



Assessment of causes of delay in IT projects: the case of Ethio telecom

Name: Elithabeth Abrham

Id no: GSR/9439/12

Advisor: -Dr. Solomon Markos (PhD)

**A Research Project Submitted to Addis Ababa University School of
Commerce in Partial Fulfillment of the Requirement for Master of Arts in
Project Management (MAPM)**

Addis Ababa University

June 2021

Assessment of causes of delay in IT projects: the case of Ethio telecom

Name: Elithabeth Abrham

Id no: GSR/9439/12

Advisor: -Dr. Solomon Markos (PhD)

**A Research Project Submitted to Addis Ababa University School of
Commerce in Partial Fulfillment of the Requirement for Master of Arts in
Project Management (MAPM)**

Addis Ababa University

June 2021

Declaration

I, Elithabeth Abrham, hereby declare that this project work is my original work, and it has not been presented previously in its entirety or in part submitted at any University for a similar or any other degree award.

Signature _____

Date _____

Statement of certification

This certifies that the project work, “**Assessment of causes of delay in IT projects: the case of Ethio telecom**” undertaken by Elithabeth Abrham in Partial fulfillment of the award of Master’s degree in Project Management at Addis Ababa University graduate school, is an Original work and not submitted earlier for any degree either at this University or any other University.

Dr. Solomon Markos (PhD)

Project work Advisor

Addis Ababa University

School of Graduate Studies

This is to certify that the Project Work prepared by *Elithabeth Abrham* entitled: *-Assessment of causes of delay in IT projects: the case of Ethio telecom* submitted in partial fulfillment of the requirements for Degree of *Masters of Arts in Project management (MAPM)* complies with the regulation of the University and meets standards with respect to originality and quality.

Signed by Examining Committee:

Examiner: _____ Signature: _____ Date: _____

Examiner: _____ Signature: _____ Date: _____

Advisor: **Dr, Solomon Markos (PhD)** Signature: _____ Date: _____

Abstract

In the 21st century, technology is an extremely important aspect of every individual and organization in the western world. Yet, third-world countries struggle to incorporate technology in their policy and culture. As a developing country, Ethiopia needs to be able to introduce new IT projects to society so that the country can assimilate with the world. When managing IT projects, many challenges occur. Delay in IT projects plays a major part in these challenges. This research work entails what the causes of delay in IT projects are. The objective of the paper was therefore, to determine the causes linked to Ethio Telecom's production and the delay in their IT projects. One hundred sixty four questionnaires were distributed to the employees, to test hypothesis and the data was finally analyzed using SPSS to generate findings for the research. The major findings showed that Expansion of functionality, overly optimistic schedules, and Tension between customers and developers are the main reasons for a delay in IT projects. The study gave a recommendation to Ethio telecom and other similar organizations to deeply focus on these three reasons, and also a detailed recommendation is forwarded for the causation.

Keywords: IT projects, Delay, Ethio telecom

Acknowledgments

First and foremost, I would like to thank the Almighty God. I am blessed to have him guide me in every step I take towards any achievement.

I would like to convey my sincere gratitude to my advisor and mentor, Dr. Solomon Markos ,for his wonderful constructive comments, continued guidance ,and great support for the successful accomplishment of this research. I would also like to thank the employees of Ethio telecom that helped me a lot during the collection of data and other information.

I would also like to evince my appreciation to my friends and family, for their unlimited comment as well as moral support starting from the beginning up to the end. Finally, I would like to thank all people involved directly or indirectly for the accomplishment of this paper.

Table of Contents

List of Tables	viii
List of Figures	ix
Chapter one: Introduction	1
1.1 Background of the study	1
1.2 Statement of the problem	2
1.3 Research questions	3
1.4 Objective of the Study.....	4
General objective	4
Specific Objectives	4
1.5 Significance of the study	4
1.6 Scope of the study	5
1.7 Limitations of the Study.....	5
1.8 Definition of Terms	6
1.9 Organization of the study	6
Chapter two: Literature review	8
2.1 Theoretical review	8
2.2 Empirical review	16
2.3 Research Hypothesis	20
2.4 Conceptual Framework	21
Chapter three: Research Methodology.....	22
3.1 Research design and approach	22
3.2 Data types, sources and method of data collection	22
3.3 Target population and sample design.....	23
3.4 Data Analysis	24
3.5 Validity and Reliability	24
3.6 Ethical Considerations.....	25
Chapter four: Data presentation and Analysis	26
4.1 Description of sample.....	26

4.2	Demographic Background of the respondents	26
4.3	Descriptive Statistics	28
4.4	Normality test.....	34
4.5	Multi Collinearity	34
4.6	Inferential Analysis	35
4.7	Multiple Regression Analysis	37
Chapter Five: Summery of findings, conclusion and Recommendation		41
5.1	Summary of findings.....	41
5.2	Conclusion.....	42
5.3	Recommendations	44
Reference		46
Appendices.....		49

List of Tables

Table3.1: Population sampling	23
Table 3.2: Reliability measure of variables	25
Table 4.1: Response rate.....	26
Table 4.2: Gender of respondents.....	26
Table 4.3: Marital status of respondents	27
Table 4.4: Age of respondents.....	27
Table 4.5: Years of experience of respondents	27
Table 4.6: Current working division of respondents.....	28
Table 4.7: Descriptive statistics Expansion of functionality	29
Table 4.8: Descriptive statistics one solution fits all syndrome	30
Table 4.9: Descriptive statistics tension between customers and developers	31
Table 4.10: Descriptive statistics mediocre personnel	32
Table 4.11: Descriptive statistics overly optimistic schedule	33
Table 4.12: Normality test.....	34
Table 4.13: Multi Collinearity	35
Table 4.14: Correlation	36
Table 4.15: Multiple regression analysis.....	37
Table 4.16: ANOVA ^a	37
Table 4.17: Coefficients	38

List of Figures

Fig 2.1: Conceptual framework	21
--	----

Chapter one: Introduction

1.1 Background of the study

Global changes put pressure on nations around the world which directs them to acquire new skills and techniques by adopting and coping with new technologies and trends to be able to survive globally. Adopting new technologies offer better opportunities and raise the standard of living since it presents easy access for society in their day-to-day life.

In the 21st century, technology is an extremely important aspect of every individual and organization in the western world. Yet, third-world countries struggle to incorporating technology in their policy and culture. The incapacity of developing a policy to integrate technology in their system is strongly considered to be a reason for the poor economy of those countries. Currently, technology with its advanced feature is used as the primary source to keep people connected around the world. Today, third-world countries cease to incorporate technology into their communication, leading to an increasing gap with other parts of the world (Ahmed 2013).

As a developing country, Ethiopia needs to be able to introduce new IT projects to society so that the country can assimilate with the world. When managing IT projects, many challenges occur. Delay in IT projects plays a major part in these challenges. IT projects have been considered tough to undertake and have defined characteristics that make them different from other engineering projects and increase the chances of their failure (Peffer, Gengler & Tuunanen, 2003; Salmeron & Herrero, 2005). IT projects are often poorly defined, codes of practice are frequently ignored, and, in some cases, not many lessons are learned from experience (Al-Ahmad et al, 2009).

This project work examines the causes of delay in IT projects in an integrated manner and determines the root causes and the top reasons. It focuses on IT projects taken by Ethio telecom, and most importantly, it focuses on projects that involve mobile payment systems, which are the first such projects implemented by Ethio telecom.

1.2 Statement of the problem

Projects are defined by the need to complete a task on time, to budget, and with appropriate technical performance and quality. In recent decades, projects have tended to become more time-constrained (Clarke, 1994), and the ability to deliver a project quickly is becoming an increasingly important element in winning a bid (Williams, 2001). Most of the work in project management has given more attention to project scheduling problems, thinking the development of better scheduling techniques would result in better management and thus the completion of a project on time. However, many factors outside the control of management could determine the success or failure of a project (Belassi & Tukel, 1996).

As the world changes more and more every day, IT projects are becoming more complex, and technology is rapidly evolving. Researches show that more than half of all IT projects become faulty and exceed deadlines and budgets while also fail to deliver the expected result (Al-Ahmad et al, 2009).

Ethio Telecom is the only telecom operator in Ethiopia which runs multiple IT projects. Failure to deliver projects on time is one of the problems Ethio Telecom often faces. Out of the many projects, Ethio Telecom runs and those which have faced delay, the Electronic Top-up Project (E-Top Up) and the Mobile Money (MM), also known as tele birr, can be taken as examples. E Top Up is a solution to the distribution mechanism in replacing physical prepaid top-up vouchers with virtual vouchers less airtime. Originally planned to launch in April 2014; instead, it was launched on April 4, 2017, which is three years later than the intended date initially (Gezahenge, 2018). The E Top-Up solution implements a hierarchical distribution model for distributors, sub-distributors, and retailers. This allows these units to work together and move virtual airtime values between each other in real-time. Another project is the Mobile Money project (MM) which is a service that allows customers to store, send, receive, transfer and spend money using their mobile phone. It manages these services by storing money in a secured electronic account, linked to a mobile phone number, and is a key to facilitate the delivery of cashless transactions like payment, money transfer, and mobile remittances. MM (telebirr) was launched on May 11, 2021. It was supposed to be released in September 2021 but faced a delay of eight months.

Although the E-Top Up projects was complete and ready for customers use; it was delayed for more than three years. This has resulted in big losses for the company. In developing countries such as Ethiopia, electronic payment systems are not available nor are they recognized. Making the Electronic Top Up and Mobile Money one of the first electronic payment systems present by Ethio telecom would not only advance Ethio Telecom as a leading company but would also enhance the country's technological advancement. The fact that these projects faced a delay has affected the company financially in additional costs and losses, as well as the misuse of time and labor.

Many researchers gave many reasons why IT projects are not completed on time. Although they gave them many names; most of them have the same concept or one is included in another. Expansion of functionality is one of the reasons that were mentioned by many researchers some also calls it scope creep. Another reason that is mostly mentioned is mediocre personnel; most of the time it is mentioned in project team effectiveness. Overly optimistic schedule is another reason that is mostly mentioned which is responsible for delay in IT projects. Tension between customers and developers is also mentioned as one of the reasons for delay in IT projects some includes it under conflict management.

The fact that the upper mentioned projects have not failed doesn't mean that there are no chances that it might happen in future similar or more advanced projects. Therefore this study contributes nationally and especially to the third world countries by going deeply and investigating the root causes that are currently the reasons for the troubles with meeting deadlines and puts recommendations forward for future technological projects so that it will be possible for a more successful and on-time project delivery.

1.3 Research questions

- To what extent does expansion of functionality in IT projects cause delay at Ethio telecom?
- To what extent do overly optimistic schedules in IT projects cause delays at Ethio telecom?
- How does one-solution-fits-all syndrome cause delay at Ethio Telecom?
- How does the tension between customers and developers cause delays at Ethio telecom?

- To what extent does mediocre personnel cause delay at Ethio telecom?

1.4 Objective of the Study

General objective

The general objective of this research was to determine the causes linked to Ethio Telecom's production and the delay in their IT projects. By explaining this causation, it helps minimize the chances of facing a delay in the future and minimize loss of time, cost, and resources.

Specific Objectives

- To identify the effect of expansion of functionality on delay of IT projects at Ethio telecom.
- To determine the relationship between optimistic schedule and delay in IT projects at Ethio telecom.
- To identify the effect of one-solution-fits-all syndrome on delay of IT projects at Ethio Telecom.
- To identify the effect of tension between customers and developers on delay IT projects at Ethio telecom.
- To determine the relationship between mediocre personnel and delay in IT projects at Ethio telecom.

1.5 Significance of the study

This research is significant to all project management office employees involved with IT projects, and especially for those in developing counties. Technology continues to progress day by day, which means that everybody needs to be updated. Developing countries such as Ethiopia needs to focus deeply on IT projects and be prepared so that similar problems will be eliminated in the future and more advanced IT projects will learn from these IT projects that were affected by the delay.

This research helps in Identifying possible causations of delay in IT projects and forwards cautions to be taken that helps avoid or minimize delay in such difficult situations

Consequently, this study focused on public IT projects taken by Ethio telecom especially projects that focus on an electronic payment system, while another study may be conducted for other private companies or various IT projects that might provide different result since the nature and size of the projects are different which also influence the findings. Therefore it can be adapted to other similar projects to generate further improvements.

1.6 Scope of the study

Nowadays IT has become an important part of any organization and since the types of IT projects are very vast it could not be feasible and manageable to cover all types of IT projects and concerns related to delay in this study. Thus, this study focused on two big projects undertaken by Ethio telecom which mainly focused on electronic payment systems. The rationale behind this delimitation is that these types of projects are new and a first for the country and also Ethio telecom. Therefore this research only covered and saw over the E top-up and mobile money projects.

Also, the research only saw over the delay factors; expansion of functionality, overly optimistic schedules, the one solution fits all syndrome, Tension between customers and developers and, mediocre personnel.

Only the project management office employee's active workers on these projects were the targeted focus of this study because those were the employees directly involved more than other Ethio telecom employees. With regards to the selection of Ethio telecom, it is backed by the reason that it is a public company and solo telecom provider in Ethiopia therefore compared to other private companies it takes over big IT projects.

It is anticipated that in the future this types of projects or more advanced projects will continue to be taken on. Therefore it is expected that this research will be helpful in future projects.

1.7 Limitations of the Study

The limitations of the research include that it was not possible to get in contact with all the employees that were directly involved in the projects because it was hard to track employees that were participating in the projects since one of the projects was taken more than four years ago. Some have left the company ,or they couldn't be reached due to the Covid 19 pandemic.

1.8 Definition of Terms

In this research, the following terms are used and their definition is presented as follows.

- **Delay:** - can be defined as postponing, linger or detain of something because of some cause.
- **Expansion of functionality:** - new functionalities continue to be conceived and requested as the project proceeds. The software can never be completed in this way (McConnell, 1996, Goldratt, 2002).
- **Overly optimistic schedules:** - This means that overly optimistic schedules place considerable pressure on the project team. The team will initially attempt to reach the (unrealistic) deadlines. These attempts lead to sloppy work and more errors, which cause further delays (McConnell, 1996, Goldratt, 2002).
- **The one solution fits all syndromes:** - Using the right software for a project is important. Some software platforms are more suited to particular applications than others are. Thinking that the use of particular software will greatly improve productivity, however, is also a trap (McConnell, 1996, Goldratt, 2002).
- **Tension between customers and developers:** - The tension that can arise between customers and developers (e.g. because the project is not proceeding quickly enough) can cause additional delays, as it disturbs the necessary base of trust and the working atmosphere (McConnell, 1996, Goldratt, 2002).
- **Mediocre personnel:** - Insufficiently qualified personnel can cause project delays. Technically substantive knowledge of the subject of the project plays a role, as do knowledge and skills in working together to play the game of the project (McConnell, 1996, Goldratt, 2002).

1.9 Organization of the study

This research paper has five chapters. The first chapter presents the introduction where the background of the study, statement of the problem, research questions, research objectives, research hypothesis, and significance of the study, scope, and limitation of the study are clearly described. The second chapter deals with a review of related literature on delays in IT projects. In this chapter, previously conducted studies are reviewed to explore basic concepts on the practice used to avoid or minimize delay in IT projects at a global level. The third chapter

presents the research design and methodology that was administered in the research where the research approach, design, population and sampling, and data source and analysis methods are stated. The fourth chapter presents the results and will discuss based on the findings. The last chapter presents conclusion and recommendation based on the findings in the previous chapter.

Chapter two: Literature review

2.1 Theoretical review

Steve McConnell the author of Code Complete, Rapid Development, Software project survival guide, and many more; said that identifying the root causes of slow development and eliminate them is the best way of skipping a delay.

According to Goldratt (2002), to increase productivity, personnel are often assigned to too many projects and an attempt to fill the lost hours with other projects can cause serious delays, the fact that organizations often assign personnel to many projects simultaneously is one of the most important reasons that projects take too long which is mentioned and can be included in most of the eleven causes that were forwarded and can be observed below. Projects that are planned for completion within three months most of the time takes more than two years. If the projects were accomplished one after the other, each would have been completed in about three months. Most researchers agree with what was forwarded by Goldratt and description of the eleven most common causes of delays in IT projects can be seen as follows.

1. Expansion of functionality

The expansion of functionality is a situation in which new functionalities are conceived as the project proceeds. In this case the software can never be completed in the expected time.

2. Gold plating

Gold plating is a situation in which programmers and designers try to make man Details of the software or design too elaborate. More time is spent improving details, even though the improvements were not expected by the customer or client. Mostly the details often add little to the desired result.

3. Neglecting quality control

Time pressure can sometimes cause programmers or project teams to be enticed to skip testing. This mostly causes more delays than it prevents. The time that elapses before an error is discovered in the software is associated with an exponential increase in the time that is needed to repair it.

4. **Overly optimistic schedules**

overly optimistic schedules place considerable pressure on the project team. The team will initially attempt to reach the (unrealistic) deadlines. These attempts lead to sloppy work and more errors, which cause further delays. In this regard, be particularly wary of schedules that are imposed from above. The desire to complete a project (more) quickly sometimes arises for primarily strategic reasons; if it is not feasible, however, it should not be attempted. The project will not proceed more quickly and the product will ultimately suffer.

5. **Working on too many projects at the same time**

Dividing work across many different projects (or other tasks) causes waiting times that lead to many delays in projects.

6. **Poor design**

the absence (or poor realization) of designs leads to delays, as it requires many revisions at later stages.

7. **The one-solution-fits-all syndrome**

using the right software for a project is important. Some software platforms are more suited to particular applications than others are. Thinking that the use of particular software will greatly improve productivity, however, is also a trap.

8. **Research-oriented projects**

Projects in which software must be made and research must be conducted are difficult to manage. Research is accompanied by high levels of uncertainty. When or if progress will be achieved in research is unclear. When software development is dependent upon the results of research, the former frequently comes to a standstill.

9. **Mediocre personnel**

insufficiently qualified personnel can cause project delays. Technically substantive knowledge of the subject of the project plays a role, as do knowledge and skills in working together to play the game of the project.

10. **Customers fail to fulfill agreements**

Customers are not always aware that they are expected to make a considerable contribution to the realization of a project. When customers do not react promptly to areas in which they must be involved, projects can come to a standstill.

and most of the time the team may proceed further without consulting the customer, which can lead to later conflicts.

11. The Tension between customers and developers

the tension that can appear between customers and developers (e.g. because the project is not proceeding quickly enough) can cause additional delays, as it meddle in the necessary base of trust and the working atmosphere.

The upper definitions were forwarded by McConnell and Goldratt and when we see the five causes of delay that will be focused on in this research the following ideas can be observed.

Expansion of functionality

Most researchers express expansion of functionality as scope creep. Scope creep means that the requirement of a certain project tends to increase over a period of time while the project continues to progress. Some also calls it kitchen sink syndrome. According to (Ajmal et al. 2019) communication is among the major causes of project scope creep. Mehmet Karakoc and Edward Williams also identified scope creep as one of the reasons for project delay. Golan & Ziarko (1995, p. 71) and McIntosh (1995, p. 28) provides a definition that scope creep evolves from the improper management of expectations of the user or expert and moving project goals or changing objectives. A research done by Mathias Høylandskjærin with the title Managerial Perceptions of Scope Creep in Projects: A Multiple-Case Study in the partial fulfillment of master's degree at UMEA University showed that the impact of scope creep is project delays and cost overruns.

Overly optimistic schedules

It is obviously known that projects have to end on a certain time. According to Prater et al (2017) Optimism bias proved to be widely accepted as a major cause of unrealistic scheduling for projects, and there is a common understanding as to what it is and the effects that it has on original baseline schedules. For time management it is very important that activities are defined, have a sequence, estimate activity resources, estimate activity durations and finally develop schedule (Hussain 2014).

One solution fits all syndromes

The project management time shared on April 4, 2013 the article one size does not fit all. PM experts say that there is one acceptable way to manage a project but it is obvious that there are many types of projects in many types of environments managed and performed by people with varying degrees of emotional intelligence, knowledge and expertise in and beliefs about project management. Some project managers have sophisticated tools available others do not. When managing IT projects or others there is no one right way therefore the workers involved in a project need to follow a situational approach (George Pitagorsky 2013). On the green technological blog it is also said that there is no one-size-fits-all for each and every IT environment, there is no one-size-fits- all in project management methodology either.

Tension between customers and developers

The project management institute generalizes tension between customers and developers as conflict. Being a project manager or team leader these conflicts are especially rampant and relevant in the project environment. It's very easy to spark or arouse a disagreement provoking individuals, groups, to a conflict situation. The paper identified many reasons of conflict some of them are; Schedules, Prior unresolved conflicts, Project priorities, Resource competition, Cultural differences, Technical issues, Team or clique, Personality conflicts, Organization structure, Communication barriers, Poor planning etc (Guan, D 2007).

Mediocre personnel

A research done at University of Putra at Malaysia with the title Impact of Personnel Factors on the Recovery of Delayed Software Projects: A System Dynamics Approach, said that delay in a software project may result in the loss of a market opportunity or the postponement of a dependent project. Therefore, software project managers take various steps to ensure that their project is completed on time, such as adding new members to the project team. However, adding new manpower to a delayed project may cause a negative impact on the team's productivity due to assimilation time, training overhead and communication overhead (Farshchi et al 2012). But also not having enough skilled or knowledge personnel contributes a lot for a delay. This is

because only a few people will hold the burden alone and because of this it will lead the project to take a longer time than the expected.

Other than the five identified causes of delay a lot of other researchers have forwarded other reasons that are causes of delay in IT projects. Project Practical is a project management blog anyone who needs help with project management can get fundamental advice and recommendations from professionals who practice project management on how to be a well organized project manager. These professionals have forwarded causes of delay in IT projects based many years of experience and researches.

- **Unexpected risks:** - The PM needs awareness on several expected risks, restrictions, and challenges that might happen during the implementation of the project, a project manager himself must always be involved and be part of the project. It is obvious that with years of experience in the IT industry, it is easier to know all the potential risks already but due to less involvement of the project manager, there can arise some unexpected risks that were not identified as potential risks. These unexpected risks can cause great damage to the entire project. With just one mistake and a single risk, the entire attempt to escape a project risk can go to waste. But this might not be the case developing countries such as Ethiopia because it is known that third world countries have no experience or know how when it comes to technologies and it is obvious that the PM doesn't have many experience therefore the PM in third world countries need to constantly update themselves.
- **Inaccurate estimates for project requirements:** -The Project Management Institute (PMI) reported that 39% of projects fail due to inaccurate estimates when it comes to project requirements. When you do not have all the important requirements recognized and documented, it is impossible to achieve the goals and objectives of the project. Even if everything is known but there is a single gap, the whole project might face delay. Therefore clear communication and deep planning of requirements is very important.
- **Unengaged project sponsors and stakeholders:** -When it comes to projects being less involved and a gap in communication between project workers and project stakeholders and sponsors lead to project delay. Every individual involved in a certain project needs to be able to go through the project documents. In doing this communication between

everyone involved will avoid the chance in missing out on anything. It is very important that everyone is engaged highly in the project.

- **Inadequate resources:** - project resources are a big cause of project delay. Labor and material can be included under resources when it comes to IT projects. If one of these is insufficient, the project cannot be completed on time. PMI reported that, 22% of the project fails due to inadequate human resources.
- **Dependency Delays:** - It is a known fact that a project is completed by several teams from different departments. These teams and departments are interrelated and dependent on each other. Meaning that if the project is not completed on time in one department the others have to wait for completion leading towards dependency delay. delivered on time. PMI reported that 23% of projects fail due to dependency delays.

The plan view Blog is popular among project managers because it gives insights from subject matter experts in the areas of strategic planning, lean and agile delivery, project portfolio management, resource management, product portfolio management, enterprise architecture, innovation management, and project collaboration. This experts have forwarded six causes of project delay based on the whitepaper, “Bigger than a Breadbox: 10 Tips for better project estimates, Pat2,” written by Jerry Manas. He interviewed more than 100 project managers and forwarded the following six reasons for delay.

- **Unrealistic Deadlines:** - the inability of the project manager to manage up and educate leadership on expected risks and not being able to identify what should be give mor priority will lead toward improper estimation.
- **Customer or partner availability:** - As organization process improvement initiatives begins with suppliers, and includes inputs, processes, and outputs. Project risk assessments will be more successful if more people are involved therefore it is best to include everyone involved in the project so that it will be easier to identify possible risks.
- **Resource Availability:** - resource availability is very important in every project. Project managers’ needs deep communication with resource managers so that resource commitment will be ensured. Giving more priority to critical component is always best.

- **Uncertainty/Unpredictable events:** - This in other word is like risks and some projects are late because of unexpected events. Therefore it is best to always schedule a time gap for some unpredicted events to avoid any delay.
- **Management decision/ change in priorities:** - shifting of priorities sometimes happen and most of the time it is manageable but if these changes happen too frequently, it means that the project manager needs to focus on process maturity, demand prioritization, and particularly a process that supports evaluating tradeoffs.
- **Poor estimates or inadequate planning:** - any PM can agree that inadequate planning leads towards delay and in can be conclude that it is the leading cause with the above mentioned reason for delay.

Mehmet Karakoc and Edward Williams gave an overview of widely-used delay analysis methodologies in engineering projects and on their way they identified reasons for delays in IT projects based on the researches done by McKinsey & Company and the University of Oxford. Although delays in IT projects will naturally vary from case to case the common causes forwarded by these researchers are: scope creep, badly defined system requirements and objectives, ambiguities in the specifications, technology advances during the execution of the project, limited access to the customer's existing systems, lack of assistance by the customer, lack of communication between the parties, late and/or disrupted transition from the incumbent supplier to a new supplier, poorly drafted contracts (eg responsibilities of the parties), lack of meticulous testing plans to ensure quality, incompetent interface management, unrealistic programs and inaccurate progress reporting, insufficient qualified resources, and Poor project management. The causes identified and forwarded by these researchers can be categorized and grouped into three. It can be categorized under expansion of functionality, mediocre personnel and tension between customers and developers.

Kissflow is simple workflow software for business and it is popularly used as a project management tool. This software was developed in collaboration with professional project managers. They have forwarded the most common causes for delays: This includes changes in project scope, resources become unavailable, the timeline is not planned properly, objectives and deliverables are not realistic within the project constraint, external vendors don't deliver on time, and the communication between project stakeholders is not effective, unpredictable

external changes like disasters. Based on the forwarded reasons this also can be pared and categorized together under, expansion of functionality, mediocre personnel, tension between customer and developer and, overly optimistic schedule.

Lisa McQuerrey is a business writer since 1987 and she also has launched a full-service marketing and communications firm, she has forwarded the following five causes of a delay in a project.

- **Poor Project Scheduling:** -A project that was not properly planned is always followed by problems and it can be predicted that delay will happen. A very well prepared project plan includes many details such as the implementation, staffing and budget deadlines or schedule. Preparing a project plan ensures that the proper amount of cost, manpower is set. We can also call poor project scheduling as over optimistic schedule.
- **Lack of Cooperation:** -Project team members need to be able to communicate effectively with each other. If one team member or department misses a deadline, it sets up a situation where the others will not be able to make it on time which is also called dependency delay. The project manager is responsible for assigning specific roles and responsibilities for the team members and make meeting deadlines a non-negotiable aspect of every project. This cause can be categorized under tension between customers and developers.
- **Changing Cost Structure:** - budgetary is a very important aspect in project management and if not properly worked on it can cause delays. Sometimes it is possible that one might face shortage from the original budget had to come up with additional financing. The best thing to do hear is overestimating expenses when initially planning projects to account for unanticipated costs.
- **Client Changes:** - This might happen for two reasons one is that there is lack of communication and the client did not express his desires in the first place or the second one is that expansion of functionality is going to happen. Change requests on scope of the project can throw the timing off track. Having a detailed contractual description of the project before its start is the best thing to do in these situations.
- **Outside Influences:** - External influences are sometimes also responsible for delay in projects. This are influences are beyond control and having contingency plan is very

recommended in this situations. The contingency plan will be helpful because the project manager can use it as a backup.

As it can be observed most of the causes of delay forwarded by many professionals have the same content; meaning that those causes are the main reasons that many projects are not completed on time. The most common reasons forwarded are expansion of functionality, mediocre personnel, overly optimistic schedule and tension between customers and developers.

2.2 Empirical review

Ravishankar (2016) for over 60 years, computers and information technologies have helped organizations improve their business processes and delivery of products and services. There is a large body of work on what firms must do to get their IS/IT projects right. The advice is, more often than not, based on sound logic, and thus, they have formed the basis for how organizations plan, design, and implement projects of different sizes and complexity. IS/IT projects have also progressively become important drivers of organizational strategy and they offer firms a lot more than operational efficiencies. They can, indeed, have a transformational impact on how businesses gather real-time intelligence, access markets, and develop stronger customer relationships. It is perhaps inevitable that a proportion of IS/IT projects will continue to fail. The inherent complexities of implementing such projects, especially the social and cultural dimensions, can overwhelm managers even when they have the best project management tools at their disposal.

In line with the proposed research study, some research has evolved but looking at different points of view of the area. De Swart (2016) investigated the root cause of analysis for project delays at a high-tech company. The study was done in partial fulfillment for the Degree of Masters at the Eindhoven University of Technology. The researcher chooses a company called SHTC and the company asked the researcher to find the reasons for the delays in their projects and to explore what can be done about them. A semi-structured interview with twelve people who were believed to be experts on the subject of project management was held and the common causes were used as input for the interview design. After recording, transcribing, and coding the interviews, a list of 40 causes for project delays at SHTC according to its employees was created. This list contains similarities with the common causes; it also showed that the compan

y does have its unique problems. The researcher concluded on top three reasons as the root causes which are: There are conflicts of interests between the stakeholders, end-users have a hard time being comprehensive in their requirements resulting in many change requests, and resources are working on multiple projects simultaneously and are having a hard time focusing and prioritizing. The researcher also said that none of the interventions alone will solve the problem of project delays by themselves and using them all will still not make delays non-existent. The interventions will show problems themselves, especially if not implemented in the right way. However, with this study, it is shown why these interventions will be beneficial for reducing project delays. When we come to Ethio telecom out of the three reasons forwarded by the researcher there is a chance two of them might be the reasons, One reason is not included because Ethio telecom is a sole telecom provider and the end-users are the people of the country and most of the people have no idea about technology.

Lopez and Vico Mañas(2013) looked at delays in IT projects due to failures in the stakeholder's management. The main purpose of the study was to explore how failures in IT project stakeholder management may impact, directly or indirectly, the deadlines of these projects. They choose to use the stakeholders' theory because it was still an approach little used by the academic and professional environment. The paper sees over the two streams of thoughts which are effectiveness and efficiency. Although both approaches are important, the paper target was focused on a failure which is in that group of "efficiency" (the delay). After the drawing up of the interview script, semi-structured interviews were carried out with 17 IT project managers and/or managers of IT project managers from a private business organization and in their majority, of large size. The researchers concluded that even in an indirect way (but also in a direct way in some cases), the IT project's deadlines can indeed be negatively impacted by failures in the management of its stakeholders. They forwarded three reasons why improper stakeholder management leads to project delay. The three reasons are a stakeholder not identified early on the project has chances of asking for something new when engaged, a new stakeholder (who replaced the other), who has the management of his expectations neglected, offer greater chances to request changes in the project delivery; and the stages of requirement identification and scope definition involve intense communication with stakeholders. Therefore, inefficient communication in these phases may lead to failures in the identification of the project requirements, which, in turn, may generate late

requests. This cannot be the case for Ethio telecom because as it is said before the end users have no say in the projects provided since most of the population has no idea about technologies.

Genuchten (1991) described reasons for a delay in software development which was carried out in 1988 and 1989 in a software engineering department. The paper aimed to add to the knowledge concerning the reasons for overrun and delay in software development. It gives an insight into the reasons for differences between plans and reality in development activities to be able to take actions for improvement. The researcher took 160 activities comprising over 15000 hours of work for analysis. The results found showed that over-optimistic planning is a major cause of delay. Finally, the researcher introduced maintenance week as one solution which leads the researcher to recommend that every department should gain an insight for the reasons of delay in software development so they will be able to take appropriate action. Over optimistic planning or schedule could be a reason for the delays at Ethio telecom since there is a chance that the company might not be using a proper scheduling tool.

Enas Mohammed (2017) looked at the Causes of Cost Overruns and Schedule Delay on an IT Project in the case of the NBE Application Virtualization Project. The research was done in partial fulfillment of the requirements for obtaining master's degree in project management at Addis Ababa university school of commerce. The NBE has encountered a staggering 148% cost overrun and 242% schedule delays and to address the two major issues of cost overrun and schedule delay, a case study research design was employed by the researcher. A mixed approach was used and a non-probability sampling technique, in particular, purposive sampling was applied. The researcher concluded that the major causes of schedule delay include poor schedule management, project complexity, additional work, scope change, design-related mistakes, and delayed decision-making process, while the major causes of cost overrun are poor cost management, the complexity of the project, new technology is involved, changes in project scope, additional work and rework, incomplete requirements and design. In addition, the researcher said that the overall project management practice of the bank is ineffective and inadequate. At last, the researcher forwarded several recommendations.

Bloch, M., Blumberg, S., & Laartz, J. (2012) investigated how to deliver large-scale IT projects on time, on budget, and value. The research was conducted by McKinsey & Company in

collaboration with the University of Oxford. The researchers said that Software projects run the highest risk of cost and schedule overruns. The findings were consistent across industries that emerged from research conducted on more than 5,400 IT projects. The researchers focus on describing ways of maximizing the chances of delivering IT projects at the expected value on time and within budget. The recommendations the researchers gave are mainly four; focusing on managing strategy and stakeholders instead of exclusively concentrating on budget and scheduling, mastering technology and project content by securing critical internal and external talent, building effective teams by aligning their incentive with the overall goals of the project, and excelling at core projects management practices such as short delivery cycle and rigorous quality checks. The reasons identified in these cases might be reasons for the delay at Ethio telecom. The fourteen reasons identified by the researchers can be categorized and included under Expansion of functionality, mediocre personnel and tension between customers and developers.

Kusumadarma et.al (2019) has researched with the title Developing Project Schedule in Telecommunication Projects Using Critical Path Method (CPM). In this research, the researchers mainly tried to see the methods that should be used to develop a schedule and the consequence of delay. The researchers indicated that the most influencing factors are that not applying the methods appropriate to the type of project and if the method that is used is not appropriate then the result is a delay in the implementation of the project. The researchers took focuses on the design of the feeder cabling project schedule in STO Nanjung by using the CPM method. In some projects, both small and large, processes such as defining activities, sorting activities, estimating resources, estimating duration, and making Schedule Models are very bound to each other until they can be seen as a Single Process that can be done by someone in a relatively short period.

Rafat & Ahmed (2017) has researched with the title Empirical Study on Causes of Project Delays. It says that project delay has become a norm these days and the situation calls for exploring the factor(s) affecting the bonding between project management performance and project success and also the research indicates that the percentage of project completion rate is

not in proportion to the number of projects undertaken, regardless of the use of state of the art project management techniques, equipment, and process enhancing tools. The researchers indicate that the 3M's of project management meaning (manpower, machinery, and materials) should be the main focus of any project. The research outcome calls for the project sponsors and top management to reshape their project management strategy and allow for low power distance between management and project personnel for timely completion of projects. The down side of this research is that it did not consider projects that don't require machinery and materials such as IT projects. Therefore in this case the only one that IT projects can focus is that manpower which can be included under mediocre personnel.

Based on the reviews above this research will focus on the five possible causes of delay identified or forwarded by many researchers which are Expansion of functionality, Overly optimistic schedules, one solution fits all syndrome, Tension between customers and developers and mediocre personnel.

2.3 Research Hypothesis

The hypothesis of this research is:

H₀₁: Expansion of functionality doesn't leads to postpone, detain, linger.

H_{a1}: Expansion of functionality leads to postpone, detain, linger.

H₀₂: Overly optimistic schedules don't put pressure leading towards detains, postpone, linger.

H_{a2}: Overly optimistic schedules put pressure leading towards detains, postpone, linger.

H₀₃: The one solution fits all syndrome doesn't results in linger postpone, detain.

H_{a3}: The one solution fits all syndrome results in linger postpone, detain.

H₀₄: Tension between customers and developers doesn't causes detain, postpone, linger.

H_{a4}: Tension between customers and developers causes detain, postpone, linger.

H₀₅: A mediocre personnel doesn't leads to postpone, detain, linger.

H_{a5}: A mediocre personnel leads to postpone, detain, linger.

2.4 Conceptual Framework

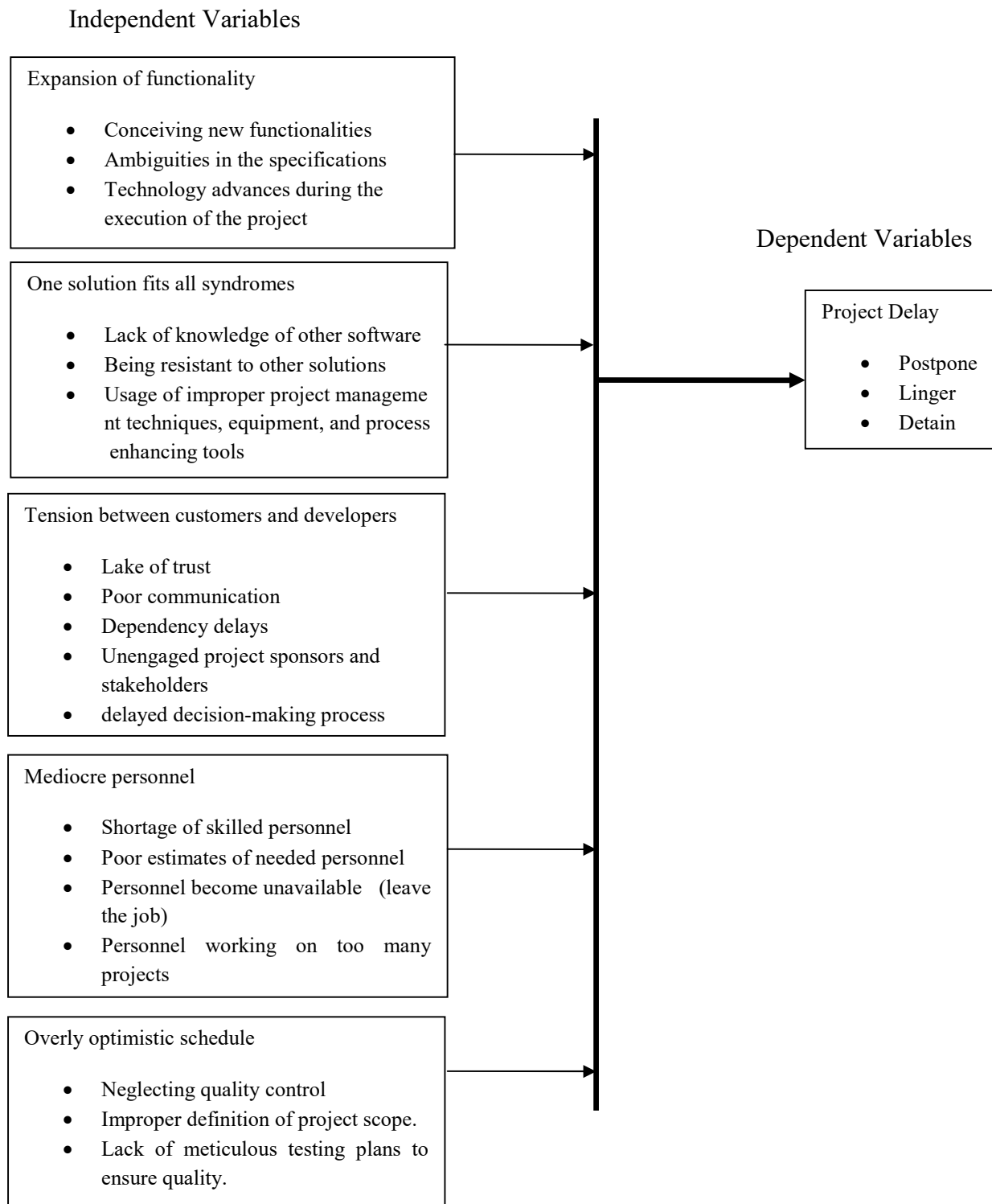


Fig 2.1: Conceptual framework

Chapter three: Research Methodology

Introduction

This chapter presents the methodological approaches used to solve the research problem and the research questions presented in chapter one.

3.1 Research design and approach

Information for research purposes can either follow quantitative, qualitative or, both (mixed) depending on the study. A qualitative approach is a type that uses primarily verbal and derives meaning from the participant's perspective and it is used to collect important data through methods such as interview, field observation, company document, and manuals review in which cannot be reduced to numerical values. A quantitative approach is the collection of data that generates numerical reliability such as questionnaires and surveys. For this research, a quantitative method was implemented for data collection related to the target group in the population of the selected company.

Among the various research designs, this study used an explanatory research design. An explanatory research design was used to analyze and explain what the causes of delay were and the methods used to avoid or minimize them. Since the research was explanatory research the study used a non-experimental design. In this research regression and correlation analysis were used and as it can be seen above the independent variables or the predictors were identified as the expansion of functionality, overly optimistic schedules, the one solution fits all syndromes, tension between customers and developers, and mediocre personnel. The dependent variable being delay (postpone, detain, linger).

3.2 Data types, sources and method of data collection

The type of data that was used for this research was mainly primary data that was conducted through a questionnaire. The questionnaire was self-developed and prepared using a five-point Likert Scale and a yes or no form to measure the variables. This questionnaire focused on all the independent and dependent variables separately. It was filled by project management office employees.

3.3 Target population and sample design

The study's target groups were employees of Ethio Telecom who works in the project management department. This includes headquarter of Ethio Telecom's project team members i.e. sales, technology, and distribution. Division officers and department managers totaling up to 150 employees throughout Addis Ababa's four districts have participated in the E top-up project and 128 numbers of employees participated in the mobile money project making a total of 278 people who have participated in both projects.

In this research probability sampling method in the form of stratified simple random sampling was used to select the departments, employees, and managers.

By using the sample size determination formula developed by Taro Yamane (1967), a total of 164 employees participated in this research.

$$n = N / (1 + Ne^2)$$

n = corrected sample size, N = population size, and e = Margin of error (MoE), $e = 0.05$

Therefore by using the above formula $278 / (1 + 278 * (0.05)^2) = 164$ (164/278)* Number of people in a stratum = Stratum sample size

Table 3.1: Population sampling

Mobile money project		
Divisions	Number of people in stratum	Stratum sample size
Sales division	24	14
Marketing division	16	9
Finance division	24	14
IS division	16	9
HR division	8	5
Customer experience & Quality assurance division	8	5
Network division	32	20
E top-up project		
Zones		
Headquarter	15	9

West Addis Ababa	24	14
East Addis Ababa	25	15
Central Addis Ababa	20	12
South Addis Ababa	20	12
North Addis Ababa	23	13
Southwest Addis Ababa	23	13
Total	278	164

Source: Own survey, 2021

3.4 Data Analysis

The Data analysis was carried out by using the Statistical Package for Social Science (SPSS). Descriptive statistics such as frequency distribution was used to assess the demographic profile of the respondents to make the analysis more meaningful, clear, and easily interpretable. Inferential analysis, Multi Collinearity, Multiple Regression Analysis were also used for analysis. The data obtained from the questioner was entered into the computer and statistically analyzed.

3.5 Validity and Reliability

Reliability is the steadiness or dependability of a measuring technique (Leary2004). Validity refers to the length of measurement procedure measures what it is intended to measure rather than measuring anything else (Leary2004). This research was conducted by using a standardized questionnaire that was considered reliable and valid. By clearly defining the population that participated in the research and ensuring enough participants and representative of the population validity can be ensured. Also during the collection of data, the circumstances were kept as consistent as possible to reduce the influence of external factors that might cause variation so that reliability is guaranteed. Cronbach's α measure the consistency with which participants answers items within a scale. It is known that, a high α (greater than 0.60) indicates that the items within a scale are measuring the same Construct.

Table 3.2: Reliability measure of variables

Variable	Chrombach's alpha value	Number of items
Expansion of Functionality	0.773	8
One solution fits all syndromes	0.642(0.664 if item number 7 deleted)	7
Tension between customers and developers	0.714	7
Mediocre personnel	0.512(0.596 if item number 1 deleted)	8
Overly optimistic schedule	0.578(0.678 if item number 6 deleted)	7
Postpone, Linger, Detain	0.780	4

Source: Own survey, 2021

3.6 Ethical Considerations

Certain ethical protocols were followed by the researcher. The first was soliciting explicit consent from the respondents. This ensures that the fact that they participated in this study was not out of their preference. It was assured that the respondents were aware of the objectives of the research and their contribution to its completion. One other ethical measure that was exercised by the researcher was treating the respondents with respect and courtesy (Leary2004). This was done by making the respondents feel at ease and more likely to give honest responses to the questionnaire.

Chapter four: Data presentation and Analysis

Introduction

The major out puts from the data collected and analyzed is presented in this chapter. The data was analyzed using SPSS and is presented as follows.

4.1 Description of sample

In order to assess the relationship between dependent variable and independent variables, regression analysis was conducted for scale typed questionnaire. A total of 164 questionnaires were distributed. Out of the 164 potential respondents, a total of 131 questioners were collected and the remaining 33 were not returned. In the end, a total of 131 respondents filled and returned the questionnaire. The overall respondent rate for the survey was approximately 80%. The collected data were presented and analyzed using SPSS 20 software version. The study used correlation analysis to measure the degree of association between different variables under consideration. Regression Analysis was also implemented to test the effect of independent variable on dependent variable.

Table 4.1: Response rate

Method	Distributed in number	Returned in number	Response rate
Hand distributed	164	131	80%

Source: Own survey, 2021

4.2 Demographic Background of the respondents

The demographic profile of respondents is presented in this section. The personal profile of the respondents is analyzed as per their gender, age, number of years of employment, marital status, and current working department.

Table 4.2: Gender of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Male	85	64.9	64.9	64.9
Valid Female	46	35.1	35.1	100.0
Total	131	100.0	100.0	

Source: Own survey, 2021

Regarding the gender of the respondents, the females contribute 35.1% of the total participants and the remaining 64.9% consists of male respondents.

Table 4.3: Marital status of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Single	44	33.6	33.6	33.6
Valid Married	87	66.4	66.4	100.0
Total	131	100.0	100.0	

Source: Own survey, 2021

Regarding the marital status of the respondents, the single ones contribute to 33.6% of the total participants and the remaining 66.4% consists of married respondents.

Table 4.4: Age of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than 23	3	2.3	2.3	2.3
25-35	66	50.4	50.4	52.7
Valid 35-45	49	37.4	37.4	90.1
more than 45	13	9.9	9.9	100.0
Total	131	100.0	100.0	

Source: Own survey, 2021

The respondents whose age is less than 23 years consists 23% of the total sample size. And 50.7% is consisted by those whose ages are 25-35. Respondents whose age is 35-45 are 37.45 and those more than 45 are 13%. Hence it indicates that the age composition of the respondents is dominated by the young population.

Table 4.5: Years of experience of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Less than1 year	2	1.5	1.5	1.5
1-5 years	19	14.5	14.5	16.0
Valid More than 5 years	110	84.0	84.0	100.0
Total	131	100.0	100.0	

Source: Own survey, 2021

Employee's years of experience aim to know about the number of years that the respondents have been working in Ethio telecom. The results show that majority of the respondents were working in Ethio telecom for more than five years. As it can be seen 15% of the employees have less than one year experience and 14.5% have one up to five years experience 84% have more than five years experience.

Table 4.6: Current working division of respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Sales division	23	17.6	17.6	17.6
Marketing division	26	19.8	19.8	37.4
Finance division	28	21.4	21.4	58.8
IS division	14	10.7	10.7	69.5
Valid HR division	17	13.0	13.0	82.4
Customer experience and Quality assurance division	6	4.6	4.6	87.0
Network division	17	13.0	13.0	100.0
Total	131	100.0	100.0	

Source: Own survey, 2021

The respondents 17.6% are from sales division and those from marketing are 19.8%. From Finance division which are 21.4% are those that contributed more. From IS division 10.7 % contributed and both HR division and Network division contributed 13% each. The remaining 4.6% are from customer experience and quality assurance division.

4.3 Descriptive Statistics

The following section shows the analyzed frequency of distribution of the responses on the questionnaire items on the dependent and independent variables based on responses. As it was explained above the questionnaire which was a Likert type statement was coded putted into Statistical Package for Social Science (SPSS) and was analyzed

1. Expansion of Functionality

Table 4.7: Descriptive statistics Expansion of functionality

	N	Mean	Std. Deviation
When working on IT projects Conceiving new functionalities always happens.	131	3.37	.952
New functionalities were conceived on the E-top up/ mobile money project.	131	3.19	.989
Conceiving new functionalities is the reason many IT projects are not completed on time.	131	3.32	.904
Ambiguity in the specifications of IT projects always happens.	131	3.81	.916
Ambiguity in the specification has happened in the E-top up/ mobile money project.	131	4.07	.885
Ambiguity in the specifications of IT projects is the reason many IT projects are not completed on time.	131	4.56	.877
Technology advancement during the execution of the E-top up/ Mobile money project has happened.	131	3.56	.984
Technology advances during the execution of IT projects are a reason many projects are not completed on time.	131	3.67	.973

Source: Own survey, 2021

Regarding Expansion of functionality respondents were asked whether they 'Strongly agreed Agreed, Neutral, and Disagreed or strongly disagreed based on the eight questions shown in the table above. Item number one has a mean of 3.37 and std. deviation of 0.952 showing that most of the respondents are neutral; item number two has a mean of 3.19 and std. deviation of 0.989 showing that showing that most of the respondents are neutral, item number three has a mean of 3.32 and std. deviation of 0.904 showing that most of the respondents are neutral, number four has a mean of 3.81 and std. deviation of 0.916 showing that most of the respondents are in agreement, item number five has a mean of 4.07 and std. deviation of 0.885 showing that most of the respondents are in agreement, item number six has a mean of 4.56 and std. deviation of 0.877 showing that most of the respondents are in agreement, item number seven has a mean of 3.56 and std. deviation of 0.984 showing that most of the respondents are in agreement and item number eight has a mean of 3.67 and std. deviation of 0.973 showing that most of the

respondents are in agreement. It can be observed that the respondents agree that expansion of functionality contribute for delay in IT projects.

2. One Solution fits all syndromes

Table 4.8: Descriptive statistics one solution fits all syndrome

	N	Mean	Std. Deviation
Ethio telecom has limited software platforms for all IT projects.	131	2.89	1.090
Ethio telecom has used the same software platform for the E-top up/ Mobile money project.	131	2.63	1.024
Most workers are resistant to other's opinions at Ethio telecom.	131	3.08	1.130
There is a lack of knowledge of other software solutions.	131	2.90	1.007
Ethio telecom is aware of the latest software solutions but lacks skilled/experienced personnel to run them.	131	3.11	0.955
Ethio telecom uses project management techniques, equipment, and process enhancing tools to manage IT projects.	131	3.40	1.013
Ethio telecom has used improper project management techniques, equipment, and process enhancing tools for the E-top up/ Mobile money project.	131	3.19	0.978

Source: Own survey, 2021

Regarding One solution fits all syndrome respondents were asked whether they 'Strongly agreed Agreed, Neutral, and Disagreed or strongly disagreed based on the seven questions shown in the table above. Item number one has a mean of 2.89 and std. deviation of 1.090 showing that most of the respondents are neutral ; item number two has a mean of 2.63 and std. deviation of 1.024 showing that showing that most of the respondents are neutral, item number three has a mean of 3.08 and std. deviation of 1.130 showing that most of the respondents are neutral, number four has a mean of 2.90 and std. deviation of 1.007 showing that most of the respondents are neutral, item number five has a mean of 3.11 and std. deviation of 0.995 showing that most of the respondents are neutral, item number six has a mean of 3.40 and std. deviation of 1.013 showing that most of the respondents are approximately in agreement, item number seven has a mean of

3.19 and std. deviation of 0.978 showing that most of the respondents are neutral . It can be observed that the respondents are neutral concerning one solution fits all syndrome.

3. Tension between customers and developers

Table 4.9: Descriptive statistics tension between customers and developers

	N	Mean	Std. Deviation
There was a lake of trust between customers and developers on the E-top up/ Mobile money project.	131	3.38	.926
There was Poor communication between customers and developers on the E-top up/ Mobile money project.	131	3.44	.875
The working environment for the E-top up/ Mobile money project is not comfortable.	131	3.87	.979
Conflict between workers often arose when working on E-top up/ Mobile money project.	131	4.11	.876
The customers took too much time to make decisions concerning the E-top up/ Mobile money project.	131	4.60	.842
Dependency delays are a reason for delays in IT projects.	131	3.47	.971
Dependency delays have happened on the E-top up/ Mobile money project.	131	3.15	.904

Source: Own survey, 2021

Regarding tension between customer and developer were asked whether they `Strongly agreed, Agreed, Neutral, and Disagreed or strongly disagreed based on the seven questions shown in the table above. Item number one has a mean of 3.38 and std. deviation of 0.926 showing that most of the respondents are neutral ; item number two has a mean of 3.44 and std. deviation of 0.875 showing that most of the respondents are approximately in agreement, item number three has a mean of 3.87 and std. deviation of 0.979 showing that most of the respondents are in agreement, number four has a mean of 4.11 and std. deviation of 0.876 showing that most of the respondents are in agreement, item number five has a mean of 4.60 and std. deviation of 0.842 showing that most of the respondents strongly agree, item number six has a mean of 3.47 and std. deviation of 0.971 showing that most of the respondents are approximately in agreement, item number seven

has a mean of 3.15 and std. deviation of 0.904 showing that most of the respondents are neutral . It can be concluded that the respondents are in agreement that tension between customers and developers is a reason for IT projects delay.

4. Mediocre personnel

Table 4.10: Descriptive statistics mediocre personnel

	N	Mean	Std. Deviation
Poor estimation of needed personnel always happens at Ethio telecom.	131	3.85	.890
Poor estimation of needed personnel is a reason for IT projects delay.	131	2.20	.881
The project scope and the number of individuals hired to do the E-top up/ Mobile money project are not proportional.	131	2.48	.956
There was insufficiently qualified personnel for the E-top up/ Mobile money project.	131	3.21	1.021
Most of the workers on the E-top up/ Mobile money project lacked the knowledge/experience to achieve the project objectives.	131	3.48	.748
There was a role conflict between workers on E-top up/ Mobile money project.	131	2.75	1.084
The workers that were participating in the E-top up/ Mobile money project were also participating in other projects.	131	3.54	.704
There were personnel that were part of the E-top up/ Mobile money project that has left the company in the middle.	131	3.29	.759

Source: Own survey, 2021

Regarding mediocre personnel respondents were asked whether they `Strongly agreed, Agreed, Neutral, and Disagreed or strongly disagreed based on the eight questions shown in the table above. Item number one has a mean of 3.85 and std. deviation of 0.890 showing that most of the respondents are in agreement; item number two has a mean of 2.20 and std. deviation of 0.881 showing that showing that most of the respondents are in disagreement, item number three has a mean of 2.48 and std. deviation of 0.956 showing that most of the respondents are approximately neutral, number four has a mean of 3.21 and std. deviation of 1.021 showing that most of the respondents are in neutral, item number five has a mean of 3.48 and std. deviation of 0.748 showing that most of the respondents are in agreement, item number six has a mean of 2.75 and

std. deviation of 1.084 showing that most of the respondents are in neutral, item number seven has a mean of 3.54 and std. deviation of 0.704 showing that most of the respondents are in agreement and item number eight has a mean of 3.29 and std. deviation of 0.759 showing that most of the respondents are neutral. It can be observed that the respondents are neutral on the fact that mediocre personnel contribute for delay in IT projects.

5. Overly optimistic schedule

Table 4.11: Descriptive statistics overly optimistic schedule

	N	Mean	Std. Deviation
Neglecting of quality control has happened on the E-top up/ Mobile money project because of time pressure	131	3.77	.970
There was an improper definition of project scope in the E-top up/ Mobile money project.	131	3.55	.921
Ethio telecom uses different scheduling mechanisms for different projects.	131	4.07	.840
The methods used for scheduling of E-top up/mobile money project are not proper.	131	4.01	.889
Lack of meticulous testing plans to ensure quality happens because of an overly optimistic schedule.	131	3.91	.911
Lack of meticulous testing plans to ensure quality of IT projects always happens at Ethio telecom.	131	4.29	.893
Lack of meticulous testing plans to ensure the quality has happened on the E-top up/ Mobile money project.	131	4.21	.909

Source: Own survey, 2021

Regarding overly optimistic schedule the respondents were asked whether they 'Strongly agreed, Agreed, Neutral, and Disagreed or strongly disagreed based on the seven questions shown in the table above. Item number one has a mean of 3.77 and std. deviation of 0.970 showing that most of the respondents are in agreement ; item number two has a mean of 3.55 and std. deviation of 0.921 showing that most of the respondents are in agreement, item number three has a mean of 4.07 and std. deviation of 0.840 showing that most of the respondents are in agreement, number four has a mean of 4.01 and std. deviation of 0.889 showing that most of the respondents are in

agreement, item number five has a mean of 3.91 and std. deviation of 0.911 showing that most of the respondents are in agreement, item number six has a mean of 4.29 and std. deviation of 0.893 showing that most of the respondents are in agreement, item number seven has a mean of 4.21 and std. deviation of 0.909 showing that most of the respondents are in agreement. It can be concluded that the respondents are in agreement that overly optimistic schedule is a reason for IT projects delay.

4.4 Normality test

Test of normality of distribution can be checked using skewness and kurtosis. It is said that the skewness value should be between -2 and +2 and the kurtosis value should be between -7 and +7. As it can be seen in the below table the skewness values are between -2 and +2 and kurtosis is between -7 and +7. Therefore it can be concluded that the data is normally distributed.

Table 4.12: Normality test

	N	Skewness		Kurtosis	
	Statistic	Statistic	Std.Error	Statistic	Std.Error
Overly optimistic schedule	131	1.064	.212	2.250	.420
Tension between customers and developers	131	-.176	.212	.169	.420
Expansion of functionality	131	-.092	.212	-.534	.420
Mediocre personnel	131	.525	.212	1.896	.420
One solution fits all syndrome	131	.128	.212	.826	.420
Postpone longer, detain	131	.053	.212	-.446	.420

Source: Own survey, 2021

4.5 Multi Collinearity

Regression programs can compute variance inflation factors (VIF) for each variable and as a rule of thumb; VIF above 5.0 suggests problems with multi Collinearity. Field (2009), values for “Tolerance” below 0.1 indicate serious problems, although several statisticians suggest that values for “Tolerance” below 0.2 are worthy of concern. Accordingly, as it can be seen below,

multi Collinearity is not the problem of this model, because VIF (variance inflation factor) of the model is well less than 5.0 and the tolerance is not less than 0.10. The value of VIF ranges, between 1.217 to 4.603 and the tolerance of the variables ranges between 0.822 and 0.217. Therefore, the variables are not overlapped and they are free from Collinearity effect.

Table 4.13: Multi Collinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	Expansion of Functionality	.449	2.225
	One solution fits all syndromes	.801	1.249
	Tension between customers and developers	.822	1.217
	Mediocre personnel	.293	3.407
	Overly optimistic schedule	.217	4.603
A	Dependent Variable: Postpone, Linger, Detain		

Source: Own survey, 2021

4.6 Inferential Analysis

Correlation Analysis

Correlations are the measure of the linear relationship between the variables. A correlation coefficient has a value ranging from -1 to 1. Values that are closer to the absolute value of 1 indicate that there is a strong relationship between the variables being correlated whereas values closer to 0 indicates that there is little or no linear relationship. As described by Andy (2006), the correlation is a commonly used to quantify the size of an effect: values of ± 0.1 represent a small effect, ± 0.3 is a medium effect and ± 0.5 is a large effect. Correlation analysis does show the relationship between the variables of interest, to answer the proposed research questions the following correlation analysis is undertaken. As it can be seen a positive correlation is observed meaning that as one variable increases the other one does too.

Table 4.14: Correlation

	Overly optimistic schedule	Tension between customers and developers	Expansion of functionality	Mediocre personnel	One solution fits all syndromes	Postpone, Linger, Detain
Overly optimistic schedule	1	.330**	.703**	.832**	.369**	.694**
Tension between customers and developers	.330**	1	.389**	.188*	.120	.294**
Expansion of functionality	.703**	.389**	1	.555**	.409**	.921**
Mediocre personnel	.832**	.188*	.555**	1	.372**	.530**
One solution fits all syndromes	.369**	.120	.409**	.372**	1	.388**
Postpone, Linger, Detain	.694**	.294**	.921**	.530**	.388**	1
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Source: Own survey, 2021

As the table indicates, the Correlation coefficient between Expansion of functionality and Postpone, Linger, Detain is found to be significant ($r = 0.921^{**}$, $p < 0.05$) showing strong relationship and the Correlation coefficient between One solution fits all syndromes and Postpone, Linger, Detain is found to be significant ($r = 0.388^{**}$, $p < 0.05$) which shows that there is medium relationship between the variables. The Correlation Tension between customers and developers and Postpone, Linger, Detain indicated little medium relationship between the variables ($r = 0.294^{**}$, $p < 0.05$). The Correlation Mediocre personnel and Postpone, Linger, Detain indicated strong relationship between the variables ($r = 0.530^{**}$, $p < 0.05$) and also the Correlation Overly optimistic schedule and Postpone, Linger, Detain indicated strong relationship between the variables ($r = 0.694^{**}$, $p < 0.05$).

4.7 Multiple Regression Analysis

Table 4.15: Multiple regression analysis

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.928 ^a	.861	.856	1.34712	.861	155.057	5	125	.000
A. Predictors: (Constant), Expansion of Functionality, One solution fits all syndromes, Tension between customers and developers, Mediocre personnel, Overly optimistic schedule									

Source: Own survey, 2021

The above table shows the model summary of this study. The R value shows the total correlation of all the independent variables with the dependent variable. In this case, the correlation of all the independent variables i.e.), Expansion of Functionality, One solution fits all syndromes, Tension between customers and developers, Mediocre personnel, Overly optimistic schedule with the dependent variable which are Postpone, Linger, Detain is 0.928 indicating that there is a strong correlation between independent and dependent variable.

R square shows the total effect of all independent variables on the dependent variable, the value of R square is 0.861. This value shows that 86.1 % of Postpone, Linger, and Detain are caused by the independent variables and the remaining is caused by other unidentified variables.

Table 4.16: ANOVA^a

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	1406.943	5	281.389	155.057	.000 ^b
Residual	226.843	125	1.815		
Total	1633.786	130			
A. Dependent Variable: Postpone, Linger, and Detain					
B. Predictors: (Constant),), Expansion of Functionality, One solution fits all syndromes, Tension between customers and developers, Mediocre personnel, Overly optimistic schedule					

Source: Own survey, 2021

The ANOVA table, shows the overall model significance, and this board help us to make sure the above model summary table is statistically significant predictor of the outcome. It can be concluded as; the overall regression model is significant.

Table 4.17: Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	-2.152	1.042		-2.065	.041
Expansion of Functionality	.554	.031	.877	17.637	.000
One solution fits all syndromes	.007	.032	.008	.202	.840
Tension between customers and developers	-.072	.029	-.091	-2.485	.014
Mediocre personnel	-.102	.064	-.098	-1.590	.114
Overly optimistic schedule	.191	.073	.186	2.604	.010
a. Dependent Variable: Postpone, Linger, and Detain					

Source: Own survey, 2021

$$Y = -2.152 + 0.877 X_1 + 0.008 X_2 + -0.091 X_3 + -0.098 X_4 + 0.186 X_5$$

$$Y = -2.152 + 0.877 (\text{Expansion of Functionality}) + 0.008 (\text{One solution fits all syndromes}) + -0.091 (\text{Tension between customers and developers}) + -0.098 (\text{Mediocre personnel}) + 0.186 (\text{Overly optimistic schedule})$$

The above coefficients table shows the individual beta values of each independent variable. The beta value shows the effect of each independent variable on the dependent variable. The beta value of Expansion of Functionality is ($\beta = 0.877$) which shows that by keeping other factors constant, 1 unit of Expansion of Functionality will cause a 0.877 unit increase change in Postpone, Linger, and Detain. The beta value of One solution fits all syndromes is ($\beta = 0.008$) which shows that by keeping other factors constant, 1 unit of One solution fits all syndromes will cause a 0.008 unit increase change in Postpone, Linger, and Detain. The beta value of

Tension between customers and developers is ($\beta=-0.091$) which shows that by keeping other factors constant, 1 unit of Tension between customers and developers will cause a -0.022unit decrease change in Postpone, Linger, and Detain. The beta value of Mediocre personnel is ($\beta = -0.098$) which shows that by keeping other factors constant, 1 unit of Mediocre personnel will cause a -0.098 unit decrease change in Postpone, Linger, and Detain. The beta value of Overly optimistic schedule is ($\beta = 0.186$) which shows that by keeping other factors constant, 1 unit of Overly optimistic schedule will cause a 0.186 unit increase change in Postpone, Linger, and Detain. Since we focus on the absolute value of the Beta coefficient; Expansion of Functionality comes first followed by overly optimistic schedule, mediocre personnel, Tension between customers and developers, one solution fits all syndromes in descending order.

Therefore based on the results found

- H_{a1} : Expansion of functionality leads to postpone, detain, linger. Sig= 0.000 < 0.05 = **Supported**
- H_{a2} : Overly optimistic schedules put pressure leading towards detains, postpone, linger. Sig= 0.010 < 0.05 = **Supported**
- H_{o3} : The one solution fits all syndrome doesn't results in linger postpone, detain. Sig= 0.840 > 0.05 = **Supported**
- H_{a4} : Tension between customers and developers causes detain, postpone, linger. Sig= 0.014 < 0.05 = **Supported**
- H_{o5} : A mediocre personnel doesn't leads to postpone, detain, linger. Sig= 0.114 > 0.05 = **Supported**

For Expansion of functionality the alternative hypothesis is supported because the significance is below 0.05 therefore Expansion of functionality leads towards postpone detain linger. For Overly optimistic schedule also the alternative hypothesis is accepted since the significance is less than 0.05; therefore overly optimistic schedule leads towards postpone detain and linger. For the one solution fits all syndrome the null hypothesis is accepted because the significance above 0.05; therefore one solution fits all syndrome doesn't lead towards postpone detain linger. The fourth alternative hypothesis is also supported which is tension between customers and developers leads towards detain postpone linger because the significance is below 0.05. The fifth null hypothesis

is supported which is a mediocre personnel doesn't lead towards detain postpone linger. This is because the significance is above 0.05.

Chapter Five: Summery of findings, conclusion and Recommendation

Introduction

In this chapter conclusion of the study, summary on major findings, and, recommendation based on the research is presented and forwarded.

5.1 Summary of findings

The findings of the study revealed that Expansion of functionality, overly optimistic schedules, and one Tension between customers and developers results in delay of IT projects at Ethio telecom. As it is said before the world is evolving more and more everyday and as problems arise the world is trying to make our life easier by forwarding more advanced and new technologies and solutions. Based on the results found above tension between customers and developers, Poor communication, and not having a motivating working environment makes it harder for workers in being effective and meeting deadlines.

The results clearly shows that expansion of functionality needs a great focus; although a company might experience expansion of functionalities in project which might add good things; there are also some down sides. Because of overly optimistic schedule; Neglecting quality control and lack of meticulous testing is very dangerous because problems with the projects will be recovered after the project has been launched which is also a bad figure for the company. Not defining the project scope it will lead towards assignment of low working force. If there is a shortage of workers the same personnel will be forced to work on many projects at the same time since there are limited skilled or experienced workers; the pressure on the workers might lead them in leaving their job in the middle or it might lead them to be more carless since they are expected to do more. It is preferred that personnel's are assigned to a project after the scope of the project is properly defined and the numbers of personnel needed are identified.

It can be seen that good communication between workers and good and comfortable working environment for the developers and customers is very important. If there is good communication and if all personnel that are contributing in the project are very dedicated to achieving the project on time; the percentage of delay will decrease very much.

Not being able to use good planning method which also includes proper management techniques, equipment, and process enhancing tools etc also has a great side effect on completion of projects on time.

5.2 Conclusion

The objective of this study was to determine the causes linked to Ethio Telecom's production and the delay in their IT projects. By explaining this causation, it helps minimize the chances of facing a delay in the future and minimize loss of time, cost, and resources. This research used a quantitative approach and it also used an explanatory research design. A questioner was prepared and was distributed to 164 employees. The recovered questioners were only 131. By using SPSS the data was analyzed and out of the five hypotheses three alternative hypotheses and two null hypotheses were supported.

The results showed that expansion of functionality, tension between customers and developers overly optimistic schedule, mediocre personnel and one solution fits all syndromes contributed 86.1 % of Postpone, Linger, and Detain in IT projects at Ethio telecom. It can be observed on the descriptive statistics that the respondents agreed highly when it comes to these three factors

Based on the resulted found it can be concluded that although conceiving new functionalities is a good thing ; it also needs a great focus so that it will not lead towards delay. Many researchers have expressed this as scope creep. Mehmet Karakoc and Edward Williams gave an overview of widely-used delay analysis methodologies in engineering projects and on their way they identified reasons for delays in IT projects; Expansion of functionality or in other words scope creep was one of the causes that were identified. According to Goldratt (2002) expansion of functionality is one of the eleven top causes of delay in IT projects. Bloch, M., Blumberg, S., & Laartz, J. (2012) also identified expansion of functionality as one of the three top causes of delay identified in their research. Therefore we can conclude that expansion of functionality takes a great place being a cause of delay and it needs a great focus.

The other factor that was identified in this research as a cause of delay is overly optimistic schedule. Most of the time quality control and other testing are skipped because of overly optimistic schedule which again is going to contribute in additional time since problems are discovered later. Here also a lot of other researchers have identified it as a great cause of delay in

IT projects. Kusumadarma et.al (2019) mainly focused on proper scheduling of a project because scheduling was identified as the main cause of delay. Jerry Manas who is the writer of This “Bigger than a Breadbox: 10 Tips for better project estimates, Pat2,” who is an expert on project management have forwarded six causes of project delay; unrealistic deadline or in other words overly optimistic schedule is one of the causes identified. Kusumadarma et.al (2019) has researched with the title Developing Project Schedule in Telecommunication Projects Using Critical Path Method (CPM) and this was because scheduling mechanisms need deep focus and the project manager need to very smart when preparing the schedule. Genuchten (1991) described reasons for a delay in software development which was carried out in 1988 and 1989 in a software engineering department. He mainly identified overly optimistic schedule as the big reason that IT projects are not completed on time.

The third factor that contributed in delay in this research was tension between customer and developers. Working in an environment that is uncomfortable or working in an environment where there is poor communication leads towards postpone, linger, detain. Many project management professionals has forwarded this as one of the causes of delay. Unengaged project sponsors and stakeholders since they are less involved and there will be a gap in communication between project workers and project stakeholders and sponsors leading towards project delay. Lisa McQuerrey is a business writer since 1987 she has forwarded five causes of delay in IT projects and lack of cooperation is one of the five reasons forwarded. It says that Project team members need to be able to communicate effectively with each other. If one team member or department misses a deadline, it sets up a situation where the others will not be able to make it on time which is also called dependency delay. Also Mehmet Karakoc and Edward Williams gave an overview of widely-used delay analysis methodologies in engineering projects and on their way they identified reasons for delays in IT projects; out of the three causes one of it is tension between customers and developers. Another researchers Bloch, M., Blumberg, S., & Laartz, J. (2012) had identified tension between customers and developers as one of the three top causes of delay identified in their research.

.

5.3 Recommendations

As a solution to the upper factors that are reasons for a delay in IT projects the following recommendations are forwarded.

- **Expansion of functionality:** -when running an IT project there is a chance that new functionalities will be conceived or the project manager might want to try or do technology advancement. Therefore it is recommended that
 - During the project identification and planning stage the project manager should always include this as a risk and when preparing a schedule this should be included so that there won't be any new surprises that will lead towards postpone, linger or detain.
 - The project manager should clearly identify the project's goal and objectives; in this case even though new functionalities arise the workers will be able to focus deeply on the goal and objective and will be able to skip this problem easily since they are aware and are deeply involved.
- **Tension between customers and developers:** - Workers of a company have a great power in making a project to be completed successfully or not. The workers of a company are affected by the working environment and the interaction between workers. Trust is a very important thing in a working environment. If the workers trust each other it makes it easier to communicate which in return makes it easier to make decisions on time or early. If decisions are made on time or early it will not lead towards dependency delay. Having a comfortable working environment is very motivating which makes the workers enjoy their work more leading towards success. To avoid tension between customers and developers it is recommended to do the following;
 - As the leader the project manager is responsible in making the working environment attractive and making ways for the workers to communicate with each other more easily.
 - The project manager should focus on organization behavior. This is very important and is advantageous to make projects meet the deadline or become more successful.

- The project manager should prepare trainings, events and short meetings so that the workers will get to know each other and there will be ease flow of information.
- **Overly Optimistic schedule:** - The following recommendations are forwarded Overly optimistic schedule;
 - Proper scheduling should be prepared in collaboration with the project manager and the workers involved.
 - Neglecting quality control because of overly optimistic schedule is very dangerous. Therefore the project manager needs to make sure quality control has been performed before the project is forwarded to the next phase.
 - The project manager needs to define the proper project goal, list out all tasks, identify individuals participating in the project, assign tasks to each individual and also needs to constantly check on due dates for each tasks so that there are no lags.
 - Focusing on critical tasks is also very important. Checking the status of the project and updating the progress of the project consistently and sharing it with the individuals involved in the project will be very helpful to meet deadline.

Reference

Al-Ahmad, W., Al-Fagih, K., Khanfar, K., Alsamara, K., Abuleil, S. & Abu-Salem, H. (2009).A taxonomy of an IT project failure: root causes. *International Management Review*, 5(1), 93-104.

[Ajmal, M.](#), [Khan, M.](#) and [Al-Yafei, H.](#) (2020), "Exploring factors behind project scope creep – stakeholders' perspective", *International Journal of Managing Projects in Business*, Vol. 13 No. 3, pp. 483-504. <https://doi.o10-2018-0228rg/10.1108/IJMPB->

Ahmed Almarzooqi(2013). Infusing technology into third-world countries.ICGL conferences, <http://www.icglconferences.com/articles/infusing-technology-into-third-world-countries/>

Baars, W. (2006). Top 11 causes of delays in IT projects. *Project Management Handbook* (pp. A 1-A2). The Hague: Data Achieving and Network Services.<http://www.projectmanagement-training.net>

Belassi, W., &Tukel, O. I. (1996). A new framework for determining critical success/failure factors in projects. *International Journal of Project Management*, 14(3), 141-151.

Bloch, M., Blumberg, S., &Laartz, J. (2012). *Delivering Large Scale IT Projects On Time, On Budget, and On Value*. McKinsey & Company

Clarke, L. (1994). *The essence of change*.Herts, UK: Prentice-Hall.

De Swart. (2016). *Root Cause Analysis for Project Delays at a High Tech Company*.Maters Thesis, Eindhoven University of Technology, Netherland.

Enas Mohammed (2017).An Assessment of the Causes of Cost Overrun and Schedule Delay on an IT Project: The Case of NBE Application Virtualization Project, Addis Ababa University, Ethiopia.

Five main causes of project delay in IT industry and how to avoid them. [Blog post]. Retrieved from<https://www.projectpractical.com/5-main-causes-of-project-delay-in-it-industry-and-how-to-avoid-them/>

Genuchten, van, M. J. I. M. (1991). Why is Software Late? : An Empirical Study of Reasons for Delay in Software Development. *IEEE Transactions on Software Engineering*, 17(6), 582-590.

Gezahegn Ketema (2018). An Assessment of the challenges and opportunities on the implementation of E-Top Up service Project; the case of Ethio Telecom, Addis Ababa University, Ethiopia.

Golan, R., & Ziarko, W. (1995). Stock Market Analysis Utilizing Rough Set Theory, ProQuest. Master Thesis. Saskatchewan: University of Regina.

Guan, D. (2007). Conflicts in the project environment. Paper presented at PMI® Global Congress 2007—Asia Pacific, Hong Kong, People's Republic of China. Newtown Square, PA: Project Management Institute.

Hughes, D. L., et al. (2016). Project Failure and Its Contributing Factors. Success and Failure of IS/IT Projects, Springer: 3-25.

Kissflow (April 8, 2021), *How to avoid and overcome project delay*. [Project management software tool] Retrieved from <https://kissflow.com/project/how-to-avoid-project-delays/>

Leary, M.R. (2004). Introduction to Behavioral Research Methods. 4th Edition, Pearson Education, Inc., Boston.

Leyna O'Quinn (January 24, 2019). Six reasons why projects are late. [Blog post]. Retrieved from <https://blog.planview.com/6-reasons-why-projects-are-late/>

Lisa McQuerrey (2018), What causes project delay?. *University of Wisconsin-Madison; Project Prioritization*. Retrieved from <https://yourbusiness.azcentral.com/causes-project-delay-16867.html>

Lopes, L., & Vico Mañas, A. (2013), Delays In IT Projects due to failures in the stakeholders Management. *Future studies research journal*, 5(2), 158-185.

Mathias Høylandskjær (2018). Managerial Perceptions of Scope Creep in Projects: A Multiple-Case Study, UMEA University, Sweden.

O'Gorman, K. D., & MacIntosh, R. (2015). Research methods for business and management. (2nd ed.). Goodfellow Publishers Limited.

Peffers, K., Gengler, C.E., & Tuunanen, T. (2003). Extending critical success factors methodology to facilitate broadly participative information systems planning. *Journal of Management Information Systems*, 20(1), 51–85.

Prater, J., Kirytopoulos, K. and Ma, T. (2017), "Optimism bias within the project management context: A systematic quantitative literature review", *International Journal of Managing Projects in Business*, Vol. 10 No. 2, pp. 370-385.

Rafat,& Ahmed. (2017). Empirical Study on Causes of Project Delays. *International Journal of Industrial and Manufacturing Engineering*, 11(1), 166-174.

Roberts, C. (2014). Information Technology Project Management of the New College of Education Facility at Western Kentucky University

Mehmet Karakoc and Edward Williams (September 2018), Delay in IT projects and delay analysis.[Blog post].Retrieved from <https://www.scl.org/articles/10298-delays-in-it-projects-and-delay-analysis>.

Appendices

Questioner Distributed to Respondents



Addis Ababa University

School of commerce

Master of Arts (MA) in Project Management

Dear Participant

This questionnaire is designed to assess causes of delay in IT projects at Ethio telecom. It mainly focuses on the E top up and Mobile money projects. The purpose of this questionnaire is to collect data from employees of Ethio telecom in Addis Ababa for conducting a thesis on the title.

The information obtained will be used for academic purposes only; all information and feedback will be kept strictly confidential and will not be misused for any other purpose. So, I am kindly requesting you to respond to each question honestly.

Thank you very much for participating!!!

Part I: General information about the respondent. Please tick the correct answer below for each question.

1. Gender Male ☐ Female ☐
2. Age <25 ☐ 25 – 35 ☐ 35-45 ☐ >45 ☐
3. Marital status Single ☐ Married ☐
4. No of years of employment at Ethio telecom
 < 1 year ☐ 1-5 years ☐ >5years ☐
5. Current working department
 - Sales division ☐
 - Marketing division ☐
 - Finance division ☐
 - IS division ☐
 - HR division ☐
 - Customer experience & Quality assurance division ☐
 - Network division ☐

Part Two: Please tick under the right choice.

NO	Dimensions	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
		5	4	3	2	1
i)	Expansion of functionality					
1	When working on IT projects Conceiving new functionalities always happens.					
2	New functionalities were conceived on the E-top up/ mobile money project.					
3	Conceiving new functionalities is the reason many IT projects are not completed on time.					
4	Ambiguity in the specifications of IT					

	projects always happens.					
5	Ambiguity in the specification has happened in the E-top up/ mobile money project.					
6	Ambiguity in the specifications of IT projects is the reason many IT projects are not completed on time.					
7	Technology advancement during the execution of the E-top up/ Mobile money project has happened.					
8	Technology advances during the execution of IT projects are a reason many projects are not completed on time.					
ii)	One solution fits all syndromes					
1	Ethio telecom has limited software platforms for all IT projects.					
2	Ethio telecom has used the same software platform for the E-top up/ Mobile money project.					
3	Most workers are resistant to other's opinions at Ethio telecom.					
4	There is a lack of knowledge of other software solutions.					
5	Ethio telecom is aware of the latest software solutions but lacks skilled/experienced personnel to run them.					
6	Ethio telecom uses project management techniques, equipment, and process enhancing tools to manage IT projects.					
7	Ethio telecom has used improper project management techniques, equipment, and process enhancing tools for the E-top up/					

	Mobile money project.					
iii)	Tension between customers and developers					
1	There was a lack of trust between customers and developers on the E-top up/ Mobile money project.					
2	There was Poor communication between customers and developers on the E-top up/ Mobile money project.					
3	The working environment for the E-top up/ Mobile money project is not comfortable.					
4	Conflict between workers often arose when working on E-top up/ Mobile money project.					
5	The customers took too much time to make decisions concerning the E-top up/ Mobile money project.					
6	Dependency delays are a reason for delays in IT projects.					
7	Dependency delays have happened on the E-top up/ Mobile money project.					
iv)	Mediocre personnel					
1	Poor estimation of needed personnel always happens at Ethio telecom.					
2	Poor estimation of needed personnel is a reason for IT projects delay.					
3	The project scope and the number of individuals hired to do the E-top up/ Mobile money project are not proportional.					
4	There was insufficiently qualified personnel for the E-top up/ Mobile money					

	project.					
5	Most of the workers on the E-top up/ Mobile money project lacked the knowledge/experience to achieve the project objectives.					
6	There was a role conflict between workers on E-top up/ Mobile money project.					
7	The workers that were participating in the E-top up/ Mobile money project were also participating in other projects.					
8	There was personnel that was part of the E-top up/ Mobile money project that has left the company in the middle.					
V)	Overly optimistic schedule					
1	Neglecting of quality control has happened on the E-top up/ Mobile money project because of time pressure.					
2	There was an improper definition of project scope in the E-top up/ Mobile money project.					
3	Ethio telecom uses different scheduling mechanisms for different projects.					
4	The methods used for scheduling of E-top up/mobile money project are not proper.					
5	Lack of meticulous testing plans to ensure quality happens because of an overly optimistic schedule.					
6	Lack of meticulous testing plans to ensure quality of IT projects always happens at Ethio telecom.					
7	Lack of meticulous testing plans to ensure the quality has happened on the E-top up/ Mobile money project.					

Vi)	Postpone, Linger, Detain				
1	The workers of Ethio telecom are aware of Postpone, linger, detain.				
2	The workers of Ethio telecom have a clear insight of the side effect of Postpone, linger, detain.				
3	Postpone, linger, detain often happens in IT projects at Ethio telecom.				
4	Postpone, linger, detain has happened on the E-top up/ mobile money projects at Ethio telecom.				