 General Objective 6

 1.4.2 Specific Objectives 6

 1.5 Significance of the study 6

 1.6 Scope of the study 6

 1.7 Limitation of the study 7

 1.8 Definition of key terms used in the study 7

 1.9 Organization of the study 8

Chapter 2: REVIEW OF RELATED LITERATURE 9

 2.1 Theoretical Literature Review..... 9

 2.1.1 Meaning and characteristics of project communication..... 9

 2.1.2 The Importance of Project communication for project success 11

 2.1.3 Project communication process..... 13

 2.1.4 Methods of project communication..... 14

 2.1.5 Types of project communication..... 15

 2.1.6 Barriers for efficient project communication 16

 2.2 Empirical Literature Review 17

 2.3 Conceptual framework of the study 19

Chapter 3: RESEARCH METHODOLOGIES 20

 3.1 Research Design 20

 3.2 Research Method..... 20

 3.3 Description of study variables..... 21

 3.4 Description of study area and target population..... 21

3.5	Sampling technique and sample size.....	21
3.6	Data collection method.....	22
3.7	Data analysis	22
3.8	Reliability and Validity analysis	23
3.9	Ethical consideration	24
Chapter 4: Results and conclusion		25
4.1	Introduction	25
4.2	Response rate and demographic data	25
4.3	Descriptive analysis.....	27
	4.3.1. Correlation between independent and dependent variables	27
	4.3.2. Internal & external communication	29
	4.3.3. Communication channel and process.....	30
	4.3.4. Communication management and practices.....	31
	4.3.5. Communication barriers.....	32
4.4	Regression analysis	33
	4.4.1. Normality test of the residual	33
	4.4.2. Homoscedasticity test.....	34
	4.4.3. Multicollinearity Test.....	34
	4.4.4. Autocorrelation Test.....	35
	4.4.5. Interpretation of study Variable’s relationship.....	36
	4.4.6. Importance of Internal and External communication for Project success	38
	4.4.7. Importance of Communication channel and process for Project success.....	39
	4.4.8. Importance of Communication management practice for Project success	40
	4.4.9. Importance of Communication barriers for Project success	41
Chapter 5: Conclusion and Recommendation		43
5.1	Summary of Findings	43
5.2	Conclusion	45
5.3	Recommendation.....	45
5.4	Suggestion for future research.....	46
References		47
Appendix 1: Questionnaire		52

List of Figures

Figure 2.1: Conceptual framework of the study

Figure 4.1: Normality test of the residual

Figure 4.2: Homoscedasticity test of the residual

List of tables

Table 3.1: Reliability test of the variables

Table 4.1: Gender, Age, Education, Experience and Role status of respondents

Table 4.2: Summary of means, standard deviations and correlations of Internal and external communication, Channel and process, Communication management Practices, Communication Barriers and Project Success

Table 4.3: Project team member's Internal and external communication reflection in Ethio telecom FAN projects

Table 4.4: Project participant's reflection on project communication channels and process in Ethio telecom projects

Table 4.5: Project participant's consideration on Ethio telecom communication management practices.

Table 4.6: Ethio telecom FAN Project team member's reflection on project communication barriers

Table 4.7: Multicollinearity Test

Table 4.8: Test of Autocorrelation

Table 4.9: Interpretation of study variables relationship(r square)

Table 4.10: Interpretation of study variables relationship(Anova)

Table 4.11: Parameter Estimates

Table 4.12: Relationship of Internal and external communication with project success(r square)

Table 4.13: Relationship of Internal and external communication with project success(Coefficients).

Table 4.14: Relationship of communication channel and process with project success(r square)

Table 4.15: Relationship of communication channel and process with project success(Coefficients).

Table 4.16: Relationship of communication management practice with project success(r square)

Table 4.17: Relationship of communication management practice with project success(Coefficients).

Table 4.18: Relationship of communication barriers with project success(r square)

Table 4.19: Relationship of communication barriers with project success(Coefficients).

List of Acronyms and Abbreviations

ETC: Ethiopian Telecommunication Corporation

FAN: Fixed Access Network

PMI: Project Management Institute

PMBOK: Project Management Body of Knowledge

PMO: Project Management Office

SME: small and medium enterprises

ZTE: Zhong Xing Telecom Enterprise

ABSTRACT

The issue of communication is very paramount in any organization project management. The purpose of this research work is to assess the effect of communication on project success in Ethio telecom projects. The study points out communication variables and examines their contribution for the success of Ethio telecom FAN projects. The research used explanatory research design and quantitative approach. The quantitative data was analyzed by using suitable methods of descriptive statistics using SPSS software tool. To address the objective of the study a structured questionnaire is distributed to fifty-three Ethio telecom FAN project staffs. Out of it forty-eight responded, implying that 90.5% of response rate. The data collected has been analyzed quantitatively using Descriptive statistics: frequency and percentage and regression analysis through SPSS version 20 software. The findings of the study reveal that internal and external communication, communication channel and process, communication management practice had statistically positive significant importance on Ethio telecom projects success. Moreover, reduction of communication barrier also had statistically positive significant impact on the company projects success. The research, therefore, recommends that strengthening the efficiency of communication with external stakeholders, supporting project staffs to increase their communication competency, developing communication management plan and deploy project tool, and improving Project Managers communication efficiency with project team and stakeholders.

Key words: Ethio Telecom, Project communication, Project success.

CHAPTER ONE

INTRODUCTION

This project work concentrates how communication is essential to make a project successful. The paper also presents findings from a quantitative research study that was conducted in case of Ethio Telecom FAN program. In this introduction chapter, background of the study, rationale of the study, statement of the study, the research question of the study , significance of the study, scope and limitation of the study, definition of terms used in the paper and organization of the study will be discussed briefly.

1.1. Background of the study

Communications have an essential role for the success of any projects. In any successful project, communication is the main factor for the project success (Müller &Turner, 2010). Project Communication is the most essential part in project management because One of the important duties for the project manager is to communicate with the stakeholders, what project managers do most of the time is communication to organize project works, they have to collect information and disseminate it across all teams involved with the project. Without strong communication skills, project managers would find it extremely difficult, to effectively manage their teams and coordinate efforts to produce successful project (Shayna Joubert, 2020). Effective communication is a crucial component of project member effectiveness, both in traditional and virtual teams which helps on providing a successful project (Pitts et al., 2012).

Communication is the most important knowledge area in accomplishing effective project outcome. Effective communication is more important than anything for the success of a project. A project manager spends around 90 percent of his time on communication Thus, planning communication is very important for a project manager (Paulus & Nijstad, 2003). It helps to create coordination among project teams that can minimize frustration and dissatisfaction among team members and lead to project success.

A project's success can be determined from the point of view of the project itself or the result, depending on the desires of the stakeholder, what it was intended or planned to achieve. (Bannerman, P. L. 2008). It is generally possible to measure variables that will determine the

project's performance. After collaboration with the end user, project managers need to identify the performance criteria (Baccarini, D., 1999). The performance criteria should be well defined in order to deliver project value. A practice of conciseness should be there in defining the project performance criteria by avoiding vague and universal terms.

Different factors decide project success. Like, what result of the project should satisfy to the end user, client, and stakeholders. In other words, the success factors of the project consist of actions or elements that are needed to ensure the project is completed successfully (Atkinson, R. 1999). According to (Baccarini, 1999) project success focusses on successful accomplishment of the triple constraint of cost, time, and quality objectives. Even if project success criteria will depend on the need of the company to achieve, most research state the requirements for project success fall into three major categories, the iron triangle: cost, scope, and time. If you can get your project in on time and on budget, thus attaining its scope, it is safe to call it a success. According to Paper presented at PMI Global Congress by Abudi, G. (2013) good communication with stakeholders and with project team will have high impact on the success of a project.

Project communication management for telecommunications projects have a critical part in providing information to all project members and its stakeholders for the success of projects. Nowadays Project Managers in telecom Industry are facing hard times (Ludovico & Petrarca, 2010). To reduce time to market, managing projects in telecom Industry requires ability and knowledge of project management especially communication management.

According to (Karolina, M. 2018) "Using Formal Project communication techniques play a vital role for the success of telecommunication projects". To justify it she mentioned the following factors. First, telecommunication services are dynamic due to regulatory and technological changes, in addition outsourcing is raised. Thus, stakeholders must have cooperated each other on their agendas. Second, many persons participate on planning and development of projects from suppliers and vendors. Thus, there will be a lot of internal and external communication between them. Finally, there must be integration between the new service with the existing environment of technical and organizational legacies. Thus, Communication skill impact the introduction of new product.

Telecommunication service was started in Ethiopia after telecom line installed from Harar to Addis Ababa by Emperor Menelik II in 1894. Currently, Ethio telecom is a sole telecom operator

Assessing the effect of communication on project success: A case of Ethio telecom

in Ethiopia. The company has adopted aggressive network rollout plan since its launch in 1894. The former ETC was changed to Ethio telecom by 2010. The company applies both functional and matrix project management organizational structure.

Ethio telecom is structured with several divisions, and six of those divisions have a PMO office headed by a director. And also, there is an SPM division that acts as a senior corporate project office to manage, provide support and follow up those PMO offices. SPM have the mandate to induce the process of communication in all project activities. Ethio telecom run its projects with different perspectives. That is, either by its own force, through international vendors like Huawei and ZTE and by using local contractors or SME's. In recent time the company put into effect two huge vendor financing programs. The first is the network of the next generation (NGN). In 2006, the program contract arrangement made with Chinese Telecom Enterprise ZTE for US\$1.5 billion in vendor financing to bring about vibrant technological transition in the company. The second big project, Telecom Expansion Projects (TEP), was launched in January 2013 by China's ZTE and Huawei Corporation and the Swedish group Ericsson, with a total project cost of USD 1.6 billion. The main projects of the programs include the Fixed Line Next Generation Network (FL-NGN) project and the FAN TEP project.

More precisely, this paper assesses the effect of project communication in Ethio telecom's projects via reviewing various literature on project and communication management, develop a finding through a study on the project communication management of Ethio telecom projects and It gives a recommendation on how communication management will lead to successful completion of projects in the company. To summarize different theories of communication on project activities clearly stated its impacts in managing successful project So, this research could contribute to examine the way of communication in project, Ethio telecom project office is performing.

1.2. Statement of the problem

Lots of projects around the world have always got a problem on project success. This persisting problem led many project management professionals to identify the influencing factors to deliver a successful project (Mortensen, 2013). Exceptionally, telecommunications Projects are more complex because of agile technological change and high need of development of new services. Project management needs use of ten knowledge areas: integration management, scope management, time management, cost management, quality management, Human Resource management, stakeholder management communication management, procurement management and risk management. However, most of organizations considered communication in projects as a secondary in routine project management practices, the role of effective communication for telecom project success is undisputable (Imran, Shazia and Kashif 2011). According to PMI's Pulse research, 55 percent of Project Managers approve that utmost important issue in project management is effective communication (PMI, 2013). The finding of study conducted by Imran, Shazia and Kashif (2013) confirmed a strong correlation and dependency of project success and communication management. They recommended ensuring good quality of communication considering it a primary tool for determining the project success in terms of scope, time, and cost. International Journal of Project Management stated that There is a high correlation between project success, communication, and stakeholder's teamwork for ICT projects(Diallo, A., and Thuillier, D., 2005).

A study finding conducted by (Abraham, 2019), revealed that project communication has significant influence on project performance. A case study emphasizes the role of communication for project success conducted by (Hailemichael, 2012) confirmed that internal and external communication plays significant role on project performance. Another study paper conducted by (Meron, 2018) finds that that project communications planning and implementation, as well as the use of tools and techniques, all played an important role in improving project performance. But the study does not include all variables which affect communication, like communication management practice The finding of the study titled "Factors influencing implementation of telecommunication network equipment projects in Kenya " conducted by mukopi (2016), clearly showed that communication management like other project management knowledge areas influences the implementation and success of telecommunication network equipment projects in Safaricom limited company. Information

Technology for Development Journal conclude that communication is one of the key success factors for ICT projects by taking South Africa as a sample(Pade-Khene, C., Mallinson, B., and Sewry., 2011). An investigation of project teams in IT projects carried out in Johannesburg and Cape Town finds that project communication appeared as one of the six primary issues that were a means to obstacle in project execution(Tanner, M., and Mackinnon, A., 2013).

Ethio telecom manage telecom service expansion projects to address the customer need and network coverage of the whole country. Nowadays the country decides to enter two competitive operators, and this will force Ethio telecom to carry out additional projects to expand its infrastructure to accommodate the coming competitive environment. Therefore, effective, and efficient communication management both internally and externally is critical for the success of Ethio telecom projects. Internal communication is the communication inside the project, where External communication is handling the communication externally. Even if, a lot of projects were executed nationally to increase the capacity and coverage of the network and to improve time to market. Ethio telecom was usually encounter difficulties in managing projects efficiently. As a current employee of the company and project management graduate student the researcher noticed that the company lacks on following project management standards on communication with its internal and external stakeholders and believes that it will be the main factor which leads the company to difficulties in managing projects more efficiently. Bearing in mind this, the research tried to assess how the company carry out both internal and external communication on managing projects.

1.3. Research Questions

To address the gaps stated above, this Project Work aims at addressing the following research questions:

1. How did Ethio telecom manage its internal project communication on project activities?
2. How did Ethio telecom manage its external project communication on project activities?
3. Does appropriate communication channel is used in Ethio telecom project activities?
4. Does efficient communication process follow in Ethio telecom project activities?
5. What is the effect of communication management on the success of Ethio telecom projects?
6. What are the communication barriers in Ethio telecom projects?

1.4. Research Objectives

1.4.1. General Objective

The study assesses the role of communication for the success of Ethio telecom projects.

1.4.2. Specific Objectives

1. To explore the way of communication for the success of Ethio telecom projects internally and Externally
2. To assess the communication channel practice in Ethio telecom.
3. To assess the project communication process used in Ethio telecom.
4. To determine the effect of project communication management on Ethio telecom projects.
5. To assess the effects of communication barriers in Ethio telecom projects.

1.5. Significance of the study

This study emphasized on the role of communication for a project success. Furthermore, it deals how Ethio telecom PMO communicates internally and externally to its project stakeholders and what barriers hamper its communication process.

The findings of this study will contribute: To deliver helpful report to Ethio telecom PMO in doing communication to its project stakeholders, to deliver more understanding on project communication management, to aware the way of communication to be followed and showing its communication barriers to help in avoiding or minimizing it on its future project implementation. Finally, In the future it can be used as a reference to study around the area of project communication.

1.6. Scope of the study

The research raised two important matters: project communication and project success. projects success needs proper project management, it includes covering several project management areas. From those project management areas communication management is important one, and since telecom projects in particularly carried out by separated and different teams, communication plays a vital role to the success of a telecom projects and this project work concentrates only on communication Practices. Ethio telecom is a sole operator company in Ethiopia and run a lot of

projects through its PMO's. Due to time constraint and inaccessibility to all needed sources, the research is limited to Fixed network division projects in the company, especially focus only on specific 55 fixed network expansion projects in Addis Ababa. It is because of that those projects are undertaken with in one program, recent and completed. And also the researcher believed that they can clearly indicate the aim of the study. Since the company is technology-oriented firm the division was chosen as it is fully involved in managing technical projects and project deliverables, yet it can represent the company projects.

1.7. Limitation of the study

The nature of the company is a major limitation. Since Ethio telecom is a large company the researcher do not be able to evaluate all the company project activities. Also, while measuring an effective and efficient project outcome needs to cover different activities and knowledge areas, the research only focuses on project communication.

1.8. Definition of Key terms Used in the study.

- "Projects are generally a temporary endeavor that has to be done with lower risks, cost and good management, since it has specific goals in the beginning of the projects" (Tonnquist, 2008).
- According to the Project Management Institute (PMI) "project management is applying knowledge, skills, and techniques to execute projects effectively and efficiently". According to (Payne et al., 2011) Project management has been defined as a "structured and formalized way of managing change in a rigorous way".
- Kosai define Communication "a two-way process of exchanging information between two entities". Project Communications compete a crucial role for the achievement of any projects. "In any successful project the capabilities of communication are the main element for the project success. Efficiency in project communication is a dream for all projects because project profitability is directly related to the efficient communication" (Kossai, 2014)
- The Project Management Institute's A Guide to the Project Management Body of Knowledge defines project communications management the processes vital to ensure on

time and proper generation, collection, distribution, storage, and disposition of project information.” (PMBOK® Guide, 2000)

- According to Empirical studies, there are different definitions of project success. project success refers to “on time, within the budget, to the requirement achievement; success of the product produced; or success in achieving the business goals of the project. Also, these interventions are often questioned, making it impossible to assess if there is an issue at all (Sauer, Gemino, & Reich, 2007). In this study, project success is defined as a project that meets its objectives under budget and under schedule and within scope.
- Method 123 states on their website that “A Communication Process, or Communications Management Process, is a set of steps that are taken every time formal communications are undertaken in an organization” .
- “Communication methods are tools used in communication management as well as effective project management. It is a systematic procedure that is used to transfer different types of information among the stakeholders of the project”(Melissa James, 2015).

1.9. Organization of the study

The study is prepared in five chapters. The first chapter is Introduction which contains background of the study, rationale of the study, statement of the problem, research question, research objectives, significance of the study, scope of the study, Limitation of the study, Organization of the study and Definition of key terms. The second chapter deals with the review of related literature and conceptual framework of the study and the third chapter describes the methodology of the study. It includes the research design, description of study variables, description of study area and targeted population, sampling technique and sample size, data collection method, data analysis, reliability, and validity analysis. At the end of the paper, References is included.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter provides a study of related literature on project communication and project performance. That is the study of previous literature on importance of project communication for project success, process of project communication , methods and types of project communication, barriers to efficient project communication , review of empirical studies, and Conceptual framework of the study and focuses on the importance of effective and efficient communication on the success of the project; and the conceptual structure derived from it.

2.1. Theoretical literature review

2.1.1. Meaning and characteristics of project communication

Communication emanates from the Latin word “communis”, which means common. When there is communication, we are trying to develop a commonness with someone else. That is, trying to share information, an idea, or the attitude of the team participated in that specific project” (PMI, 2010). “Communication may be established when information is exchanged between the sender and receiver” (Tonquivist, 2008). Laswell’s Maxim defines communication as “ what is said by anyone, to whom, on what channel and with what effect”. Project communication is the exchange of project-specific information”. Effective communication establishes understanding of the information provided and taken. Timely and accurate information have to be given by the project team to all stakeholders who affect, affected and perceive to be affected by a project. The project team organize information in a different of ways to meet the needs of project stakeholders as per their need(Ahmed R., Masood T. ,and Azmi N.)

“Communication is not only about talking to and listening from others, but also it needs realizing the full message. Effective project communication is concerning for everyone, being communicating with the real work of the project, understanding the team issues who must deliver the project as well as understanding the issues of the champions. Communication goals are defined according to the interest of shareholders”(Tonquist, 2008). According to him During the execution of the project, the project managers” ability to communicate is crucial to

the success of the project and One of the important tasks for the project managers is to communicate with the stakeholders’.

PMI states that “For successful communication, project managers need to have an excellent knowledge of the communications channel and knowledge on the communications process, and project managers need to know all the relevant factors”. First, “the communications process entails a sender and receiver. The message to communicate is created by the sender, which is intended for a receiver. Based on the receiver personal reaction he receives the message and deals on it”. Second, “In a communication process a channel is needed to broadcast the subject matter of a message”. Third, “the communications process needs a message. The message can take many various forms, usually in hard or soft format”. Fourth, “the communications process needs response among the two parties. Response could also be positive, negative, or neutral, indicating the interest of the sender or receiver”. Fifth, “The quality of a message can be affected by different reasons including: opinions, morals, the outcome or effect of a message, and the channel deployed”. These variables often mentioned as “noise,” can affect the level of receptivity of a message and the input from the sender. Six and last, the result must always be influenced by the communications process. This includes time, space, and structure. Time refers to the day, Space the location of an individual or it's going to involve a project cover a good geographic area and Structure may also be the organizational network in position to facilitate the communications phases of a project.

The two main groups in which project manager needs to make sure clear and effective communication are the stakeholders, and the project team (Rajkumar, 2010). According to Rajkumar, there is a sponsor who have a stake on the project and who will monitor the progress and the outcome of the project all the time. In addition, it also includes others who have interest on the project result, for example, those who execute the results of the project and who would need to supply the resource until the results of the project have been achieved. Regular update is needed by these stakeholders, and communication should be regular, clear, and complete with them.

2.1.2. Importance of project communication for project success.

The most common grievance on day-to-day project activities of an organization is ‘lack of communication’. The PMI suggest a project manager must spend 90 per cent of his time in communicating and to articulate the importance of project success PMI suggest effective communication as a prerequisite for project success for any project and successful communication increases project success and decrease project risk. In addition, developing successful communication with its stakeholder, this may lead to induce more projects for the project manager and the team. The effective the communication process, the more successful the project. Which basically means that investing in communication is investing in the quality of your project output. **Eric Rickert** who is PMP digital project manager, indicate on his article that communication is the foundation of healthy relationships. Since 80% of project management is communication, it is the heart of project management. According to him the one who deliver projects on time and within budget are those who communicate effectively and efficiently.

In the context of the organizational project and program management, communication is a key skill that, when properly applied, connect each member of a project team to a shared set of goals, strategy, and actions. That is, the project success (PMI Report, May 2013). (Awati K,2010) on his research showed how Communication is so important and essential to project success and he coated it as the lifeblood of a project. According to him communication is of vital importance to everyone involved in and main component for the success of a project. A study conducted by Elsevier Ltd company on International Conference on Project Management, 2014 concluded that Communication is desirable to successfully communicate the areas of cost, scope and time, and quality. And also, the findings of study show Communication is a function that combines expense, scope and time to produce a quality product. The research paper also concluded that to make the areas of cost, scope and time, and quality efficiently link, communication is needed . In addition, it is a function that combines costs, scope and time to produce a quality product and can be seen as providing a base function to help all areas; a means that leads to the success of the project.

According to Kai Ruuska (2007,) there are five important factors for project communication. First, Project communication is a supporting activity, with which it is made possible to create product from the project and transfer it to both customers and end users. Second, to create a

positive and reliable service profile, communication is needed for both profiling and being profiled. Third, Project communication is an informative tool, which communicates to all relative groups what is happening in the project. Fourth, Orientation activities rely strongly on communication. At last, he placed that by the social nature of people, interaction with each other is needed to satisfy the social needs of human nature.

Similarly, another study conducted by (Dow W, Taylor B., 2014), explain five reasons that justify the importance of communication in project management: first, it helps to ensure whether the team members and the stakeholders understand what is expected from them – their roles and responsibilities and time constraints that hinders them from doing the task on time. Second, in order to relay information, it is a must that project managers regularly access the information for a given project. At any time, information like the project objectives, plan, risks, customer needs, and time constraints will be needed by the stakeholders to prevent misunderstandings and delays that can cause failure in any project. Third, all projects are fluid, and the project manager needs to prepare for the challenges that he will face from the start until the project completion to ensure effective communication for the whole project and team members. Fourth, the language gap in project management lies in the distance that hinders understanding project benefits. The language barrier to deliver information increases or raises the importance of project communication. And fifth, project communication is essential in solving the causes for every problem. There are different ways of communicating one's message and enhancing communication skill is needed more to get a solution for any problem.

Internal and external communication have a major impact on how you can “sell” the project for the stakeholders, and how you manage expectations. And not forgetting how your communication skills result in managing the project team, reducing unnecessary conflicts, and even getting common Understanding on project outcome. because of communicating effectively which has positive impact on project success. (Horine 2005).

2.1.3. Project communication process

The fundamental communication process is developing mutual understanding, exchange information, coordination activities, influencing and socialization. Transforming the communication process into communication capabilities will be very important for the success of the projects (Johannessen J. & Olsen B. 2011).

Project Communications Management and its processes is one of from 49 processes in project management grouped into ten Knowledge Areas and mapped to five Process Groups. Timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information can be ensured through project communication process(PMBOK® Guide, 6th edition).

The processes are:

- I. **Plan Communications Management**—it includes creating an appropriate approach and plan referring to stakeholder's information, desires and requirements, and accessible company assets.
- II. **Manage Communications**—It is creating, collecting, distributing, storing, retrieving and disposition of project information depending on the communications management plan”.
- III. **Control Communications**— It involves monitoring and controlling communications in all project life cycle to make sure stakeholder demand for information are met. All the above processes These processes interrelate with each other and other Knowledge Area processes for the success of project outcome.

Dow and Taylor, authors of Project Management Communications Bible, noted that “Communication Process will help you to Identify the messages that have to be sent, know the target audience, choose the message format and timing, Drafting the message and getting approval , Communicate the message via communications events and to collect feedback and get better the communication processes.

Kerzner (2009) stated that “Keep On informing his stakeholders regularly is a key activity for any team. Whether it is through status reports, regular meetings, or informal email, ensure the right message on the status of the project is distributed”. This will help your project team and external stakeholders to remain focused on delivery and to provide you with all support you need to deliver your project successfully. According to him by using Communication channel

and Process, you can: identify your project stakeholders, the communication needs of your stakeholder's, perform any type of communications event to deliver your message, be sure the appropriate people obtain the right information at the right time.

2.1.4. Methods of project communication

A project burdened with communication issues leads to delays, misunderstandings, dissatisfaction, tension in the workplace and a mismatch in stakeholder expectations. Hence, employing effective communication methods are necessary to ensure project success(PMBOK, 5th edition). If an effective and efficient communication methodology is not deployed by the project manager, it may lead to many divergences and in the end may also lead to project failure and It is also important that the right information is delivered to the right person and Without the effective communication methods, it will be very difficult for the project to even move forward as the lack of methods will result in the misunderstanding of the project goals and even conflict among the stakeholders (Melissa James, 2015).

According to Program Management Body of Knowledge (PMBOK) project communication method is used to make sure that all information created and relayed has not only been received but also understood by the stakeholders. In addition, response and input from the stakeholders is important for communication methods. There are different types of communication methods that are used in PMBOK. The key ones are:

- 1. Interactive communication:** Interactive communication is an efficient communication that enables all stakeholders to communicate directly with all project-related individuals. Video conferencing, live chat, and phone calls are some of the best examples of interactive communication methods. For stakeholders located in different regions, the collaborative communication process is more fitting.
- 2. Push Communication:** In this form of communication, the data is passed on to the recipients and input is not immediately needed. This medium of communication can be used by project managers for sending meeting notes and other information. This process can also be used by them to transfer information via a press release to stakeholders. Project managers may also use the push notification mechanism to deliver faxes, letters, texts, memos, and status reports.

- 3. Pull communication:** This communication approach is ideal for large-scale audiences who want to access information at their own convenient moment, as the name itself implies. This information is processed by the project managers in the data archive on the company server or at a location where team members or stakeholders can access it. The knowledge can vary from slide shows, research materials, or training sessions to everything.

2.1.5. Types of project communication

Plan communication has multiple viewpoints. The following are various forms of project communication based on the most used viewpoints of project management. (PMBOK 6th edition, Michael Martinez, 2012).

Project Perspective: Communication may be perceived as either internal or external from a project viewpoint. The communication that takes place between members of the project team is **internal communication**. This type of communication is usually "raw." When arrangements or problems are sorted out, it will involve a lot of back-and-forth negotiation. **External communication** is communication between members of project team and project stakeholders. It includes communication with media, other projects and among internal and external customers.

Organizational perspective: communication may be categorized as vertical, horizontal, or diagonal from an organizational viewpoint. The way organizations are organized is considered by this perspective. Vertical communication is the upward and downward communication movement that occurs between the different hierarchical levels of the organization. An example of upward communication is when a member of a project team gives a status report of his assigned tasks to the project manager. The project manager discusses the project priorities with the project team can be an example of downward communication. **Horizontal communication** refers to communication at the same organizational level between individuals. It is like, project team members discuss project subjects with each other., **Diagonal communication** takes place between the organization's various functional divisions. As matrix and project-based organizations become more prevalent, diagonal communication has become more important. A project manager must be excellent with the various roles within the company to be successful in these types of organizations and plan his interactions accordingly. **Formality perspective:**

Another way of looking at project communication is whether it is formal or informal. **Formal communication** includes demonstrations, reports and media statements. This form of communication is typically planned and requires some time and effort to formulate. Emails and ad-hoc conversations are included in **informal communication**. As several initiatives are beginning to use social networking, informal communication has increased. Successful project managers understand this type of communication is understood by effective project managers as the main for formal communication. The manager has to be sure that he communicates with an intent, whether formal or informal, and that he put some thought into how he communicates to get the results he needs. **Channel Perspective:** Project managers must also consider the communication channel by which their message will be transmitted. This perspective deals with how you can express your message. It may be verbal or non-verbal, written, or oral, or by telephone or face-to-face. In determining the channel to use, the intent of communication, the audience and the type of information must be considered.

2.1.6. Barriers to efficient project communication

Many studies indicate that Irrespective of the type of communication: verbal, nonverbal, written, listening or visual, project will be at risk if we are not communicating efficiently. Efficient communications mean delivering only needed information (PMBOK, 2013). Anne Converse Willkomm, who is Assistant Clinical Professor, Department Head of Graduate Studies at Goodwin college(Drexel university) stated that In addition to physical and technological barriers, each employee and manager should aim to eliminate six obstacles to effective communication. The first one is **Dissatisfaction:** If you are frustrated or have lost interest in your career, you are far less likely to communicate effectively. This obstacle is perhaps the most difficult to resolve, since it requires changing one's mind, and therefore does not change before the person leaves. The second barrier factor he mentioned is **Inability to listen others:** Active listening is an integral part of successful communication. You cannot communicate with anyone if you don't listen to them and you want to make assumptions about their needs based on your perceptions of reality. The third one is, **Lack of transparency:** It is incredibly difficult to communicate something when there is a lack of transparency and confidence. The fourth barrier listed by Anne is, **Communication styles:** Everyone has their own style of communication. Some people are very direct, while others prefer more artful methods. Some use precise data, others depend on

generalities, and so on. Occasionally, one person is so stuck in the way they interact, they find it difficult to communicate with those who depend on a different style. The fifth factor is, **Conflicts in workplace:** Conflict can happen for a number of reasons, and when it does, it can become an obstacle to successful communication. If conflict is not eradicated, it develops and people tend to take sides, which further hinders successful communication. The last barrier for efficient communication he listed is **Cultural difference and language:** It is necessary to understand the differences in communication between cultures. If one does not understand cultural differences, they risk upsetting the other. It is in the offense where the communication fail.

In addition, Communication barriers may cause interruption or disruption and may have an impact on the effectiveness of communication. Project Manager should look for these obstacles and try to minimize the cause. The study carried out by (Mehra, 2003) pointed out 11 factors make communication in effective: Physical, cultural, perceptual, words, experiential, emotional, linguistic, non- verbal, gestures, and variation in languages. Thus, most studies clearly show that communication barriers have a negative impact on successful and productive communication, which hamper the performance of the project.

2.2. Empirical Literature Review

Various studies have been done aiming on communication management impact on project outcome. most of Prior studies have examined the impacts of effective and efficient communication on project success. In this section, the empirical studies on impact and relevance of project communication to project success will be discussed.

A study which examined ‘‘the impact of communication on project performance’’ by Kwete Mwana and Maralise David’s(2017), A survey in the form of a questionnaire was distributed to a sample population and analyzed using the e-survey creator on-line tool and statistical analysis using SPSS, found that 49% of the respondents who indicated their roles as a project manager, 80% responded ‘‘yes’’ to communication as the most important aspect contributing to project success. Another study conducted by Frank Cervone (2014) shows that project schedule is impacted by the success of project communication. And project efficiency also impacted highly by different factors of project communication.

Assessing the effect of communication on project success: A case of Ethio telecom

A quantitative research conducted by Nyandongo & Davids (The University of Johannesburg, 2017), presented on 26th International Association for Management of Technology Conference, after data is collected on practices of communication in the project management industry from professionals who are involved in project management clearly indicates that there is a clear positive relationship between communication and the performance of a project. communication increases the completion rate and enhances overall project performance. the critical function of communication is clearly recognized as shown by the empirical evidence gathered by the research. Moreover, the findings have also shown that project managers who see communication as one of the most critical factors leading to the progress of projects have achieved a higher success rate in their projects than the other participants.

A paper “An empirical investigation of IT project success in developing countries”, 2014 published by Abdulaziz I. Almajed and Pam mayhew Examines four organizational factors (Top Management Support, Project Team Skills, Communications Management and Project Management) that affect the performance of IT projects in Saudi Arabian public organizations and compares results with findings in Malaysian multinational companies. The result shows that IT project success was influenced by project communication in Saudi Arabia and there is a strong correlation between communication management, project management and IT project success in malasiya.

A study conducted by Maame Aba Wusuah(2012), with a sample size of sixty-six and respondent were purely sort from professionals within the industry. From the responses collected by the researcher, he established a conclusion that poor communication will lead to project delays, project cost overrun and project desertion. A study which analyzed the association between project communication and project performance by Abraham Kuma(2019), revealed that project performance is significantly influenced by the practice of project communication. And it also, shows that the influence of project communication method and channels for project performance are statistically significant.

A study titled “The Effects of Communication Patterns on the Success of Open-Source Software Projects: An Empirical Analysis from Social Network Perspectives” published in journal of Global Information Management by WU,Jing; Goh, Khim-Yong; Li, He ; Luo, Chuan; Zheng, Haichao(2016) used a Panel data econometric analysis technique, tested their study hypotheses using the three-stage least square model, accounting for both time-period and project-fixed

impact. The findings of the authors suggested that, according to the goals of the projects, proper and expected monitoring of communication between team members is critical to the success of the open-source software projects.

2.3. Conceptual framework of the study

This study aimed to evaluate the importance of communication on Ethio telecom projects. Based on the research questions raised and reviewed literatures the below specified conceptual framework was developed for the purpose of the study. The independent variable for this study is Internal communication, External communication, communication channels, project communication practice and communication barriers, Whereas the dependent variable is the success of projects which is measured in terms of the three constraints of project outcome.

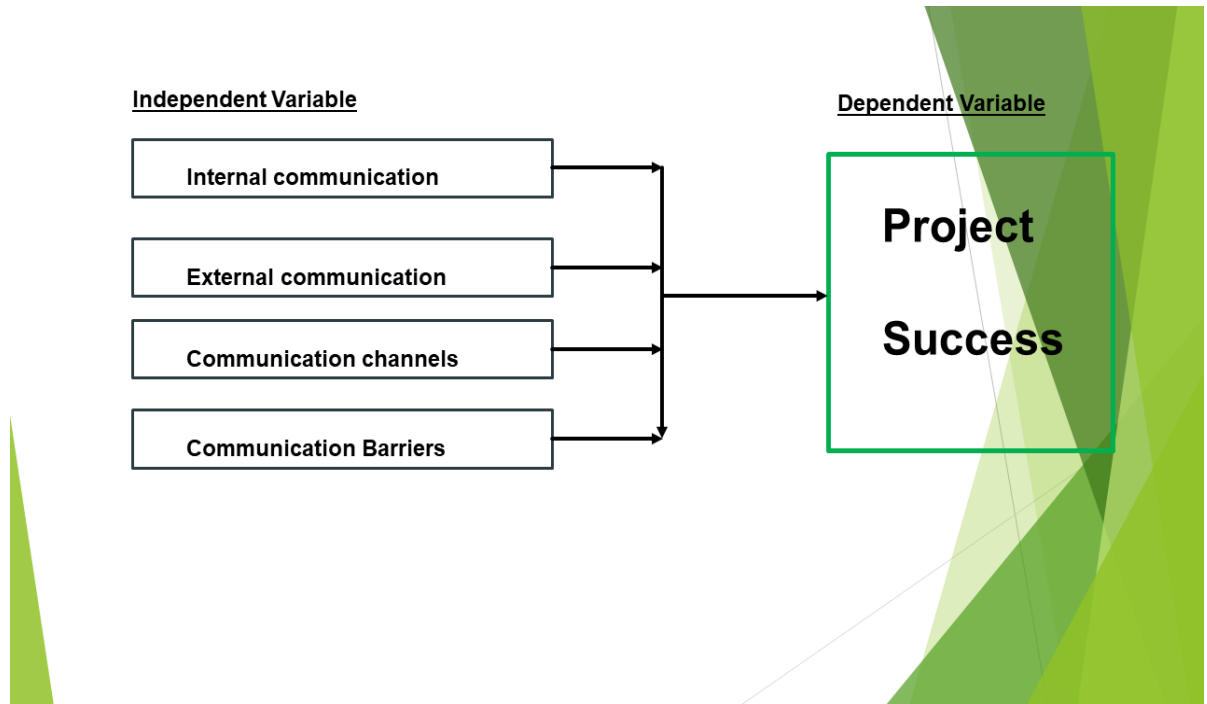


Figure 2. Conceptual framework of the study

CHAPTER THREE

RESEARCH METHODOLOGIES

This chapter gives the research methods which will be use in the study. The chapter covers research design, description of study variables, description of study area and target population, sampling technique and sample size, data collection method, data analysis techniques, Reliability and validity analysis and ethical considerations that were used in this study.

3.1. Research Design

The study used causal or explanatory research design because the researcher believes that the interpretation or cause and effect relationship between communication and project achievement can emphasize. Since, Explanatory research is a research design type that emphasizes on explaining the aspects of a study and supports in recognizing the problem more efficiently (Muhammad Yousaf, 2020). The research timeline the study followed in the research is cross-sectional because since the data collected at one time period only, it is relatively quick and inexpensive to conduct.

3.2. Research Method

A quantitative analysis methodology is the research approach that the project work adopted. This is mainly due to the aim of the researcher is to bring out causality and present a statistical analysis. Quantitative analysis classifies casual relationships and define the study objective in nature based on testing a hypothesis or theory composed of variables (Naoum 2002). The research also followed a case study approach because Since, the researcher aims to show the importance of communication on Ethio telecom project success and to see how the company project office understood the importance of communication or what is the current situation and gaps exist in the company regarding communication process. To do that, a case study approach gives well to capturing information on more explanatory 'how', 'what' and 'why' questions and helps to give a more understanding of the importance of communication in a real existed project(Yin RK,2009).

3.3. Description of study Variables

The aim of this study is to assess the significance of communication in Ethio telecom's project performance. In order to explain the key issue of the analysis, this section is structured to incorporate dependent and independent variables. The dependent variable reflects the success of the projects of Ethio Telecom which is based on meeting schedule, budget, and project scope and stakeholder satisfaction. Consequently, internal, and external project communication, communication channels, communication management practice and communication barriers in the company are independent variables.

3.4. Description of study area and target population

This study tried to evaluate the importance of communication on project success by performing a case study at Ethio telecom. Since the main office of the network division is in Addis Ababa, this study was restricted in Addis Ababa. The analysis focuses on all employees in the Fixed Network division, who are about fifty-three in number. Since the company is technology-oriented firm FAN division was chosen as it is fully involved in managing technical projects and project deliverables, yet it can represent the company projects and the researcher believed that they can clearly indicate the aim of the study.

Therefore, the target population the study was used are program manager, project managers, Project coordinators, PMO staffs and project staffs who participate in the projects.

3.5. Description of Sampling technique and sample size

The entire project team under the Fixed Network Secondary Expansion Program was the population of the study. For this study, the researcher selected Census survey because the population size is very small. When the population is a small one, census inquiries must be featured, it is no use getting to a sample survey (Kothari, 2004).

3.6. Data collection method

For the research, both primary and secondary data is taken to do the analysis. The primary data will be gathered through a close-ended paper questionnaire survey from Ethio telecom FAN staffs who involved in project activities. The data collection is carried out through mail and personal gathering in which a list of predetermined answers is given to respondents from which to choose their response. Secondary data is also used in the project work to support the analysis that can be collected from various sources: project reports, procedures, project plan and other related materials.

3.7. Data analysis

The data is analyzed using a quantitative research approach. Since the research has the structure of causality. That is, change in one variable leads to change in another variable, ceteris paribus (other things being equal), the study uses multiple linear regression analysis model. This is a type of predictive modelling technique that investigates the relationship between a dependent and an independent variable. To describe the basic feature of the data the research used descriptive analysis tools, like mean and standard deviation. And also, correlation analysis is used to check the degree of relation between dependent and independent variables. The research used data analysis tool SPSS 20 to analyze the data collected.

Multiple linear regression equation to be use in the study:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

y=dependent variable, that is Project success

Independent variables,

x₁= internal and external project communication

x₂= communication channels

x₃= communication management practice

x₄= communication barriers.

β₀=y-intercept (constant term)

β_i=slope coefficients for each Independent variable

ε=the model's error term (also known as the residuals)

3.8. Reliability and validity analysis

Messick (1989) explains that construct validity is not only important for the understanding of the test but also for the use of the test. The test must be valid and capable of being used in a consistent manner. The research used **Cronbach's alpha** to measure the reliability of the data. According to Joseph, 2003 Cronbach's alpha is most used when there is multiple Likert questions in a survey/questionnaire which create a scale and if we want to assess whether the scale is reliable or not.

The validity of the questionnaire data conducted by using Pearson product moment correlation using SPSS. This is mainly because of that Pearson product moment correlate each item questionnaire scores with the total score, Item-item questionnaire that significantly correlated with total score shows that the items are valid (David A. Walker, 2017).

Table 3.1: Reliability test of the variables

Reliability Statistics			
Variable	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Internal and External communication	.880	.882	6
Communication channel and process	.775	.777	6
Communication Management Practice	.778	.776	8
Communication barriers	.705	.706	4
Project Success	.795	.796	4

Case Processing Summary		
	N	%
Valid	48	100.0
Cases Excluded ^a	0	.0
Total	48	100.0

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

The result shows that the internal consistency result of internal and external communication is above 0.80, as shown in the above table and as the general rule of thumb of a Cronbach's alpha the data has good internal consistency. Moreover, the internal consistency result of communication channel and process, management practice, communication barriers and project success are between 0.70 and 0.80. so that, according to the general rule of thumb of a Cronbach's alpha the data related to the variables have acceptable internal consistency.

3.9. Ethical Consideration

The level of attention paid to ethical behavior has both increased and expanded in reaction to society's demands of greater accountability (Haggerty,2004).To collect data from participants for research purpose without ethical consideration will place the researcher outside research ethics regulation. Ethical concerns have been prevalent in this research paper, particularly throughout data collection, analysis and writing of the final paper. The researcher described the aims of the analysis to the respondents and reveal that the information will use for research and academic purposes only. The researcher respected the rights to privacy and confidentiality. And also, all of the sources cited in this project work are appropriately recognized.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

Since the objective of the study is assessing the relevance of project communication for success of Ethio telecom projects, this chapter present and interpret the general information of the respondents, analyzes the data collected from primary data through questionnaires using descriptive statistics, analysis of analysis, correlation and regression analysis in order to answer the research questions by showing how the communication variables of the study relate with the dependent variable, which is project success and also explain the analysis result.

4.2 RESPONSE RATE AND DEMOGRAPHIC DATA

From the total questionnaire distributed ninety percent of the questionnaire was returned because of that the researcher demonstrate the value of the research to the respondents in determining the role of communication on improving success of the company projects.

Table 4.1(A): Gender, Age, Education, Experience and Role status of respondents

Description	# of Respondents	Percent
Gender		
Male	43	89.6
Female	5	10.4
Total	48	100
Age		
18-29	9	18.8
30-39	16	33.3
40-49	19	39.6
50-59	4	8.3
Total	48	100
Education		
Diploma	2	52.2
Degree	33	43.9
Master and Above	13	9
Total	48	100

Assessing the effect of communication on project success: A case of Ethio telecom

As it is shown in the above table 4.1(a), the respondents were asked about their sex, gender, and educational background.

From the total respondents 89.6% are male and 10.4% are female. It implies that the gender distribution is not proportionate, and this will make male project managers not to understand female personal problems and it can be one of communication barriers on the company projects.

In relation to their age, 39.6% are between 40-49, 33.3% between 30-39 and 18.8 percent of the respondents age is between 18-29 and the remaining 8.3% age is above 50 years. The statistic showed that most of project members of FAN project are above 30 years of age and this implies that they are matured enough to be sensitive to the stakeholders' value and culture, which has a positive aspect for good communication.

Out of the respondents, 27.1% have studied post graduate programs in the technical and managerial discipline. 68.8 have degree in different discipline and the rest 4.2% have diploma. The result showed that the company projects are exercised by professionals, implying that, it is easy the science of project communication to be understood in the company and to develop communication management practice.

Table 4.1(B): Experience and Role status of respondents

Description	# of Respondents	Percent
Experience		
1-5 Years	13	27.1
5-10 Years	14	29.2
10-20 Years	12	25.0
20-30 Years	8	16.7
Above 30 Years	1	2.1
Total	48	100
Role		
Program Manager	3	6.3
Project Manager	6	12.5
Project Coordinator	11	22.9
PMO Staff	1	2.1
Team Member	24	50.0
Total	48	100

The above table 4.1(b) presents the experience and Role status of respondents. In relation to their experience, an average of 29.2% of the respondents have 5-10 years of project experience, 27.1% of the respondents have 1-5 years of experience, twenty five percent of the respondents have 10-

20 years of project experience and 16.7 percent of the respondents have 20-30 years of project experience. The result shows that more than 70% of the project members in FAN program have experience more than ten years of experience in managing and executing projects, implying that more experience in project works leads to have better communication knowledge and this shows that FAN project office have enough project work experience staffs to understand the impact of communication to a project success.

Regarding the respondent's role in the project, 50% of the respondents are project team members, 22.9% of them worked as project coordinator, 12.5% worked as project manager and 6.3% have a program manager title. The result tells that the researcher collected data from staffs who have different project roles, which helps to know the real status of project communication in the company FAN projects and increase the reliability of the data.

4.3 Descriptive Analysis

In quantitative study, following data collection, the first step of statistical analysis is to define the characteristics of the response. In this section quantitative analysis is presented based on the research question. Descriptive data analysis approach was used to analyze collected data for this study. In the analysis, the independent variables: internal and external communication, channel and process, communication management practice, communication barriers and dependent variable: project success are analyzed to show their correlation and causality.

4.3.1. Correlation between independent and dependent variables

This section measures the dependent and independent variables and assesses the statistical relationship (i.e., the *correlation*) between them is causal or not. A bivariate correlation analysis is used to assess the relationship between the independent and dependent variables of the data obtained from the respondents. The independent variables analyzed are Internal and external communication, communication channel and process, communication management practices, communication barriers and the dependent variable is project success. The correlation coefficient represents the effect size between two variables and tells in which degree they correlate in a straight line (Guogen Shan, Hua Zhang, Tao Jiang,2020).

Assessing the effect of communication on project success: A case of Ethio telecom

Table 4.2: Summary of means, standard deviations and correlations of Internal and external communication, Channel and process, Communication management Practices, Communication Barriers and Project Success

Variables	Mean	Std. Deviation	Correlation Matrix				
			Internal and external communication	Channel and process	Comm. Management practices	Communication Barriers	Project Success
Internal and external communication	3.6945	.66436	1	.653**	.216**	-.236**	.764**
Channel and process	3.4688	.48701	.653**		.364**	-.339**	.725**
Comm. Management practices	3.9263	.48474	.216**	.364**	1	-.214**	.604**
Communication Barriers	1.7813	.58564	-.236**	-.339**	-.214**	1	-.420**
Project Success	3.4792	.58079	.764**	.725**	.604**	-.420**	1

**Correlation is significant at the 0.01 level (2-tailed)

Source: Own survey, 2021 SPSS version 20 outputs

The correlation test shows that:

1. There is statistically significant strong positive correlation between communication management practice of Ethio telecom FAN projects and project success with a highest mean score of 3.9263 & std. deviation of 0.48474 compared to the other independent variables.
2. There is statistically significant strong positive correlation and between project success and internal and external communication of Ethio telecom FAN projects with a second mean score of 3.6945 and standard deviation of 0.66436.
3. The company communication channel and process with mean= 3.4688. and std. deviation= 0.48701 have a strong positive correlation with project success with a least mean compared to internal and external communication, communication mangement practice.
4. There is a negative correlation between communication barriers and project success with a mean= 1.7813 and std. deviation= 0.58564.

4.3.2 Internal and External communication of Ethio telecom FAN projects

As shown in Table 4.3 below, From the six questions raised to the respondents, most of them believe that the role of Internal and external communication in Ethio telecom is high to increase the success of projects in the company with a mean score of 4.10, implying that there is a good understanding of communication in the company projects and prior studies like, Horine (2005) showed that Internal and external communication have a major impact on how you can “sell” the project for the stakeholders, and positive impact to project success; Ethio telecom have good base in understanding of internal and external project communication with in its project staff and it will increase the company projects success.

The result received from other questions raised to the respondents on different aspects of internal and external communication practice showed that, even if there is good understanding of the role of internal and external communication but there is medium performance with a mean score between 3.35 and 3.73 on exercising the communication both internally and externally. Implying that, Ethio telecom has poor efficiency and effectiveness on dissemination of information to internal and external stakeholders on its project activities and low communication competency of Project team members.

Table 4.3: Project team member’s Internal and external communication reflection in Ethio telecom FAN projects

Question	Mean	Std. Deviation	Rank
Internal and external communication in Ethio telecom projects plays a vital role for the project success	4.10	1.036	1
Information that is communicated to the project team members is effective and efficient.	3.73	0.984	2
Project team leaders, coordinators and project managers are committed for effective internal communication	3.63	1.064	4
Project leaders effectively and efficiently communicate with external stakeholders like AACRA, EEU, water and sewerage authority, vendors, consultants, contractors etc.....	3.35	.978	6
The Information communicated meets its goal to motivating, directing, informing, or gaining the participation of the project team members.	3.73	.893	3
Project team members communication competency is good enough to achieve communication results.	3.56	.897	5

Source: Own survey, SPSS version 20 outputs

4.3.1.1 Communication channel and process of Ethio telecom FAN projects

The questionnaire in the below Table 4.4 raised questions regarding the communication channels and process employed in Ethio telecom project activities. The result reveals that Most respondents are moderate with a mean score of within 3.02-3.71 referring to there is proper implementation of communication channel and process in dissemination of information in the company project activities. This indicates if there is poor implementation of communication channel and process in the company leading to low performance in identifying the messages that have to be sent and the channel to be used, know the target audience, choose the message format, timing and also indicates that there is less capacity in appropriate generation, collection, and storage of project information in the company project activities(PMBOK® Guide, 6th edition).

Table 4.4: Project participant’s reflection on project communication channels and process in Ethio telecom projects

Question	Mean	Std. deviation	Rank
Ethio telecom builds a shared understanding by using various communication channels on its project activities	3.60	1.06	2
In project you participated the project communication tools in place are efficient and effective.	3.58	.871	3
The company uses the right communication media (written vs spoken vs technology-mediate) in every level project hierarchical communication.	3.77	.857	1
PMO in Ethio telecom decide the channels of communication based on the direction in which the communication is flowing	3.31	.854	5
There is appropriate generation, collection, and storage of project information in the company project activities	3.02	1.082	6
There is regular and quick dissemination of information or reporting.	3.42	.942	4

Source: Own survey, SPSS version 20 outputs

4.3.1.2 Communication Management practice of the company

Since The mean statistic result in the below table 4.5 is between 3.25-3.71, it indicates that the communication management practice of Ethio telecom is not strong enough to exercise communication in the company project activities. The respondents of the questionnaire are not exultant by the company project management practice, especially there is a gap in preparing fully integrated communication management plan, deploying communication management tools and less in giving emphasis on communication values and ethics.

Table 4.5: Project participant’s consideration on Ethio telecom communication management practices.

Question	Mean	Std. deviation	Rank
The company PMO’s follow communication management strategies in all stages of project activities	3.38	.733	4
The company give high emphasis on project communication values and ethics.	3.29	.822	7
Ethio telecom projects have a good public image and public relations by being sensitive to the country values and culture	3.65	.838	2
There is adoption of a common working language among project team members.	3.71	.713	1
There is monitoring and controlling project communications in Ethio telecom to ensure stakeholder communication needs are met.	3.25	.700	8
In projects you were participated there was fully integrated communication management plan.	3.35	.729	5
Ethio telecom deployed an effective and efficient project communication methodology on its projects to make sure that all information created and relayed understood by its stakeholders.	3.48	.684	3
The company deploys multiple communication modes like knowledge sharing tools, project software’s and project management tools.	3.29	.743	6

Source: Own survey, SPSS version 20 outputs

4.3.1.5 Communication barriers of Ethio telecom FAN projects

The study result reveals that there is a some communication barriers in the company project information distribution. As per the below table 4.6 the mean result indicates that some work remains to be done by ethio telecom on geographical communication barrier which hinder the dissemination of project information . It can also clearly be seen in the mean result that the other communication barrier in dissemination of ethio telecom project information is a problem on distribution of responsibilities between the team members and not well-organized communication time which hinders the efficiency of communication in project activities. The least communication barrier according to respondents is related to technology infrastructure which facilitate the dissemination of project information and it tells that the company have good in installing technology used for project communication.

Table 4.6: Ethio telecom FAN Project team member’s reflection on project communication barriers

Question	Mean	Std. deviation	Rank
Project communications are not delivered in a simple language and there is misunderstanding among team members and stakeholders.	2.33	.630	3
Ethio telecom has no good technology infrastructure to facilitate the dissemination of project information internally with in the project members	2.06	.727	6
There is no good work environment in the company project activities, which is comfortable to everyone and that it will be a barrier to effective communication.	2.21	.582	5
In the projects you participated responsibilities are not well distributed between the team members and the communication time is well organized.	2.38	.733	2
Project managers are not good in understanding team member personal problems or work-related issues to overcome communication barrier.	2.25	.729	4
There is time zone and geographical barriers in dissemination of project information and if it happens project managers organize appropriate way to solve the problem.	2.56	.741	1

Source: Own survey, SPSS version 20 outputs

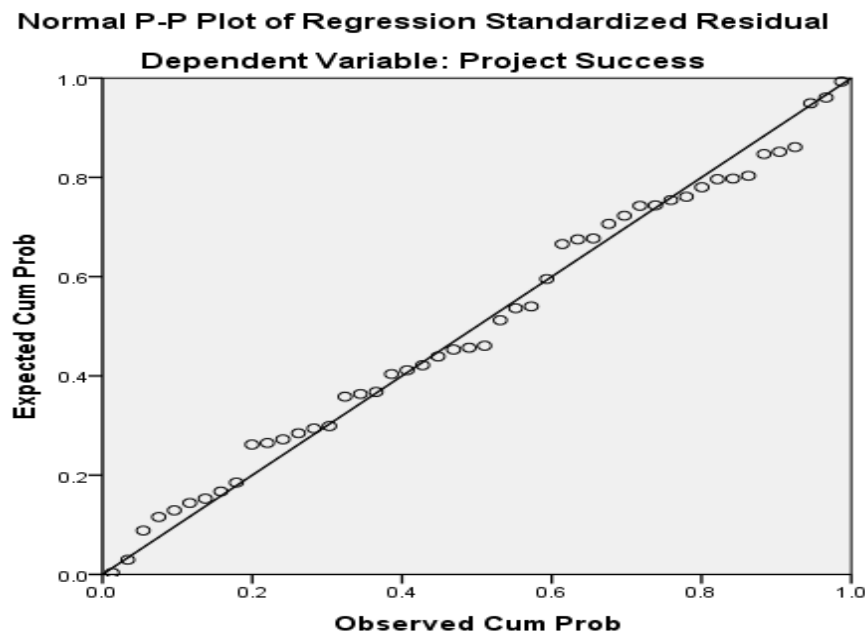
4.4 Regression Analysis

The regression analysis aims to address the question of how Ethio telecom project success is affected by Internal and external project communication, communication channel and process, project communication management practices and project communication barriers. Independent variables have been regressed using Linear regression analysis on project success of Ethio telecom projects to evaluate the importance of communication on the success of the company projects.

4.4.1 Normality test of the residuals

The residuals of the regression must follow a normal distribution to make a valid assumption from the regression. The study used a normal Predicted Probability (P-P) plot, to determine if the residuals are normally distributed. As we can see in Figure 3, The test shows that the little circles follow the normality line (45° line). And it implies that the residuals of the regression follow a normal distribution.

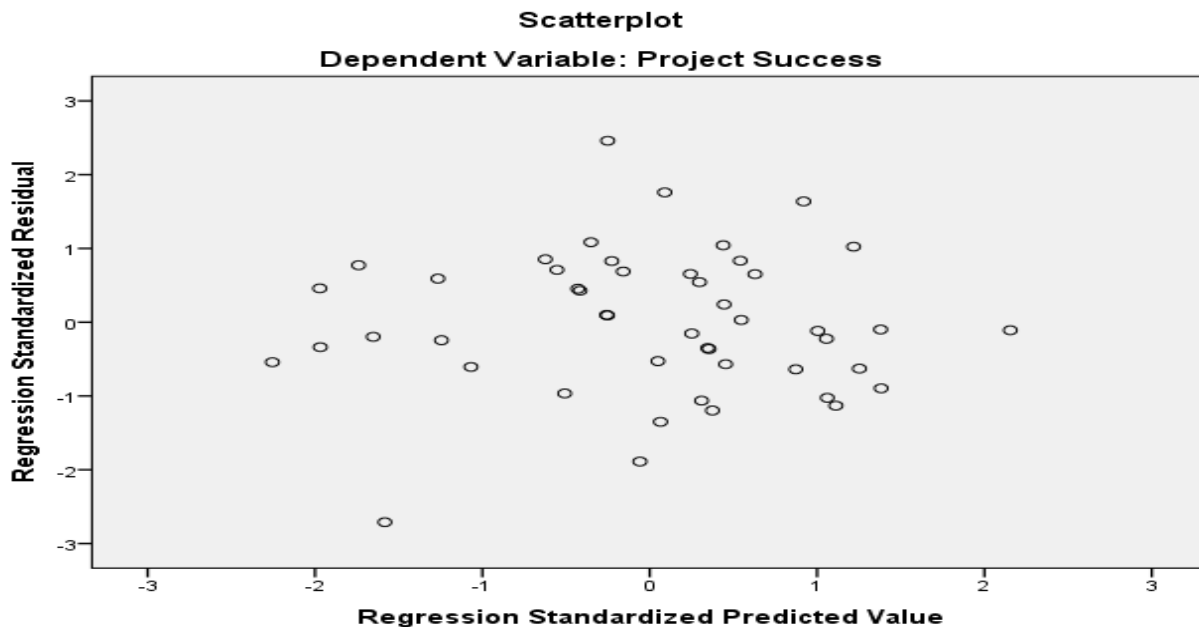
Figure 3; Normality test of the residual



4.4.2. Homoscedasticity test

The assumption of homoscedasticity is another assumption needed in linear multiple regression. Which explains a condition in which the error term (random disturbance in the relationship between the dependent variable and independent variables) is identical in all results of the independent variables (Statistics Solutions, 2013). The study tries to check whether the residuals tend to clump together at some values, and in other values scattered far apart or they are equally distributed. As it is shown in figure 4 below, the scatterplot of the residuals is equally distributed above and below zero on the Y axis, and to the left and right of zero on the X axis indicating that the residuals are equally distributed.

Figure 4; Homoscedasticity test of the residual



4.4.3. Multicollinearity Test

The other assumption mainly used in linear Multiple regression model is the absence of multicollinearity between predictor variables. Multicollinearity refers to if the regression model would not be able to correctly equate variance in the outcome variable with the right independent variable when the independent variables are strongly correlated, leading to confused results and incorrect inferences. Multicollinearity can be checked by variance inflation factor (VIF) values. To say there is multicollinearity the Value of variance inflation factor (VIF) must be greater than

Assessing the effect of communication on project success: A case of Ethio telecom

10. it is clearly shown in the below table 4.7 Each value of VIF is below 10, indicating that the assumption is met, or the predictor variables are not highly correlated with each other.

Table 4.7: Multicollinearity Test

Model	Coefficients ^a			t	Sig.	VIF
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
(Constant)	.606	.437		1.385	.173	
Internal and External communication	.360	.078	.474	4.642	.000	1.780
Channel and process Communication	.383	.124	.321	3.082	.004	1.858
Management Practices	.173	.085	.164	2.048	.047	1.098
Communication Barriers	-.259	.079	-.261	-3.260	.002	1.095

a. Dependent Variable: Project Success

4.4.4. Autocorrelation Test

Table 4.8: Test of Autocorrelation

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.865 ^a	.748	.725	.30457	1.782

a. Predictors: (Constant), Communication Barriers, Communication Management Practices, Internal and External communication, Channel and process

b. Dependent Variable: Project Success

Autocorrelation concerns on which to what degree there is a link between values of the same variables in different data observations. In the sense of time series data autocorrelation concept is mostly discussed. However, autocorrelation may also occur in cross-sectional data when the observations are linked in some other way. In this survey respondents from the section might answer the questionnaire more similarly to each other than respondents from different

sections(Tim bock, April 2018). In a regression analysis, autocorrelation of the regression residuals can occur if the model is incorrectly specified. In this research, to check the existence of autocorrelation in the residuals of the model, Durbin-Watson test is used. The Durbin-Watson tests produces a test statistic that ranges from 0 to 4. Values close to 2 (1.5 to 2.5) show less autocorrelation, and values closer to 0 or 4 imply greater positive or negative autocorrelation. As it clearly seen in the Table4.8 below the Durbin-Watson test of this research model is 1.782 which is close to 2, indicates the absence of autocorrelation between the residuals.

4.4.5. Interpretation of Study Variable’s Relationship

To determine how well the model fits the data, the research used statistical measure of R-squared or coefficient of multiple determination for multiple regression. It shows the percentage of the response variable variation around its mean and tell how close the data are to the fitted regression line. the higher the R-squared, the better the data matches the model. As it is shown in the below Table 4.9, the R square of the research regression result is 0.748 indicates that 74.8 percent of the variance in the success of Ethio telecom FAN projects can be predicted from the variables internal and external communication, communication channel and process, communication management practice and communication barriers collectively. The standard error of the estimate is 0.19748 which indicates that approximately 95% of the observation fall plus/minus 0.3945(2*0.19748) units far from the regression line.

Table 4.9: Interpretation of study variables relationship(r square)

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.865 ^a	.748	.725	.19748	1.782

a. Predictors: (Constant), Communication Barriers, Communication Management Practices, Internal and External coomunication, Channel and process

b. Dependent Variable: Project Success

Assessing the effect of communication on project success: A case of Ethio telecom

Table 4.10: Interpretation of study variables relationship(Anova)

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	11.865	4	2.966	31.977	.000 ^b
Residual	3.989	43	.039		
Total	15.854	47			

a. Dependent Variable: Project Success

b. Predictors: (Constant), Communication Barriers, Communication Management Practices, Internal and External communication, Channel and process

As it is clearly seen in the Table 4.10 above the F-value is equal to 31.97 and the p-value linked with this F value is very small (0.000). These values are used to address the question “Do the independent variables predict the dependent variable reliably? Since the P- value is lower than the alpha level, group of variables internal and external communication, communication channel and process, communication management practice and communication barriers(the independent variables) can be used to reliably predict project success of Ethio telecom FAN projects(the dependent variable), and it indicates that the model significantly improve our ability to predict the dependent variable.

Table 4.11: Parameter Estimates

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.606	.437		1.385	.173
Internal and External communication	.360	.078	.474	4.642	.000
Channel and process	.383	.124	.321	3.082	.004
Communication Management Practices	.173	.085	.164	2.048	.047
Communication Barriers	-.259	.079	-.261	-3.260	.002

a. Dependent Variable: Project Success

The first column in the above table 4.11, shows the constant variable and the predictor or independent variables. The first variable represents the constant, the height of the regression line when it crosses the Y axis. In other words, this is the predicted value of project success when all other variables are 0. The second column in the parameter estimates also showed ‘B’ or the regression equation unstandardized coefficient values for predicting the dependent variable from the independent variable.

The coefficient value of **Internal and external communication** is equal to 0.360. So, for every unit increase in internal and external communication in Ethio telecom FAN project activities, a .360 unit increase in **project success** of projects is predicted, holding all other variables constant. Since the $.000 < .05$ it is statistically significant.

The coefficient value of **communication channel and process** is equal to .383, indicates that a unit increase in communication channel and process will lead to 38.3% increase in **project success** of Ethio telecom projects, holding all other variable constant and it is statistically significant.

The coefficient value for **communication management practices** is .173. This means that for a 1-unit increase in the management practice, we expect approximately 17.3% increase on **success** of the company projects, holding all other variable constant and it is statistically significant.

The coefficient value for **communication barriers** is -0.259. Implying that for every unit increase in communication barrier will lead to 25.9% decrease in **project success** of Ethio telecom FAN Projects and statistically significant.

4.4.6. Importance of Internal and External communication for Project success

As it is shown in Table4.12 below the R square is 0.584. This indicates that 58.4% of the variance in Project success of Ethio telecom FAN projects can be predicted particularly from its Internal and external project communication.

Table 4.12: Relationship of Internal and external communication with project success(r square)

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.764 ^a	.584	.575	.37872	1.260

a. Predictors: (Constant), Internal and External communication, b. Dependent Variable: Project Success

Table 4.13: Relationship of Internal and external communication with project success(Coefficients).

<i>Coefficients^a</i>					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.334	.273		4.895	.000
1 Internal and External communication	.581	.072	.764	8.033	.000

a. Dependent Variable: Project Success

The above table 4.13 estimates tell us about the relationship between the independent variable (internal and external communication) in particular and the dependent variable(project success) . These estimates tell us 58.1%(B=.581) amount of increase in Project success that would be predicted by a 1 unit increase in internal and external communication. Since p value is .000, It is statistically significant.

4.4.7. Importance of Communication channel and process for Project success

As it is shown in Table 4.14 below the R square is 0.525. This indicates that 52.5% of the variance in Project success of Ethio telecom FAN projects can be predicted particularly from its communication channel and process.

Table 4.14: Relationship of communication channel and process with success(r square)

<i>Model Summary</i>				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725 ^a	.525	.515	.40448

a. Predictors: (Constant), Channel and process

Table 4.15: Relationship of communication channel and process with project success(Coefficients)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	.481	.224		2.147	.033
	Channel and process	.864	.121	.725	7.135	.000

a. Dependent Variable: Project Success

The above table 4.15 estimates illustrate the relationship between the independent variable (communication channel and process) in particular and the dependent variable(project success) . It indicates 86.4%(B=.864) amount of increase in Project success that would be predicted by a 1-unit increase(improvement) in communication and channel and process. Since p value is .000, It is statistically significant.

4.4.8. Importance of Communication management practice for Project success

As it is shown in Table 4.16 below the R square is 0.072. This indicates that 7.2% of the variance in Project success of Ethio telecom FAN projects can be predicted particularly from its communication management practice.

Table 4.16: Relationship of communication management practice with success(r square)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.268 ^a	.072	.051	.56568	1.781

a. Predictors: (Constant), Communication Management Practices

b. Dependent Variable: Project Success

Assessing the effect of communication on project success: A case of Ethio telecom

Table 4.17: Relationship of communication management practice with project success(Coefficients)

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1	(Constant)	2.379	.590	4.033	.000
	Communication Management Practices	.282	.072	.268	3.883

a. Dependent Variable: Project Success

The coefficient for communication management practice in the above table 4.17 is 0.282. it illustrates the relationship between the independent variable (communication management practice) in particular and the dependent variable(project success) . It indicates 28.2% amount of increase in Project success that would be predicted by a 1-unit increase(improvement) in communication and channel and process. Since p value is .000, It is statistically significant.

4.4.9. Relationship between Communication barriers and Project success

Table 4.18: Relationship of communication barriers with success(r square)

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.420 ^a	.177	.159	.53271	1.786

a. Predictors: (Constant), Communication Barriers

b. Dependent Variable: Project Success

As it is indicated in the table 4.18 above the R square is 0.177. This indicates that 17.7% of the variance in Project success of Ethio telecom FAN projects can be predicted particularly from its communication barriers.

Assessing the effect of communication on project success: A case of Ethio telecom

Table 4.19: Relationship of communication barriers with project success(Coefficients)

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	4.222	.249		16.986	.000
	Communication Barriers	-.417	.133	-.420	-3.141	.003

a. Dependent Variable: Project Success

The above table 4.19 estimates illustrate the relationship between the independent variable (communication barriers) in particular and the dependent variable(project success) . It indicates 41.7%(B=-.417) amount of decrease in Project success that would be predicted by a 1-unit increase on communication barriers. Since p value is .003, It is statistically significant.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

Introduction

This chapter addresses the results of the study and put applicable suggestions for future studies. The purpose of this research paper is to evaluate the importance communication on Ethio telecom projects success. To achieve the objective of the study the researcher collects a quantitative data through a questionnaire on the practice of the Ethio telecom internal and external communication, communication channel and process, communication management practices and communication barriers and analyzed using SPSS tool.

5.1. Summary of Findings

This section summarizes the major research findings of the study. The main research objective is assessing the role of communication management for the success of Ethio telecom projects. The study tries to provide answers to this basic research question by the following main findings:

1. One of the research questions raised in this study is how ethio telecom manage its internal and external communication. As study finding by (Muller & Turner,2005) which says “communication plays an important role for the success of any projects”.The result of the study unveils that , Ethio telecom project staffs have enough knowledge on the big role of communication for success of projects. But the researcher noticed that, there is a problem on Timely dissemination of information, both internally and externally. moreover, the result shows that Project team members who participate in the company project activities have low competency in project communication and it minimize their performance on internal and external communication leading to low project performance. The study also finds that there is low performance regarding the project leaders communication with external stakeholders like AACRA, EEU, water and sewerage authority, vendors, consultants, contractors.
2. In chapter two review of literature, it has been discussed that(PMI,2004) “the communications process requires a right channel to transmit the subject matter of a message”. The research recognized that the company moderately use the right communication media (written vs spoken vs technology-mediate) in every level project

hierarchical communication . Also, the other study finding seems confirming with the observation of (Dow and Taylor, 2008) “Communication Process(appropriate generation, collection, and storage) will help in delivering project successfully” is that there is low performance in appropriate generation, collection, and storage of project information in Ethio telecom project activities which impacts the company project success.

3. Even if the analysis shows project communication management practice in Ethio telecom has statistically significant relationship with project success, according to the data analysis collected via questionnaire, the overall project communication management practice of the company is not well enough as a key process or knowledge area to achieve excellent results on the company projects.

Firstly, there is low monitoring and controlling of project communication in Ethio telecom to ensure stakeholder communication needs. Secondly, no fully integrated communication management plan. And the company practice on using multiple communication modes like knowledge sharing tools, project software’s and project management tools is low. On other hand, more than half of the respondent agree that there is a good practice on adoption of a common working language among project team members and there is solid focus on public relation by being sensitive to the country values and culture.

4. The research analysis confirms that one of project communication barrier is less understanding of project manager for their project team member personal problems or work-related issues. The other barrier the research finds out is that there is a problem of simplicity on communication language which create misunderstanding among team members. Geographical problem in dissemination of project information is the other communication barrier that the explanatory study confirms . In contrary, the study finds that there is existence of good technology infrastructure in the company which helps the project members for the dissemination of project information internally within the company project activities.

5.2. Conclusion

The analysis of the data indicates that communication is very important from the viewpoint of Ethio telecom project success. The result clearly shows that the company internal and external communication, communication channel and process, communication management practice and communication barriers significantly affect the success of projects in the company.

5.3. Recommendation

Based on the results and conclusions of the study, the researcher has put some significant suggestions that can be used to improve the company project communication practice towards the success of the company projects.

1. The finding from the study shows that Ethio telecom should have to give emphasis on efficiency and effectiveness of communication with external stakeholders. The issue can be tackled by ensuring stakeholder engagement strategy through:
 - communicating regularly to create a positive understanding,
 - Setting realistic expectations, providing regular updates,
 - establishing a two-way communication street.
2. The other issue the study learnt from the analysis is Ethio telecom needs improving on using appropriate communication channel or media and process (generation, collection, quick dissemination, and storage of project information) in the company project activities. To improve the situation the research suggests that:
 - Support project staffs to use a suitable channel depend on the form of communication through empirical training and workshop.
 - Ethio telecom must develop project information retrieval systems.
3. Ethio telecom must develop recent communication management plan to properly manage project communication through all project activities and also the company have to strength its use of communication mode by
 - Fully deploy project tool which improves the internal and external communication of project information.
4. According to the research result, Ethio telecom project leaders should evaluate their project team members morale on a regular basis and develop actions to change it. To

tackle the geographical barrier project team members are facing the company must properly use technology-based communication rather than paper-oriented ones.

The other recommendation the study suggests is Ethio telecom project leaders must simplify their communication language by using proper word choice and avoiding confused words which leads to misunderstanding among project team members and stakeholders, focusing who are the receiver of the information to avoid jargon words which are only understood by a particular group of readers by considering the culture of the audience. as it discussed by (PMI, May2013) “If you want to convince others or win others for projects, you need to apply effective communication skills”

5.4. Suggestion for future research

The researcher has been conducted the research on the importance of communication on project success, a case of Ethio telecom FAN projects. Since time duration is limited and Ethio telecom is a large company, the researcher is limited to focus on one division which could lead to more precise of the real situation of project communication practice of the company. So that any interested researcher can conduct research in detail by involving other division in the company, including other variables, and collecting more data. Further, while measuring an effective and efficient project outcome needs to cover different activities and knowledge areas, other knowledge areas are not considered to this research and therefore, any interested researcher can also conduct a research based on other knowledge areas.

References

- Abudi, G. 2013. *Managing communications effectively and efficiently*. Paper presented at PMI Global Congress 2013—North America, New Orleans, LA. Newtown Square, PA: Project Management Institute.
- Abdulaziz Almajed & P.J. Mayhew. 2014. An empirical investigation of IT project success in developing countries. Science and information Conference: London, UK.
- Ahmed R., Masood T., and Azmi N. 2013. *Leadership is vital for project managers to achieve project efficiency*. Faculty of Management and Human Resource Development, University Technology Malaysia, Skudai, Johor Bahru, MALAYSIA.
- Almajed, Abdulaziz I. and Mayhew, Pam. 2014. *An empirical investigation of IT project success in developing countries*. In Proceedings of 2014 Science and Information Conference, SAI 2014.
- Algina, J., & Keselman, H. J. 1999. *Comparing squared multiple correlation coefficients*. Examination of a confidence interval and a test significance. Psychological Methods.
- Atkinson, R. (1999). *Project management. Cost, time, and quality, two best guesses and a phenomenon, time to accept other success criteria*. International Journal of Project Management.
- Awati K. 2010. *Obstacles to project communication*. Retrieved from [http://www. projectsma.co. uk/obstacles](http://www.projectsma.co.uk/obstacles).
- Babbie, E.R. 2016. *The Practice of Social Research*. 14th Edition, Cengage Learning, Belmont.
- Baccarini, D. (1999). *The Logical Framework Method for defining project success*. Project Management Journal
- Bannerman, P. (2008). *Defining Project Success, A Multilevel Framework*. Project Management Institute Research Conference
- Beleiu, Crisan E., & Nistor, R. 2015. *Main Factors Influencing Project Success*, Interdisciplinary Management Research.
- Bruce Taylor & William Dow. 2008. *Project management communication tools*, Published by Dow Publishing LLC.

- C Pade-Khene, B. Mallinson & D. Sewry (2011). *Sustainable rural ICT project management practice for developing countries: investigating the Dwesa and RUMEP projects*, Information Technology for Development.
- David A. Walker. 2017. *The Pearson Product-Moment Correlation Coefficient and Adjustment Indices: The Fisher Approximate Unbiased Estimator and the Olkin-Pratt Adjustment (SPSS)*
- Diallo A. & Thuillier D. 2005. *The success of international development projects, trust and communication: An African perspective*. International Journal of Project management.
- Greg Horine. 2005. Absolute Beginner's Guide to Project Management. Available at: [https://www.amazon.com/Absolute-Beginners-Guide-Project Management](https://www.amazon.com/Absolute-Beginners-Guide-Project-Management).
- Guogen Shan, Hua Zhang, Tao Jiang. 2020. "Correlation Coefficients for a Study with Repeated Measures", Computational and Mathematical Methods in Medicine
- Hailemicheal, W. aregay. 2012. *The role of communication in managing projects*. Master's thesis, Umeå School of Business and Economics.
- H. Frank Cervone. (2014). Effective communication for project success. OCLC systems & Services: international digital library perspective.
- Imran Haider Naqvi1, Shazia Aziz and Kashif-ur-Rehman. 2011. *The impact of stakeholder communication on project outcome*. African journal of business management vol.5(14) COMSATS Institute of Information Technology (CIIT), Pakistan.
- Jing WU, Khim-Yong Goh, He Li, Chuan Luo & Haichao Zheng. 2016. *The Effects of Communication Patterns on the Success of Open-Source Software Projects: An Empirical Analysis from Social Network Perspectives*.
- Johannessen Jon-Arild & Olsen Bjørn. (2011). *Projects as communicating systems: Creating a culture of innovation and performance*. International Journal of Information Management.
- Joseph AG, Rosemary RG. 2003. *Calculating, interpreting, and reporting Cronbach's Alpha reliability coefficient for Likert-type scales*. Midwest Research to Practice Conference in Adult, Continuing, and Community Education. The Ohio State University, Columbus, Karolina, M. 2018. *A concept for measuring effectiveness of communication in project teams*, Journal of Economics and Management vol.33.
- Kerzner, H. 2009. *Project management, A system approach to planning*. 10th edition. New Jersey: John & sons Inc.

- Kerzner, H. 2011. *Project Management Metrics, KPIs, and Dashboards*. A Guide to Measuring and Monitoring Project Performance. NJ: Wiley & Sons.
- Kevin D. Haggerty. 2004. *Ethics Creep: Governing Social Science Research in the Name of Ethics*, University of Alberta.
- Kossai M. & Piget P. 2014. *Adoption of information and communication technology and firm profitability: Empirical evidence from Tunisian SMEs*. The Journal of High Technology Management research.
- Kothari, C.R. (2004) *Research Methodology: Methods and Techniques*. 2nd Edition, New Age International Publishers, New Delhi.
- KM Nyandongo, M Davids. 2017. The Impact of communication on project performance. An empirical review, university of Johannesburg.
- Lauren T. 2020. *what is a longitudinal study?* Published on May 8, Available at <https://www.scribbr.com/methodology/longitudinal-study/>
- Maame Aba Wusuah. 2012. *An Assessment of Project Communication Management on Construction Projects in Ghana*. A study paper presented to kuwame Nukrumah.
- Melissa J. 2015. *Communication Methods in Project Management*. The gray campus blogs.
- Meron Asrat. 2018. *The Role of Project Communication Management in improving project performance of building construction projects: A case study of Modcon Engineering PLC*. A Research Project Work Submitted for the Partial Fulfillment of Master of Art Degree in Project Management.
- Müller R. & J. Turner, R. 2005. *The Impact of Principal Agent Relationship and contract Type of Communication Between Project Owner and Manager*. International journal of project management.
- Muller, R. and Turner, R. (2010). *Leadership Competency Profiles of Successful Project Managers*. International Journal of Project Management.
- Mukopi, G.M. (2016). *Factors influencing implementation of telecommunication network equipment projects in Kenya: a case of Safaricom limited*.
- Naoum, S, G (2002). *Dissertation research and writing for construction students*. Butterworth Heinemann.

- Payne, M., France, E., Henley, N., Antoine, D., Bartu, E., Elliot, J., & Carol, B. (2011). *Researchers experience with project management in health and medical research: Result from a post-project review*. Journal of Public Health
- Pearson K. 1994. *Mathematical contributions to the theory of evolution, on the correlation of characters not quantitatively measurable*. Philosophical transactions of the royal society of London. series A, containing papers of a mathematical or physical character.
- PMBOK. 2013. *A Guide to the Project Management Body of Knowledge: Project Management Institute, INC. Pennsylvania, USA*
- PMI. May, 2013. *Communication management and stakeholder's management*. A conference paper at PMI.
- Rajkumar, S. November, 2018. *Art of communication in project management*. Paper presented at PMI® Research Conference, Defining the Future of Project Management, Newtown Square, PA: Project Management Institute. Washington, DC.
- Ralph L. and Kliem. November 28, 2007. *Effective communication for project management*, By Auerbach publication
- Rogers, W. October 12, 2014. <https://www.salesforce.com/-tips-to-improve-sales-performance-gp.html>. Retrieved June 19, 2019.
- Ruuska, Kai, 1996. *Project Communication*. Available: <http://www.prodictor.fi/IC8.PDF>
- Sauer c., Gemino A., Reich B. 2007. *The impact of size and volatility: on IT project performance*. Communications of the ACM
- Shayna Joubert. 2020. *What is the Difference Between Project, Portfolio, and Program Management?* At Northeastern university.
- Tanner, M., and Mackinnon, A. 2013. *A review of Communication Techniques and Tools for Successful ICT Projects*. University of South Africa.
- Tim Bock. April, 2018. *What is Autocorrelation?* Available at <https://www.displayr.com/>
- Tonnquist. 2008. *A guide to the theory and practice of project, program and portfolio management and business change*. Stockholm : Bonnier Utbildning.
- Trisha Dowerah Baruah. 2012. *Effectiveness of Social Media as a tool of communication and its potential for technology enabled connections*: International Journal of Scientific and Research Publications, Volume 2, Issue 5.

Assessing the effect of communication on project success: A case of Ethio telecom

Tushman, L, & Katz, R. 1980. *External communication and project performance: An Investigation into the role of gate keepers*, Journal of Management Science.

William Dow, PMP, Bruce Taylor. 2008. *Project Management Communications Bible*. The authoritative reference on one of the most important aspects of managing projects-- project communications.

Yin RK. 2009. *Case study research, design, and method*. London: Sage Publications Ltd.

Appendix 1: Questionnaire

Addis Ababa University

School of Commerce

Master of Arts in Project Management

Questionnaire on Importance of project communication on project success. In case of Ethio telecom of Fixed network secondary expansion program.

Dear respondents,

I am Behailu Wakeway, Master student in Project Management at Addis Ababa University School of Commerce. I am doing my project work for partial fulfillment of my master's degree. The project work seeks to evaluate the importance of project communication on project success in case of Ethio telecom Fixed network secondary expansion program. I kind-heartedly ask you to participate in this research study by completing the attached questionnaire. The information you deliver will only be used for study purposes and will remain strictly confidential. I thank you in advance for sharing me your precious time and supporting me in finalizing my research work.

The questionnaire is parted into six sections – the first section, with five questions relates to respondent profile, the second section with six questions relates to the internal and external communication of the company to its project team members and stakeholders. The third section covers six questions relating to communication channel and process used in Ethio telecom. The fourth section, with eight questions, focuses on the company communication management practice. The fifth section gathers information about the project communication barriers within the company through six questions and the six section with four questions focuses on Ethio telecom success of projects.

Please select the appropriate answer and indicate your choice by putting “X” mark in the box.

Section I- Background of the respondent

1. Gender

Male Female

2. Age

18-29 30-39 40-49 50-59 above 60

3. Education Background

Certificate Diploma Degree masters and above

4. Your project work experience in years

1-5 5-10 10-20 20-30 above 30

5. Your position in the project

Team member project coordinator project manager

Program manager other

For the next five sections Please consider the communication practice and project performance of Ethio telecom projects on that you participated and put “X” mark in the box which express your judgment.

1 stands for, strongly disagree.

2 stands for, Disagree.

3 stands for, Neutral.

4 stands for, Agree.

5 stands for, strongly agree.

Assessing the effect of communication on project success: A case of Ethio telecom

Section II

Internal and external communication

No	Items	1	2	3	4	5
1	Internal and external communication in Ethio telecom projects plays a vital role for the project success					
2	Information that is communicated to the project team members is effective and efficient.					
3	Project team leaders, coordinators and project managers are committed for effective internal communication					
4	Project leaders effectively and efficiently communicate with external stakeholders like AACRA, EEU, water and sewerage authority, vendors, consultants, contractors etc.....					
5	The Information communicated meets its goal to motivating, directing, informing, or gaining the participation of the project team members.					
6	Project team members communication competency is good enough to achieve communication results.					

Section III

Communication channel and process

No	Items	1	2	3	4	5
1	Ethio telecom builds a shared understanding by using various communication channels on its project activities					
2	In project you participated the project communication tools in place are efficient and effective.					
3	The company uses the right communication media (written vs spoken vs technology-mediate) in every level project hierarchical communication.					

Assessing the effect of communication on project success: A case of Ethio telecom

4	PMO in Ethio telecom decide the channels of communication based on the direction in which the communication is flowing					
5	There is appropriate generation, collection and storage of project information in the company project activities					
6	There is regular and quick dissemination of information or reporting.					

Section IV

Communication management practice

No	Items	1	2	3	4	5
1	The company PMO's follow communication management strategies in all stages of project activities					
2	The company give high emphasis on project communication values and ethics.					
3	Ethio telecom projects have a good public image and public relations by being sensitive to the country values and culture					
4	There is adoption of a common working language among project team members.					
5	There is monitoring and controlling project communications in Ethio telecom to ensure stakeholder communication needs are met.					
6	In projects you were participated there was fully integrated communication management plan.					
7	Ethio telecom deployed an effective and efficient project communication methodology on its projects to make sure that all information created and relayed understood by its stakeholders.					
8	The company deploys multiple communication modes like knowledge sharing tools, project software's and project management tools.					

Assessing the effect of communication on project success: A case of Ethio telecom

Section V

Project communication barriers

Question	Mean	Std. deviation	Rank
Project communications are not delivered in a simple language and there is misunderstanding among team members and stakeholders.	2.33	.630	3
Ethio telecom has no good technology infrastructure to facilitate the dissemination of project information internally with in the project members	2.06	.727	6
There is no good work environment in the company project activities, which is comfortable to everyone and that it will be a barrier to effective communication.	2.21	.582	5
In the projects you participated responsibilities are not well distributed between the team members and the communication time is well organized.	2.38	.733	2
Project managers are not good in understanding team member personal problems or work-related issues to overcome communication barrier.	2.25	.729	4
There is time zone and geographical barriers in dissemination of project information and if it happens project managers organize appropriate way to solve the problem.	2.56	.741	1

Section VI

Project success

No	Items	1	2	3	4	5
1	Most of the time Projects meet their schedule objectives.					
2	In Projects you participated projects stay within budget limits.					
3	The company Projects meet their technical performance goals.					
4	Ethio telecom projects satisfy its internal and external stakeholders					