



ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
DEPARTMENT OF PROJECT MANAGEMENT

THE PRACTICE OF COMMUNICATION MANAGEMENT OF CONSTRUCTION
PROJECTS: THE CASE OF ETHIOPIAN TOLL ROADS ENTRPRISE

BY:
ERMIAS KIBRU KERALA

JUNE 2022
ADDIS ABABA

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BY:

ERMIAS KIBRU KERALA
STUDENT ID. NO: SGS/0546/2013A

A THESIS SUBMITTED TO SAINT MARY'S UNIVERSITY FOR PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR AWARD OF MASTER OF ART
IN PROJECT MANAGEMENT

JUNE 2022
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APPROVED BY BOARD OF EXAMINERS

_____	_____
Dean, Graduate Studies	Signature
_____	_____
Advisor	Signature
_____	_____
External Examiner	Signature
_____	_____
Internal Examiner	Signature

DECLARATION

I, the undersigned, declare that this thesis is my original work, prepared under the guidance of MARU SHETE (PhD and Associate Professor). All sources of materials used for the thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any degree.

Ermias Kibru

St. Mary's University, Addis Ababa

May 30, 2022

Signature

LETTER OF CERTIFICATION

This is to certify that Ermias Kibru has conducted this project work entitled “The Practice of Communication Management of Construction Projects in Ethiopian Toll Roads enterprise” is under my supervision. This project work is original and suitable for the submission in partial fulfillment of the requirement for the award of Master of Arts Degree in Project Management.

MARU SHETE (PhD and Associate Professor)

Name of Advisor

Signature

St. Mary’s University, Addis Ababa

May 30, 2022

LIST OF ABBRIVATION

ETRE	Ethiopian Toll Roads Enterprise
PMI	Project Management Institute
SPSS	Statistical Package for Social Science
GDP	Gross Domestic Product
NBE	National Bank of Ethiopia
ISO	International Standards Organization
MOFED	Ministry of Finance and Economic Development
ERP	Enterprise Resource Planning

ACKNOWLEDGEMENT

I am greatly thankful of the support from my friend Structural Engineer Ashber Alemu for his unreserved help and encouragement in facilitating data collection process of the studied organization.

I would like to thank my advisor Maru Shete (PhD and Associate professor) for being my advisor for the MA thesis; it is an honor to be advised by the most respected person in the field like him. I would also like to thank all the participants in the study, who were willing to share their precious time during the process of filling the questionnaires. My sincere thanks go to my families and friends for the endless support and cooperation throughout my life

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ABSTRACT

At the time where project management becomes as a norm for many organizations, research suggests that communication management is one of the key areas in project management. This research, therefore, examines the current practice of communication management in construction projects in the case of the Ethiopian toll roads enterprise. In this descriptive study, questionnaire(survey) through physically distributed for all the six departments with a total of 41 samples by census survey which directly and indirectly involve in construction projects with experts/engineers, team leaders and managers and descriptive research design is adopted. The finding of the study indicates that the current practice of communication management in the study areas shows a gap with respect to the benchmark practice of Project communication principles outlined by PMI. In addition, the communication skills of team leaders and managers have been found as satisfactory and a few levels conflict, has been observed between the study organization and its stakeholders such as vendors and consultants. The communication channel, commonly used by the organization, was a telephone and verbal communication that has limitations in project management processes. Finally, the level of intention /focus given to communication management by the study organization was also enough with respect to what it should have been. Accordingly, this result the study organization is recommended to use more formal communication instead of informal, enhance the communication management process to follow communication processes outlined by PMI.

Keywords: Project management, Communication Management, Project Communication.

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CHAPTER ONE

1.Introduction

1.1. Background of the study

Communications is one of the keys acquired skills which involves exchange of information from one person to another. It is something human beings do in a daily basis to make ends meet. In Biblical times, the mighty Babylonians degenerated into mayhem while building the Tower of Babel following communication crisis among them (Genesis 11:5-8). Communication is described as the process of communicating information and common understanding from one person to another. It is derived from the Latin word *commnicre*, which means "to share" (Keyton, 2011). which the process of giving meaning from one group to another via the use of commonly understood signals. Communication governs the interaction between project stakeholders and the project manager, as well as how project members collaborate to meet the project's goals (Rodrquez, 2017). When project management fails to communicate with project stakeholders, misunderstandings might occur.

Effective project communications guarantee that the appropriate information reaches the appropriate person at the appropriate time and at a reasonable cost. Communication is essential for keeping team members, managers, and stakeholders informed and on track to achieve the project's goals, as well as recognizing issues, risks, misconceptions, and other roadblocks to completion. (PMI, 2013).

Task conflict was positively connected to project success, while improved team communication boosted the beneficial effect of task conflict. Process conflict and relationship conflict interacted poorly with project success and were negatively related to it, resulting in poor team communication (Wu, et al, 2017). Furthermore, according to the researchers, formal communication and communication willingness were favorably associated to project success, whereas informal communication had a detrimental impact on project performance. As a result, instead of employing informal communication, the authors advocate adopting formal communication among various project stakeholders and teams during the project's operation.

The construction industry makes major contributions to Ethiopia's economy, as seen by the NBE's 2020/21 annual report, which shows that the industrial sector contributed 58.8% to overall economic growth, with the construction industry accounting for

more than half of that (69.3percent). It is obvious that it is critical to the economy's continued growth.

In Ethiopia's building sector, four professional parties are typically involved: the owner (client), a licensed designer (architect or engineer), project consultancy teams, and the builder (general contractor). Several stages of construction work are dependent on these professionals' ability to communicate information upwards, downwards, and sideways, which is commonly referred to as communication (Affare, 2012). A successful construction project is dependent on effective communication between these parties.

In the context of project management, the role of project communication management application on construction projects plays a vital role in providing an information lifeline among all members of the project. Hence, this study attempts to examine the practice of project communication management, and relationship between project communication and project performance in construction projects of Ethiopian toll roads enterprise.

1.2. Background of the Company

Toll road operation entails building regionally important roads faster than would otherwise be possible, using loans to avoid road construction being stalled owing to budgetary constraints in the public works budget. The operator borrows the funds needed to build and operate the road, and the funds should be repaid with toll revenue over a set period of time, however there are some exceptions, such as perpetual toll roads (Kuramani, 1999). Ethiopia's government has launched a series of development plans and programs aimed at transforming the country from a least developed to a middle-income country by 2028 W. (2011). To attain this development target, fundamental infrastructure development, particularly in the transportation sector, has to rise at an exponential rate (MOFED, 2006). Ethiopia, according to World Bank research, invested 3% of GDP on road construction, the highest in Africa, with 269 percent rapid increase in road development over the last 20 years and promises to continue investing. The construction of new roads and the growth of express routes in the country are among the government's planned road development projects.

In such a way that, a compressive toll roads proclamation, proclamation no 843/2014, was enacted by the parliament. Ethiopian toll roads enterprise (ETRE) is established under the regulation no 301/2014 issued by councils of minsters in july,2014 as a public enterprise pursuant to the public enterprise proclamation no 25/1992 to maintain and

administer the toll roads which are built in Ethiopia. Under this proclamation ETRE, have a mandate to construct and administer service stations, fuel stations and other infrastructures which are used by the customers along the roads which are under the control of the enterprise. The enterprise starts its work by accepting its first toll road (Addis Ababa-Adama expressway) in sep.4 2007E.C. Later the enterprise consecutively hands over the DireDawa-Dwelle and Modjo-Hawassa expressway in 2011E.C and 2014 E.C. Currently the enterprise operates and maintain three toll roads with the total length of 393 kilometer over 34,000 daily traffic uses these toll road service. The enterprise has also created more than 700 jobs for many young people around those roads and positive impact on the economy through minimizing travel time and fuel consumption for the road users.

1.3. Statement of the Problem

As it is stated on the introduction part, one of the areas of project management described in principles or methodologies is communication management, which is considered to be of crucial importance to the success of the project. Among all areas the researcher found that project communication management is the most unrecognized area among all areas, which initially motivated the researcher to study so. Even if there are guiding principles and methodologies, there are unsatisfied gap remained in the subject matter. It is clear to witness the symptom of the problem in preliminary interview with construction project stakeholders in ETRE but to state the problem it is required to be based on Previous Studies that has been done on the existing knowledge.

The construction business is not a homogeneous industry; its dynamic and dispersed structure exposes construction operations to obstacles in successfully completing projects. Construction projects have a terrible image for being disjointed, with design and construction processes separated and a lack of collaboration (Yan LIU, 2006)

According to (BRE.construction communication guide, 2011) most defects in the construction industry is as the result of poor communication. For example, a poorly detailed drawing, operatives being given incorrect instructions or technical information not being available. On the other hand, Rajkumar (2010) describes the role of communication in project management as “there are no more important to the success of a project than effective communication. But Practices related to communication are not given enough attention, while at the same time communication practices are found to be associated with most of the success dimensions (Papke-Shields et al., 2010).

We are still witnessing many project failures or projects experiencing serious problems that result from improper communication management (among others Conboy, 2010; Stoica & Brouse, 2013). Activities in the field of communication management are disordered, supported mainly by project managers' intuition or neglected (Adera, 2013)

As contextual gap, some researches are done in other contexts, but not in the context of toll road service facility construction projects concerning this research. As a toll roads operator ETRE construct service facility projects but it realizes that almost all service station and other facility construction projects. But it seems, poor communications between employer, consultants, contractors and other stakeholders may suffering of the enterprise by reduction of expected revenue from the projects. Those are the major symptoms observed in ETRE and its relation to communication management are as follows: -

The first challenge that has been observed in construction projects in ETRE is the lack of 'on schedule' delivery of projects. Almost all projects have shown delay comparing with the planned time to be finished. This time delay may occur due to misunderstanding between the employer and the contractor, changes in requirement, contractors' internal issues and due to other anticipated scenarios. On the other hand, in some projects the work is temporarily posed due to conflict of interest and contractual issues which influence the overall performance of the project. So that, the root cause of such problem may be due to lack of communication management, despite its noticeable role in the overall performance of the construction project, has not been studied comprehensively and research in relation to communication in toll road service facility construction is scarce and his is the main purpose of the research went to address.

1.4 Research Objective

1.4.1 General Objective

- The general objective of this study is to assess the communication management practice and its significance for the success of the service facility construction projects in ETRE.

1.4.2 Specific Objectives

- To Assess the practice of Stakeholders identification and Management process of service facility construction projects in ETRE.
- To Assess the practice of communication plan process for service facility construction projects in ETRE.

- To examine the communication channels used for information distribution by service facility construction projects ETRE?
- To examine the practice of performance report delivery and feedback mechanism for service facility construction projects in ETRE
- To determine the Communication management contribution for the success of project with respect to the other knowledge areas in service facility construction projects in ETRE?

1.4.3 Research Questions

- How did communication plan prepare to engage all parties in the service facility construction projects in ETRE?
- How the communication management process is practiced in service facility construction projects in ETRE?
- How Communication management determine success for projects with respect to the other knowledge areas in service facility construction projects in ETRE.

1.5 Scope of the Study

The scope of this descriptive survey research is only to assess the practice of communication implementation process in construction projects and geographically in Ethiopian toll roads enterprise Adiss-Adama branch office. This result shows only the finding of communication management practice in ETRE project management team even though the results of the study can be extended and applied to other construction projects too. To collect the data a census with a Liker scale and a semi-structured interview has been applied. From the ten knowledge areas of project management knowledge areas this study focused on project communication management of ETRE project management team.

1.6 Limitation of the Study

As limitation of the research considered the practice of communication management, it shows only the findings of communication management practice in the study organization. That means the research did not clarify the magnitude of the impacts on communication management on project success.

1.7. Significance of the Study

This research is aimed to fill the gap by evaluated communication management implementation practice within construction projects communication management in Ethiopian toll roads enterprise. Specifically, this research will serve as preliminary work for further investigation on the issue. In addition, this study will also help to increase the awareness and practice of effective communication management implementation, and therefore, the study has made benefit to other organizations engaged in implementing similar project communication management. In general, this study also helps to identify which communication management practices are strong and which are the weak ones from the assessed practices.

1.8. Organization of the paper

This study paper covers the following areas: The first chapter contains the background of the study, the statement of the problem, objectives, Research questions, significance of the study, scope of the study, and limitation of the study. The second chapter which is the Literature Review containing the Introduction, Concept of communication, types of Communication, process of communication, Communication in construction industry, effective communication in Relation to Project Success, Conceptual framework. The third chapter is the Research methodology and it contains the introduction, Research Design, Target population, Sample size and sample selection, Data Collection Instruments, Pre-testing, Validity, Reliability, Procedure of Data Collection, Methods of data Analysis. Chapter four is Data analysis, presentation and interpretation. Chapter five is conclusion and recommendations containing summary of major findings, conclusion and recommendations.

CHAPTER TWO

2.Litrature Related Review

2.1. Theoretical Review

The main goal of this study's theoretical literature review was to gain insight into the origins and growth of communication, communication management, project management, communication flows, common communication sources, and communication management process by reviewing journal articles, books, and other documents in the study area.

2.1.1. Communication

Communication is transmitting something from one person to another, one or more, either verbal or non-verbal, for example, body posture or images ISO 21500, (2012). This is the literal meaning of communication and the communication in project management indicates the transmission of a message from one person to another person within the project team/s and between the project members to other organizations, persons, and stakeholders. (Barrett, 2006) correspondences as "the transmission of importance starting with one individual then onto the next or many individuals, whether verbally or non-verbally". In light of these definitions, it is reasonable to infer that correspondence includes dividing of data between individuals utilizing images, signs and conduct.

It likewise infers that correspondence doesn't just utilize composed and oral mediums yet additionally nonverbal correspondence has their crucial importance in passing on messages. (Katz, D. and Kahn, R.L, 1966) also shared the idea that the conveyed message should give meaning by defining communication as 'the exchange of information and the transmission of meaning.' The same notion of communication is also supported by Davis (2011). Referring him that, communication is 'a process of passing information and understanding from one another. In other way, (Newman and Summer, 1967) communication is "an exchange of facts, ideas, opinions or emotions by two or more persons" This definition details the aspects included in the concept of messages as facts, ideas, opinions or emotions. Majority of the authors agreed facts, ideas and opinions are not the only messages to be conveyed. So that, additional wider definition is put by (Amy M.Corvey, 2020) defined Communication as 'the process of creating, interpreting, and negotiating meaning. Communication can be verbal, nonverbal, or textual. It can be aural, visual, or even physical.

“According to this definition, communication is about meaningful message transmitting through verbal, nonverbal or textual mediums.

In general, it is possible to conclude the three fundamental thoughts shared by all scholars’ definitions. Those are communication is a process and not a one-shot activity, it involves transmission of message or information among people through symbols, verbal and non-verbal methods and the conveyed message should give meaning and create common understanding among the individuals engaged in the communication.

2.1.2. Types of Communication

Communication is classified by (Mechra,2009) simply put, the channels and methods of communication in the industry. The project plan, project charter, specifications, reports, metrics, in one hand and presentation is on the other hand are classified as formal writing and formal verbal communication respectively. In other way, memos, e-mail, notes one side and meetings, conversations on the other side categorized under informal written and informal verbal method. The author also put facial expressions as well as postures and gestures which account for about 55% of what is perceived and understood called nonverbal messages and the intensity of the voice which include the tone, pitch, and pacing of the voice account for about 38% of what is perceived and understood by others categorized as Para-verbal messages.

Another scholar (Harold Kerzner, 2017) typically, classified five types of communication or flows in a project management process” These are basically shown in two ways, the first one is upward and downward vertical internal communication with in the project team. This are sort of communication initiated by the project manager or other top management to lower-level managers or members, or from executive managers to the project manager, and it typically serves to communicate job specifics and what has to be done to the manager and another sort of communication is sent from the lower members to the top supervisors, such as team leaders, managers, and executives. This flow is critical for providing feedback on how the project is performing, progressing, and delivering reports. This allows team members to feel invested in the project and communicate their thoughts and ideas about its implementation.

The second way is horizontal and Diagonal Communication which can occur between multiple team members or managers who hold the same or similar hierarchical positions, and it allows the project team/s to develop a sense of community and secondly, communication

with other units and teams, with the primary goal of obtaining responses from subject matter experts who can assist in the resolution of a problem encountered throughout the project implementation process respectively. The fifth and last classification is external Communication which project manager usually conducts this type of communication with the project's external stakeholders or other organizations that have a connection to the ongoing project.

2.1.3. Communication process

Project communication management, according to (PMI, 2008), is a five-phase process that must be followed in order. Those are Identify Stakeholders, Plan Communications, Distribute Information, Manage Stakeholder Expectations and Report Performance.

1. Identify Stakeholders

According to the book, the first process of identifying stakeholders' entails gathering a list of stakeholders, prioritizing them based on their impact on the project, and documenting the information in a tool that can be used for future communication (PMI, 2008). According to the book, identifying stakeholders involves using inputs such as project charters, procurement documents, enterprise environmental factors, and organizational process assets to produce a stakeholder register and stakeholder management plan.

2. Plan Communications

The plan for the second phase Communication in the project implementation process refers to the planning of how, where, when, who, and why communication will take place. It's a method for determining project stakeholder information requirements and developing a communication strategy (PMI, 2013).

Communication planning uses the same inputs as the identifying stakeholder phase, but the outputs of this phase are a communication management strategy and modifications to project documents (ISO-2500). It employs the tools and techniques of communication requirements analysis, communication technologies, communication models, and communication methodologies to transform inputs into outputs.

3. Distribute information

Distribute information is a step that occurs throughout the project life cycle and in all management activities, and it entails informing stakeholders of any relevant information and managing stakeholders (PMI, 2008). In addition, the book confirms that project management plans, performance reports, and organizational process assets are used in providing

information to stakeholders. 'An organizational process assets update' is presented as the final product of this phase, using the planned communication channels and information distribution technologies.

4. Manage Stakeholder Expectations

Manage Stakeholder Expectations is a method of communicating and cooperating with stakeholders in order to meet their demands and address any difficulties that arise (PMI, 2013). Effectively managing project stakeholder expectations allows firms to organizational process assets updates, change requests, project management plan updates and project document updates.

5. Report performance

defines the final phase report's performance as "indicating to communicate every progress of the project phase, as well as any obstacles that may arise, to stakeholders and each project team." According to the book, performance reports include things like a simple status report, progress measures, projections, and performance data on things like scope, schedule, cost, and quality.

According to the book, project management plans, work performance information, work performance measurements, budget forecasts, and organizational process assets are used to deliver the "Report Performance," with performance reports, organizational process asset updates, and change requests as outputs. We employ variance analysis, forecasting methodologies, communication strategies, and reporting systems to deliver the outputs from the inputs.

2.1.4. Project Communications Management

Project communication is the exchange of project-specific information with the emphasis on creating understanding between the sender and the receiver. Effective communication is one of the most important factors contributing to the success of a project. (PMI, 2007).

As indicated by (Mephyans-Robinson,2010) Ineffective undertaking communication the executives might destine a venture into disappointment. Hence, Project communication the board is the spine to successful decision making during the life expectancy of an undertaking. Since project the board is one of those areas of the executives that cuts across numerous specialty units in an association, the obligations of a venture administrator require

coordination of assignments and 10 assets that might be spread across different specialty units - the majority of which the task chief might have no immediate control of. Accordingly, project correspondence the executives turns into a fundamental and vital range of abilities for powerful coordination of any venture and every elaborate partner.

2.1.5. Communication in construction industry

Construction projects' multidisciplinary character necessitates project management and execution by highly competent, task-organized project teams, which are frequently comprised of many businesses (Thomas et al., 1998).

Construction projects are complicated and hazardous, requiring dynamic investment from all partners. Collaboration and coordination of activities through relational and bunch communication are basic for the task's powerful finishing. Surrenders in numerous development endeavors can be followed back to unfortunate correspondence, absence of counsel, and deficient criticism. As indicated by (Liu et al., 2006) legitimate and viable communication among project members fundamentally affects project execution. Powerful communication was additionally distinguished as an essential achievement part for a development project by Cheng et al. (2000), Black et al. (2000), and Cheng and Li (2002), as referred to by Behzad et al. (2014).

(Zerjav and Ceric, 2009) contend: "Most Construction experts know that communication in construction projects is sensibly wasteful in contrast with different ventures". This is the primary motivation behind why organizations and expert associations are investing significant energy into further developing communication practice in the construction business. It is truly vital for development experts to take part in consistent interchanges in the whole pattern of the development project (Gbenga Olaniran, 2015). This includes their commitment with outside and inside parties who pursue the acknowledgment of the organization objectives and targets objectives. In synopsis, it very well may be contended that correspondence assumes a critical part in the task cycle. Without viable correspondence, it is hard to accomplish the targets for which the development project.

2.1.6. Effective communication in Relation to Project Success

In a study titled "Impact of Knowledge Areas for Project Management on Project Quality" by Dahleez, (2017) identified that communication management is the first top knowledge area with 84.15% score followed by project scope management, project integration management, and project quality management at levels of 83.52%, 83.18%, and

83.01% respectively. Project effectiveness is usually referred as project success in most of the Project Management literature (Stamatia, K. Dr George, B. & Leif, H & Dr Tanev, 2012, p. 212-213). Poor communication is often used as a scapegoat during periods of adversity and disappointing project development. When unexpected issues, changes in plans and other common factors arise during project implementation, the phrase “it’s a communications issue” is often heard. This umbrella term usually refers to a multitude of problems, all of which can affect the successful completion of a project. To avoid this pitfall, it is important that project managers and team leaders have the ability to communicate effectively and efficiently with a diverse set of stakeholders. These include anyone from senior executives and contractors, to technical specialists and various functional groups. Effective communication with a broad range of stakeholders requires the project leader to possess a number of interpersonal skills, most of which center on communications.

2.2. Empirical review

Project communication is streamlined within the project management process from initiation to closing. Several empirical studies focusing on the importance of effective communication construction project have been undertaken across the globe. Some of the studies have been reviewed regarding the communication management process which are deemed relevant for this research.

2.2.1. Communication and project success

Communication is one of the factors that affect the success of the project which addressed by different literatures which (Hala Taleb et al, 2017) reported that one of the factors responsible for the success in construction industry is communication. This is because the study has found “project managers consume 90% of their time communicating with project participants. The author of another study on crucial elements that lead to project success identifies "good communication" as one of the four most significant criteria, along with "top management support, “clarity of purpose and goals,” and "stakeholder involvement" (Dan Ofori & Eric Worlanyo, 2013). On the other hand, Project communication management is regarded critical to the project's success, and its importance is elevated by most stakeholders, yet project managers do not follow or prioritize the communication processes and practices codified in the company's project management methodology (Monteiro de Carvalho, 2013).

2.2.2. Communication and Managers Skill

Communication is the glue that holds a project team together. Without clear, timely and unambiguous communication even a small team working together will have major problems. In the case of a virtual team, poor communication will render an already challenging situation nearly impossible to control, that is why we need professional and knowledge-based Project communication management which project status will be tracked and monitored effectively using various tracking tools. This implies that all person's communication skills affect both personal and organizational effectiveness (Summers, 2010). It appears plausible to conclude that a lack of good communication is one of the greatest constraining forces to organizational effectiveness (Lutgen-Sandvik, 2010). According to (Zulch, 2014) research illustrates that the project managers' skill to communicate with stakeholders has an impact on the cornerstone areas of project management and communication is needed to effectively communicate the quality, which is the result of the interrelationship between scope, cost and time.

2.2.3. Plan Communications

The research done by (KsenijaČulo, 2010) effective communication plan should give answers to the following questions: Who do we need to communicate with? When do we communicate? How do we communicate? What needs to be communicated? How often do we communicate status? When do we meet as a team? When do we communicate with key stakeholders and in what fashion? What type of media should we use and when? What is the purpose? What about team communications, internal or external? How about the leadership in teams? In their research on the adoption of project management practices and the link to project success, PapkeShields and co-authors find that communication practices are not given enough attention, despite the fact that communication practices are correlated with most of the success aspects (Papke-Shields et al , 2010). According to a study of project communication management in Slovakian industrial businesses, 66% of them did not have a written document (methodology, process stages) to manage project communication (Amáková, et al, 2013).

2.2.4. Stakeholder Management

The development of effective routines communication between stakeholder in construction project needs for project success in other hand insufficient communication and lack of stakeholder integration are among the most common drivers for unattended change

causes and un-controlled change impacts in a project (Zhao et al, 2010). This show consistency of communication and continuity of information flow makes positively affect the project progress while effective communication in construction generates stakeholder coordination to integrate their expectations within high quality work deliveries and managing project changes and conflicts at optimum cost and schedule (Villagarcia, 1999). In other way, the stakeholders in construction may have different national and organizational cultures which affect the project communications (Prajogo and Dermott, M., 2005).

The last part of communication management techniques, claiming that task-oriented communications that lack relationship-building aspects are insufficient to support successful projects (Remidez and Jones, 2012). On the basis of projects completed in an African sugar company, a comprehensive study of the use of various communication management strategies was also done. The study's findings revealed a low level of standardization of communication maturity procedures, which resulted in poor project performance (Adera, 2013).o

2.2.5. Distribute Information and performance report

Getting the right information to the right people at the right time and in a useful format is just as important as developing the information in the first place. Concerning distribution of project information, the most important considerations are the tools and technologies used to distribute that information. The challenge remains in ensuring that the information gets delivered to the right decision-maker or stakeholder in the right format at the right time regardless of access method or location. In the era of internet-speed, this challenge becomes even more magnified (Mnkandla, Ernest, 2018). while (Hanakawa,N., 2004) the final product of a project can be greatly compromised by the way communication is done. For example, unplanned distribution of information could lead to communication overload.

The list of important success characteristics for a project in their empirical study on project management methods, and "clear communication channels" was number one on the list. It's worth mentioning that the number one criterion, "clear goals/objectives," is also heavily reliant on accurate and clear communication (White, D. and Fortune, J, 2002).

(Karolina, 2015) literature-based research on real life project management communication practices and accompanying factors described in the subject literature, indicated that ensuring proper and effective project communication is not only a matter of preparing a communication plan, creating, collecting, distributing, storing project information and identifying responsibilities for project team members and other project stakeholders

Several researches have been reviewed with regards to the studies conducted in Ethiopia in general and construction projects in particular.

(Abraham Kuma, 2019) proved that there is a significant relationship project communication practices and project performance in Amhara Development Association water projects. He also stated that project performance is also highly affected by communication channel, communication method and communication barriers. In the study of the role of project communication management in improving project performance of building projects.

(Meron Asrat, 2018) stated that there is a strong appreciation of the significance of communication in project performance. However, she further noted that barriers in communications like poor leadership, unclear communication objectives, unclear channels of communication, ineffective reporting system, ineffective communication among parties in the project, lack of well-trained personal and lack of professional by the clients are the reason behind poor communication.

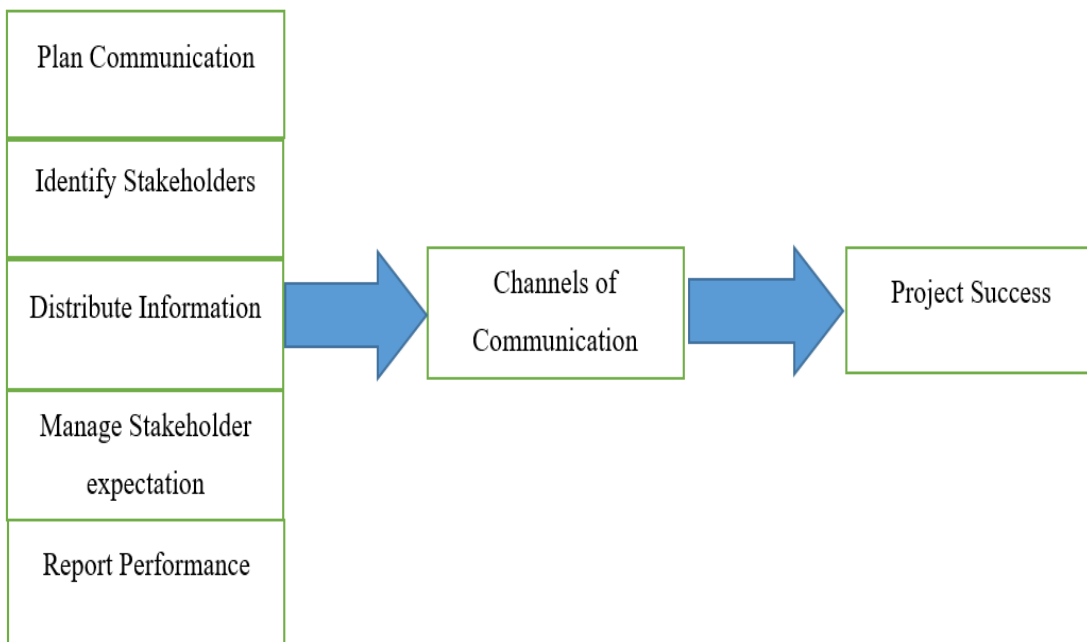
(Mezgeb Manaye, 2021) Conducted the Assessment of Project Communication Management on Construction Projects in real estate companies in Ethiopia. The findings show that Poor communication management planning, information filtering, conflicting business/ industry ethics, and age difference in the Real Estate project are the major project communication barrier in Ethiopia.

Binyam (2019) and Shimeles (2019) did not directly focus on project communication. Rather, they tried to indicate the factors behind cost overrun and schedule delay. (Binyam G, 2019) indicated that poor communication is among the factors that contributed to the cost overrun and schedule delay of Shiromeda- Hamerenoah road project. The study conducted by (Shimeles.M, 2019) also pointed out poor communication of the client and the consultant with other stakeholders was the one of the reasons behind project delay in Adiss Ababa Road Authority Road projects.

(Adissu Assefa, 2021) conducted Assessment of Project Communication Practices of Addis Ababa City Roads Authority, His Finding shows that, as the challenges to project communication, inadequately defined job description, poor planning, leadership commitment and communication inconsistency are considered as the most critical challenges in project communication.

As mentioned above, most literatures point out that project communication management is one of the most important success factors of a project, but communication is not given nearly enough attention, and researchers discovered that most project-oriented organizations lack a documented communication management strategy. Furthermore, it is stated that failure occurs mostly as a result of poor project communication management. Even though studies argue that participation is required throughout the project, most studies have discovered that participation is still a step backward in most projects, and communication skills are never considered before projects, but after all, project communication is widely believed and proven to be a key factor in project success.

Figure 2.1 Conceptual Framework



CHAPTER-THREE

3. Research Methodology

This chapter mainly consists of the research methodology applying for the study specifically, on the research design, target population, sampling design, source of data, data collection methods, reliability and validity of the research, method of data analysis, and at the end some ethical issues have been explained.

3.1. Research Design and Approach

Creswell (2012) portrays lookup format as a bunch of recognizing highlights that you can use to gather, investigate, and decipher data utilizing quantitative and subjective examination philosophies. The book provides that exploration plan and approach is a plan that portrays what examination way to deal with follow, the goal population, check dimension and strategy, and gadgets of facts assortment and investigation used to tackle the explosion questions determined in this section one examination question area. According to the book there are three sorts of examination draws near: Quantitative, Qualitative and Mixed strategy (subjective and quantitative).

The descriptive research design making use for this lookup used each qualitative and quantitative data collection methods and evaluation processes have been making use of in research design. Accordingly, a mixed (qualitative and quantitative) approach with an excessive emphasis on the quantitative method(questionnaire) has employed. It is essentially a quantitative approach however an interview also used to validate the questionnaire.

3.2. Population and Sampling

The enterprise manages construction projects fully with the organization's internal capacity by employing qualified contractors for the specific implementation of the project. All construction projects basically controlled by project management team which delegated by top management for manage projects which is initiated and implemented by the enterprise. But the work flow is touching many departments in the enterprise in every project implementation stages. Therefore, the population of the study include all internal actors which directly or indirectly involved in the project implementation which are top management, project procurement department, project management department, contract administration department, finance department, which a total size of population is 41

professionals and managers involved in construction projects of the Ethiopian toll roads enterprise, those are the respondents for the questionnaire and/or interview of the study.

The questionnaires were collected from the respondents, in the census population, using physically distributed and collected after the respondents finished. The second type of primary source of data which was an interview collection was conducted with total of five managers and team leaders. This type of data collection method has been done by intentionally selecting respondents of the interview that are selected by their high contribution to the question of the interview.

The researcher was employed mixed methods of data collection questionnaires and interviews, a mixed approach has used for this study. The population of the study was all the teams in the enterprise which directly and indirectly involved in the construction projects by using a census survey.

No	Departments	Number of Respondents
1.	Top management team/managers	4
2.	Directors	5
3.	Team Leaders	6
4.	Staff experts and Engineers	26
Total		41

Table3. 1.list of participated organizations on the study

No sampling technique was used since the study employed a census method were used for the entire population in the construction projects. Using the census study helps the researcher result to be more accurate by avoiding the errors that can happen in sampling of the population.

3.3. Types, Sources of Data and Collection Methods

Primary and secondary data sources were used in the data collection process. The key data has been gathered through surveys and interviews with managers, team leaders, employees, and other internal stakeholders who are directly or indirectly involved in the enterprise's building initiatives. The questionnaires were collected from respondents in the census population, then organized and analyzed for interpretation using analysis tools (SPSS, MS Excel Sheet).

Interviews with managers has the second sort of key data sources to validate the questionnaires. Respondents for the interview has been chosen based on their direct participation in various projects. That is, respondents to the interview were chosen based on the researcher's intentions: based on his requests and who can justify the demands.

Secondary data was gathered from the enterprise's Construction project management team's project papers, such as contract documents, project performance reports, project charters, and other similar documents.

3.4. Methods of Data Analysis

Creswell (2012) describes data analyses as a process converting raw data to meaningful results (knowledge) that consists of breaking down the data into parts for analysis. In the process, quantitative data analysis, you analyze the data using mathematical procedures, called statistics. Data analysis is the process of coding, classifying, and tabulating information required to perform quantitative or qualitative analysis according to the research design and appropriate to the data Mosby (2009).

The researcher examined the collected data (questionnaire and interview) to detect errors and omissions and to correct these when possible and assigned numerals (Likert scale) to answers that enable them to put responses into a limited number of categories. The study adopts descriptive statistics using Statistical Package for Social Sciences (SPSS) and Microsoft Excel. The results obtained from the analysis has drawn in graphs and describe interview results based on these findings, tangible conclusions and recommendations presented.

Descriptive statistics measures by percentage, variance, frequency, sum, measures of central tendency (mean and standard deviation), Cronbach coefficient (alpha), and others was used to assess the validity and reliability of the data collected and to validate the objectives of the study.

3.5. Validity and Reliability

The instrument is adopted from (G/hana, 2020) research paper so that, the validity and reliability by pilot test is already done before. But after the data is collected it also check the validity and reliability of this study had also been done.

The tendency toward consistency found in repeated measurements is referred to as reliability. Similarly, the tendency toward consistency found in repeated measurements is

referred to as reliability. This can be checked by comparing the responses for similar or consistent questions of the questionnaire and interview. The validity and reliability of collected qualitative data has been checked by using different methods like Cronbach's alpha reliability test by using SPSS (Statistical Package for the Social Sciences). The Cronbach alpha for the below 8 questions was ranged from the minimum 0.734 to the maximum one 0.794. Conferring the Cronbach's alpha test result indication from 0.7 to 0.8 is considered as good, from 0.8 to 0.9 very good and above 0.9 is considered as more reliable data but doesn't show diversity.

Table3. 2 Cronbach's Alpha (reliability test)

No	Variable	Cronbach's Alpha
1.	Identify, prioritize & manage stakeholders	0.749
2.	Plan communication	0.753
3.	Distribute Information	0.794
4.	Manage Stakeholder Expectations	0.735
5.	Report Performance	0.734
6.	System, tool to share info for stakeholders	0.745
7.	Roles of stakeholders have been prepared	0.787
8.	Plan reviewed regularly	0.779

Besides, triangulation, evidence from different sources to validate and confirm the same finding has been used. This is to indicate that the researcher used to compare the results of the interviews, from questionnaires and from observations of the reference project documents and facilitated to reach to the conclusion.

CHAPTER FOUR

4. Research Findings and discussions

4.1. Introduction

This chapter focuses on the presentation and analysis of the data, from questionnaire, collected. The data was exported from the application and fed to SPSS and Microsoft Excel for further analysis. The outcomes from the research are mainly presented in the form of frequency, mean, and standard deviation table. The process of data analysis presented in the following subtopics.

4.2. Response Rate

From a total of questionnaires distributed to the experts, team leaders, and managers of ETRE which are direct and indirect relation with the facility construction projects, all 41 responses have been collected directly in person which results in 100% Response rate has been recorded. Saldivar (2012) suggests that for a census survey more than 75% response rate is preferable for validity and reliability of the research. And this research's response rate is more above the limit. All these respondents replied to the first part, personal information, and the second part that incorporates the questionnaire for the research.

4.3. Demographic Profile of the Respondents

As understanding the demographic profile of respondents is vital for the outcome of the research, respondents are requested to fill their personal information before the questionnaires' questions. Accordingly, the respondents' Sex, education level and position in ETRE have direct and indirect relation to construction projects have been included.

Table4. 1. Demographic profile of respondents with frequency

Item. no	Description	Frequency(N)	Percent (%)	Valid (%)	Cumulative (%)	
1	Sex	male	32	78.0	78.0	78.0
		female	9	22.0	22.0	100.0
2	Education Level	diploma	9	22.0	22.0	22.0
		bachelor	16	39.0	39.0	61.0
		masters	16	39.0	39.0	100.0
3	Position	Expert	26	63.4	63.4	63.4
		Team leader	6	14.6	14.6	78.0
		Manager	4	9.8	9.8	87.8
		Director	5	12.2	12.2	100.0

Source: Own survey, 2022

As per the Table4.1 Item Number-1 the general demographic profile of the respondents three characteristics; Sex, educational status and their position in the ETRE, according to their relation to construction projects have been identified. Describing the demographic characteristics of the respondents helps analysis to be more meaningful for readers. Accordingly, from a total of forty-one respondents, 19 experts, 5 team leaders, 4 managers and 4 Directors are male and the rest are females which means the gender ratio is 78% male and 22% female.

Meanwhile, Table4.1 Item Number-2 shows the educational background of the respondents 11 experts, 2 team leaders and 3 directors have with the Bachelor degree (BSc/BA) with the ratio of 39% and with a Master's degree 10 experts,4 team leaders and 2 directors and with the ratio of 39% equally. All the project respondents have a minimum diploma which is only 5 experts, and 4 managers with the ratio of 22%, this reflects that the employees have a good educational background for project implementation and communication processes.

The third demographic profile is the current position of the respondents shows at Table4.1 Item Number-3. As per the current structure of the ETRE, it has a hierarchy of positions: technical experts, team leaders, managers, and directors. Therefore, from the total respondent, the technical expert contributes to 63.4%, team leaders 14.6% and the rest Directors & managers with 12.2% and 9.8% respectively. The availability of staff with different roles and positions in the project contributes to improving project performance and communication processes.

Table4. 2. Cross tab respondent's sex and education vs position

		Position				Total
		Expert	Team leader	Manager	Director	
Sex	Male	19	5	4	4	32
	Female	7	1	0	1	9
Total		26	6	4	5	41
Education	Diploma	5	0	4	0	9
	Bachelor	11	2	0	3	16
	Masters	10	4	0	2	16
Total		26	6	4	5	41

Source: Own survey, 2022

Table 4.2 shows the cross tabulated data of the distribution of sex and educational Background versus to their positions. So that, at all positions the number of males greater

than females and majority of the experts, team leaders and Directors are above bachelor but the managers are diploma levels

4.4. Channels of Communication and Other Parameters

The first section describes the communication channel methods used to communicate with project teams and other stakeholders of projects in the study organization. In addition, the communication skills of managers & team leader, conflict levels between project team/s and between stakeholders in projects, and success rate of projects have been included.

Table4. 3.Channel of Communication and other parameters

Item. no		Responses		% (Cases)	Mean	Std. Deviation	
		N	%				
1	External Communication	Verbal (face-to-face)	10	13.2%	26.3%	Mean & SD not relevant	
		Telephone	25	32.9%			65.8%
		Electronic (Email)	24	31.6%			63.2%
		Written (letter, memo)	17	22.4%			44.7%
2	Internal Communication	Verbal (face-to-face)	34	41.5%	82.9%		
		Telephone	16	19.5%	39.0%		
		Electronic (Email)	11	13.4%	26.8%		
		Written (letter, memo)	21	25.6%	51.2%		
3	Project Success Rate	Very Poor	4	3.3%	9.8%	2.8537	0.5220
		Poor	33	26.8%	80.5%		
		Good	63	51.2%	153.7%		
		Very Good	23	18.7%	56.1%		
4	Communication Skill	Poor	23	21.3%	63.9%	3.1382	0.5961
		Good	61	56.5%	169.4%		
		Very Good	24	22.2%	66.7%		
5	Conflict level	Few	31	37.8%	75.6%	2.6707	0.4556
		Medium	47	57.3%	114.6%		
		High	4	4.9%	9.8%		

Source: Own survey, 2022

As shown at table 4.3 item number-1 the study of communication channels practice for ETRE service facility construction projects, face to face communication, telephone, written (letter, memo), Email, and tools designed for communication like ERP, or others are selected as options. Then, the respondents replied that for internal communication (between team/s, team leader, and project manager) 41.5% of their communication is face-to-face (Verbal) communication mode. In addition, 25.6% of the respondents use written

communication for daily activities in projects. The findings from the semi-structured interviews conducted with four managers of ETRE which have direct relation with construction projects.

The result of semi-structured interviews from Five Respondents to get their thoughts in the internal communication of ETRE construction projects. The respondents are coded as (R1, R2, R3, R4 and R5) for analysis purpose.

Question-1“Do you use project management tools that include communication management as a feature and? If you don’t have yet, do you have a plan to do so?” Respondents (R1, R2, R3) were expressed their filling to the current project communication tools almost in the same way using different wording.

The interviewers confirm that formal communication tool like system software’s is not implemented yet but as of the project required informal communication is implemented between the project team, managers and external stakeholder and have future plan to do so.

Respondents (R4) confirms that formal communication tool like system software’s is partially b/n internal project teams but informal communication is widely used.

Respondents (R5) confirms that formal communication tool like system software’s is under construction by external IT company and introduction to the project teams but currently only informal communication used.

As shown at table 4.3 item number-2 the external communication, between stakeholders out of the project teams, the respondents answered that 32.9% and 31.6% respectively of their activity was performed by Telephone and email communication. This shows that majority of the communication is informal through telephone conversation. This result shows a similar result to the interview conducted with selected managers.

The finding from semi-structured interviews Question-2 “What is the formal method of communication between stakeholders and why you choose it over the other options?” respondents(R1&R2) were expressed their thoughts to the current channel of communication almost in the same way using different wording.

The interviewers confirm that formal communication channel currently used for external communication is e-mail which selected because of the shortest time taken to share information to all project stakeholders available simultaneously.

Respondents (R3, R4 & R5) *confirm that formal communication channel currently used for external communication is written communication on the site book and Memos by ETRE project team.*

4.4.1. Project success rate

As shown at table 4.3 item number-3 regarding the projects “success rate of ETRE construction projects, respondents were requested to rate it as “Very poor, Poor, Good, very good, and Excellent” and the average response was mean (\bar{x} =2.85) and standard deviation (SD=0.52). Mean Values have been interpreted by using the criteria suggested by (Scott, 1999). He suggested that for Likert type scale ranging from 1 (Very poor/ highly dissatisfied) to 5 (Excellent/Highly Satisfied), interpretation should be as; mean up to 2.9 is considered as Disagree, from 2.9 to 3.1 means neutral or to central value and mean above 3.1 is considered as an agreement. According to this classification of the mean (\bar{x} =2.85) shows that respondents are not satisfied (it's poor) with a project success rate of their organization. Project success is assumed by delivery of projects on time or as per its plan, on its planned budget and achievement of the project's intended objectives.

The finding from semi-structured interviews Question-3 “How it looks like the current status of Construction project success rate in terms of time plan, cost and achieved objectives?” respondent (R1 & R2) was expressed their filling to the current project success rate almost in the same way using different wording. The summary of the respondents is:

The interviewers confirm that most of the service facility construction projects in ETRE are low success rate in terms of time, cost and meeting objective.

Respondent (R3) confirm that only the old service facility construction projects have its own problems in the success rate in terms of time, cost and meeting objective but the current ongoing projects have a good progress.

Respondent (R4& R5) accept the problem occurrence in ETRE projects but express their thoughts in this question is project success in construction projects are commonly occurred problems in any construction projects due to various reasons.

4.4.2. Communication skills

As shown at table 4.3 item number-4 regarding the communication skills of their team leaders and project managers, respondents' reply was 21.3% poor, 56.5 % good, 22.2% is Very good. As can be seen from the above table the mean for this response (\bar{x} =3.13) and according to the Likert scale interpretation (Scott, 1999), this means (\bar{x}) value indicates that

the respondent's agreed about the communication skill of managers/stakeholders to the ability of solving problems when it occurred. But PMI (2013) indicates that communication skills are critical for project managers. So that without good communication skills of managers/stakeholders his/her task can't be successful.

4.4.3. Project conflict

As shown at table 4.3 item number-5 in order to identify the internal (between project team) and external (between project teams and other stakeholders) conflict level in the project implementation process in the study organization, the researcher included questions and the following result has been found. Regarding the overall Conflict level, the study organization, respondents' reply was 57.3% medium, 37.8 % few, 4.9% is high. As can be seen from the above table the mean for this response ($x=2.67$) and according to the Likert scale interpretation (Scott, 1999), this means (x) value indicates that the respondent's reflects their disagreement on the questions for evaluating the conflict level. So that, there is few conflicts between internal (project team) and external (project teams and other stakeholders) in the study organization.

The findings from the semi-structured interviews conducted with four managers of ETRE which have relation with construction projects.

The finding from semi-structured interviews Question-4 "Were there any conflicts occurred between the bank and other stakeholders like vendor, consultant or any other?" respondent (R1 & R2) was expressed their filling conflict level in ETRE construction projects. *The interviewers confirm that few of the service facility construction projects are faced challenges due to conflicts between contractors, project team and external stakeholder due to specification, contractual issues and conflict of interest.*

Respondent (R3, R4 & R5) *medium of the service facility construction projects are faced challenges due to conflicts between contractors, project team and external stakeholder due to specification, contractual issues and conflict of interest.*

4.4.1. Discussion on Channels of Communication and Other Parameters

- In the discussion of (Liu et al., 2006) legitimate and viable communication among project members fundamentally affects project execution. However, in the study of communication channels practice of ETRE service facility construction projects noticed that, informal face-to-face and telephone communication is dominant. But according to Wu et al. (2017) informal communications have negative relations with project success while formal communications have a positive relationship.
- Since project communication management is regarded critical to the project's success, and its importance is elevated by most stakeholders, yet project managers do not follow or prioritize the communication processes and practices codified in the company's project management methodology (Monteiro de Carvalho, 2013). So that, majority of the respondents are not satisfied with a project success rate of their organization due to the result of unplanned project communication management.
- The Research illustrates by (Zulch, 2014) tells project managers' skill to communicate with stakeholders has an impact on the cornerstone areas of project management and communication is needed to effectively communicate the quality, which is the result of the interrelationship between scope, cost and time. The finding of this research is in line with this argument that the respondent's agreed about the communication skill of managers/ stakeholders to the ability of solving problems when it occurred. Due to that the only few conflicts between internal (project team) and external (project teams and other stakeholders) in the study organization

4.5. Practice of Communication Management

The main purpose of the research was to assess the practice of communication management in the implementation of service facility construction projects in the study organization and respondents were requested to forward their opinion on it. The study organization's practice was compared with the PMBOK procedures, processes, principles, and recommendations for communication management on project implementation.

As per the book recommendations, communication management should include the following five processes: Identify Stakeholders, Plan Communications, Distribute Information, Manage Stakeholder, Expectation Report Performance. Therefore, the respondents' response is summarized in the below table, with its percentage, mean and

standard deviation, for comparison with PMBOK principles of communication management in the project implementation process with respect to their construction PM practices.

Table4. 4.practice of communication Management

Item.no		Responses		% Of Cases	Mean	SD		
		N	%					
1.	Identify Stakeholders	Strongly Disagree	11	9.2%	27.5%	2.8049	1.35396	
		Disagree	59	49.2%				147.5%
		Neutral	17	14.2%				42.5%
		Agree	27	22.5%				67.5%
		Strongly Agree	6	5.0%				15.0%
2.	Plan communication	Disagree	109	53.2%	265.9%	2.6488	0.57407	
		Neutral	65	31.7%				158.5%
		Agree	25	12.2%				61.0%
		Strongly Agree	6	2.9%				14.6%
3.	distribute Information	Disagree	12	29.3	29.3	3.1463	0.96335	
		Neutral	15	36.6				36.6
		Agree	10	24.4				24.4
		Strongly Agree	4	9.8				9.8
4.	Manage stakeholder expectation	Strongly Disagree	2	2.4%	4.9%	2.7195	0.68964	
		Disagree	40	48.8%				97.6%
		Neutral	22	26.8%				53.7%
		Agree	15	18.3%				36.6%
		Strongly Agree	3	3.7%				7.3%
5.	Report Performance	Disagree	2	4.9	4.9	3.7561	0.73418	
		Neutral	11	26.8				26.8
		Agree	23	56.1				56.1
		Strongly Agree	5	12.2				12.2
		Total	41	100.0				100.0
6.	System, tool to share info for stakeholders	Disagree	24	29.3%	58.5%	3.2683	0.67173	
		Neutral	35	42.7%				85.4%
		Agree	23	28.0%				56.1%
7.	Roles of stakeholders have been prepared	Disagree	7	17.1	17.1	3.3171	0.75627	
		Neutral	14	34.1				34.1
		Agree	20	48.8				48.8
8.	Plan reviewed regularly	Disagree	14	34.1	34.1	3.00	0.92195	
		Neutral	16	39.0				39.0
		Agree	8	19.5				19.5
		Strongly Agree	3	7.3				7.3
Average					3.3577	0.80414		

Source: Own survey, 2022

Table 4.4 item number-1 the first question asked to assess the practice was if the study organization identify, prioritize, and registers stakeholders in a suitable tool that enables them to have proper communication. Then 49.2% of the respondents' responses disagreed, 9.2% strongly disagreed, 22.5% agreed, 5 % strongly agreed and the rest 14.2 % uncertain about that. To generalize, the mean value for this questionnaire ($x = 2.80$) indicates that respondents didn't agree with this as per the Likert scale interpretation (Scott, 1999).

Table 4.4 item number-2 regarding the project communication planning process, 53.2% of the respondents disagreed, 2.9% strongly disagreed and 12.2% agreed. On the other hand, 31.7% of the responses show that they are not sure about what it looks like the practice of communication planning in their project life cycle. However, at table 4.4 item number-3 for the 3rd question that detects the practice of making relevant information available to project stakeholders as planned, the majority of the respondents which is 24.4% agreed and 9.8% strongly agreed with it. On the other hand, 29.3% of them disagreed. On average with a mean ($x=3.14$) implies distributing information to stakeholders has been practiced in their project implementation.

Table 4.4 item number-4 shows the process of communicating and working with stakeholders to meet their needs and addressing issues when they occur to manage stakeholder expectations. For this point, 48.8% of them disagreed and 2.4% strongly disagreed. Nevertheless, 18.3% agreed and 3.7% of them strongly agreed and 26.8% of the respondent's undecided neither to agree nor disagree. On average with a mean ($x=2.71$) this indicates respondents didn't agree with this as per the Likert scale interpretation (Scott,1999). This means Management of stakeholder's expectation has not been practiced in their project implementation.

Table 4.4 item number-5 shows the study organization had the practice of collecting and distributing performance information, including status reports, progress measurements, and forecasts. As a result, about more than half of the respondents agreed for the practice and only 4.9% disagree and 26.8 are not sure about the existence of the practice.

The overall response inferred this practice was($x=3.75$) indicates that respondents agreed with this as per the Likert scale interpretation (Scott, 1999).

Table 4.4 item number-6 presented the respondents answer regarding the existence and use of a system, tool, or technique that allows all teams and stakeholders to share challenges, progress report, or any information of the project. The response was 29.3%

disagree, 28% agree and 42.7 neutral. Overall, with a mean (\bar{x} 3.26) the response implied that comparing with the PMBOK principles the study organization practice was satisfying.

Table 4.4 item number-7 evaluates if there were clear communication processes, clarifying roles of stakeholders have been prepared, a total of 48.8% of respondents agreed for this practice. Contrariwise, a total of 17.1% of respondents disagreed & 34.1% neutral on the issue. Overall, with a mean (\bar{x} 3.31) the response implied that comparing with the PMBOK principles the study organization practice was satisfying.

Table 4.4 item number-8 was to check if the communication plan was being reviewed regularly, and adjusted if need be. Therefore, 34.1% of respondents' reply shows disagreement and 26.8% greed and strongly agreed. In addition, 39% of the respondents are neutral about the issue. Overall, the response of the respondents' data with a mean (\bar{x} =3:00) shows it is not implementing the practice.

To summarize the response of the respondents on the practice of communication management on the study organization with respect to the PMBO principles of project communication management, the result shows an average mean (\bar{x} =3.35) and average standard deviation ($SD=0.80$). This shows the study organization is conducting its project communication management practice but it's not comprising all the five major mandatory communication management processes as per the PMBOOK principles of communication management practices. So that, there is a limitation in, identifying & prioritizing stakeholders by their interest and impact, preparing written project communication plan to identify (what, how, whom and when) and lack of procedure or process to communicate with stakeholders to meet their needs for managing expectations.

In working as per the processes of communication management outlined by PMI, the study organization has practice some of the principles traditionally or in unplanned way in the work process according to the survey and interview with selected managers. PMI Pulse (2013) indicates that organizations that followed their project management activities as per the guidelines of PMI have scored better project success than organizations not followed.

4.5.1. Discussion on Practice of Communication Management

- According to research done by (KsenijaČulo, 2010) effective communication plan should give answers to the following questions: Who do we need to communicate with? When do we communicate? How do we communicate? What needs to be communicated? How often do we communicate status? When do we meet as a team? When do we communicate with key stakeholders and in what fashion? What type of media should we use and when? What is the purpose? What about team communications, internal or external? How about the leadership in teams? However, the finding of the research seems different from the theories which majority of respondents are not sure about what it looks like the practice of communication planning in their project life cycle while ETRE construction projects which have no written communication plan to answer the above questions.
- In the discussion of (Zhao et al,2010) the development of effective routines communication between stakeholder in construction project needs for project success. on other hand, insufficient communication and lack of stakeholder integration are among the most common drivers for unattended change causes and un-controlled change impacts in a project. sothat, the research finds the process of communicating and working with stakeholders to meet their needs and addressing issues when they occur to manage stakeholder expectations. For this point, the majority of the respondents disagree with the practice of stakeholder management in ETRE construction projects. (Adera,2013) revealed a low level of standardization of communication maturity procedures, which resulted in poor project performance. So that, the findings of this research that lack of standard procedures to communicate with stakeholder to meet their needs.
- The findings of the research seem confirming with the observation (Karolina, 2015) indicated that ensuring proper and effective project communication is not only a matter of preparing a communication plan, creating, collecting, distributing, storing project information and identifying responsibilities for project team members and other project stakeholders. While, about more than half of the respondents agreed for the practice on the study organization had the practice of collecting and distributing performance information, including status reports, progress measurements, and forecasts.

4.6. Communication Management and Other knowledge Areas

In this third section of the questionnaires, the focus is to find out the relative importance of Project Management Knowledge Areas and identify the attention given by the study organization to communication management. To do so, the questionnaire requested respondents to rate for each knowledge management area from 1 to 5 points. Then the relative importance of Project Management Knowledge Areas score of the study organization has been compared with other researches results and to yield recommendations accordingly. Based on the respondents' reply the following table shows the overall statistics in terms of frequency, percentage, mean, and standard deviation of all the ten knowledge areas of project management.

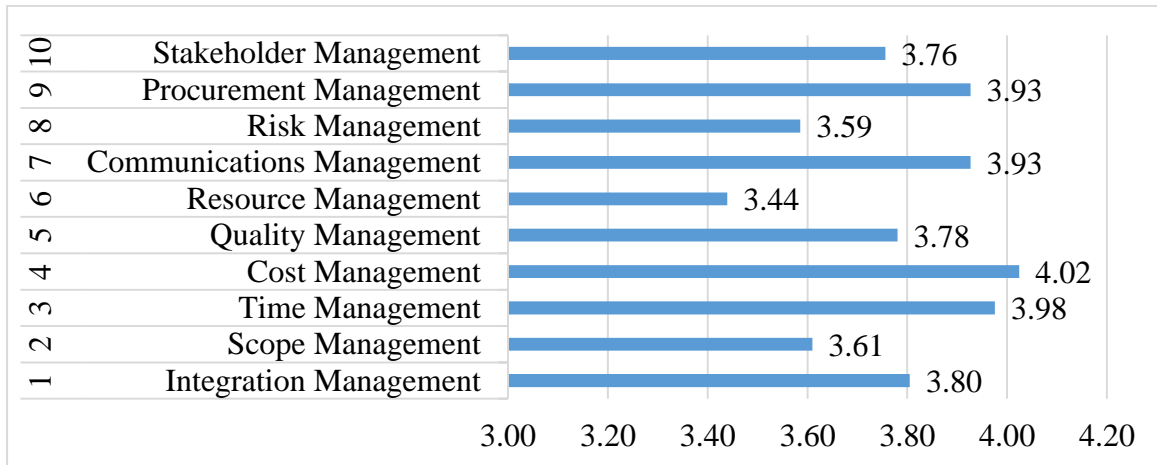
Table4. 5.Relative importance of project management knowledge areas

No	Project Management Knowledge Areas	None (1)		Few (2)		Medium (3)		High (4)		Very high (5)		Mean	SD
		N	%	N	%	N	%	N	%	N	%		
1	Integration Management					17	41.5	15	36.6	9	22	3.80	0.78
2	Scope Management					17	41.5	23	56.1	1	2.4	3.61	0.54
3	Time Management			2	4.9	8	19.9	20	48.8	11	26.8	3.98	0.82
4	Cost Management					12	29.3	16	39	13	31.7	4.02	0.79
5	Quality Management			6	14.6	10	24.4	12	29.3	13	31.7	3.78	1.06
6	Resource Management			6	14.6	14	34.1	18	43.9	3	7.3	3.44	0.84
7	Communications Management					11	26.8	22	53.7	8	19.5	3.93	0.69
8	Risk Management	6	14.6			7	17.1	28	48.8	8	19.5	3.59	1.24
9	Procurement Management					7	17.1	30	73.2	4	9.8	3.93	0.52
10	Stakeholder Management					20	48.8	11	26.8	10	24.4	3.76	0.83

Source: Own survey, 2022

As the respondents rated the relative importance of project management knowledge areas the data were analyzed and ordered as per the results. The order of the ten knowledge management areas according to the response from the respondents in the study organization is presented in the bar chart below.

Figure4. 1.Relative importance of PMKAs



Source: Research result

As per the result of the above chart cost management, Time management and Procurement and Communication management are the knowledge areas that were selected as top (very critical) areas for the successful implementation of projects. That means these four knowledge areas are very critical and need special attention in project implementation. Next levels of knowledge management areas selected by the respondents were integration management, quality management and stakeholder management in order. Scope management, Risk management, and resource management project management knowledge areas were ordered in 8th, 9th, and 10th respectively. So that, communication management was selected as the top (very critical) category relative, of all the ten knowledge areas in the study organization. But there is no actual rank between the ten project management knowledge areas.

The finding from semi-structured interviews Question-5 “How do you feel the effect of communication management on the project success rates of your company?” All Respondents (R1, R2, R3, R4&R5) confirm that the focus of communication management few of the service facility construction projects are faced challenges due to conflicts between contractors, project team and external stakeholder due to specification, contractual issues and conflict of interest.

4.6.1. Discussion Communication Management and Other knowledge Areas

- The study titled “Impact of Knowledge Areas for Project Management on Project Quality” by Dahleez, (2017) identified that communication management is the first top knowledge area that affects the quality of projects. in this regard, the findings of this research also confirm that communication management is the first top areas affects the project success.

CHAPTER FIVE

5. Conclusion and Recommendation

5.1. Introduction

As outlined in chapter one, the primary objective of this research was to assess the practice of communication management in ETRE service facility construction projects. This includes examining the current practice of communication management and finally to provide recommendations on how to improve the current flows and implement the project communication process in a better way. This chapter aims to place the findings from chapter four into the context of the aim and objectives, to improve the project success, which represents the original motivation of the study. Now the final chapter of the research which includes the summary, conclusion, and recommendations for study organization has been presented hereafter.

5.2 Summary of major findings

The aim of this study was to assess the practice of communication management of service facility construction projects conducted in ETRE. To achieve this descriptive survey and an interview was applied. The number of respondents, 41 out of a total of 41 populations, in the survey was enough to the research to make any type of decision using the data. There was a total of 29 questions. These questions were two types: interview questions and completed questionnaires. Out of these, 29 were Likert questionnaires and five of the total questions were interview questions. Therefore, the major findings of the research “The Practice of Communication Management of Construction Projects in Ethiopian Toll Roads Enterprise” are presented hereafter.

- The current practice of internal and external communication, between project teams and other stakeholders, the majority (41.5%) and (32.9%) respondents answered their activity was performed by face-to-face (Verbal) and Telephone communication respectively. This shows that majority of the communication is informal through telephone conversation.
- The current project success rate (completing projects as per the projects plan, cost, and achieving its objectives) in construction projects is not satisfying, as per the respondents' response it indicates a poor project success rate with a mean (\bar{x} 2.85).

- Managers' and team leaders' communication skills (including the skill of how to solve a conflict in the project and stakeholders) were good as per the respondents' viewpoint which is rates by the mean ($x=3.13$) and ($SD=0.59$).
- The level of conflict between internal (within team/s) and external (other stockholders) during the project implementation is not significant as per the respondents' viewpoint respondents' reply was 57.3% medium, 37.8 % few, which rates by the mean ($x=2.67$).
- The practice of working as per the five-communication management process defined by PMI was evaluated by the respondents with a mean ($x 3.35$) and ($SD=0.80$) with the following subprocess results.
 - The practice of identifying stakeholders, understanding their interests, involvement, and impact on the project in the initiation phase of the project was observed as poor with a mean ($x 2.80$).
 - The practice of communication planning (what, how, who, when, why to communicate with stakeholders and project team/s) was observed as poor rated by respondents with a mean ($x 2.64$).
 - However, making information available to project stakeholders was good with a mean ($x 3.14$). But it is expected more improvement by the study organization to reach the benchmark point.
 - Regarding having a procedure or process of stakeholder's expectation to communicate and work with stakeholders to meet their needs and address any issues when they occur was weak with a mean ($x 2.7$).
 - In adopting procedure or process report performance information, which includes project status reports, project progress reports, and forecasts of the projects evaluated with a mean ($x 3.7$).
 - Clarifying and preparing the roles of stakeholders in the project communication process have been rated with a mean ($x 3.31$).
 - Communication plan reviewed regularly, and adjusted, if need be, throughout the project life cycle have been rated with a mean ($x 3.0$).
- The relative importance of the ten PMKAs was requested to be ranked by the intention or focus given to them by the study organization was presented and Communication management was ranked third equal with procurement management with a mean ($x 3.93$).

5.3 Conclusions

In this descriptive survey research, the practice of communication management on Service facility construction projects in the case of ETRE, the following conclusions have been identified.

- Regarding the communication channels mostly used in the construction projects more informal communication channel were detected rather than formal communications. But according to Wu et al. (2017) informal communications have negative relations with project success while formal communications have a positive relationship.
- The communication skill of managers and team leaders was good during problems are occurred according to the respondent's view. But the cumulative effect of unplanned informal communication can affect the overall project success.
- Meanwhile, the internal and external conflicts in the study organization occurred in a medium and few levels, is not significant have been observed.
- In addition, overall project communication management practice is good($x=3.35$) but the study organization have gaps in implementing the practice of communication management processes outlined by PMI. So that, from the five communication management processes there is a gap in: identify stakeholders, plan communications, manage stakeholder expectations due to absence of written communication plan.

In general, the study organization practice communication management in construction projects in lack of clear communication plan which results the overall project communication management processes and project success rate of the study organization were observed to be poor. Even if the project communication management process and total project success rate of the study organization are found to be poor, but the organization gives attention to communication management relative to other PMKAs but it is not planned move which even though, it gives a chance to improve communication management practice as per the standard PMBOOK, guidelines on the study origination.

5.4 Recommendations

As discussed before, the findings of the research were far from the benchmark principles, PMBOOK communication management processes, and here the findings were summarized as follows. And the processes of communication management identified from the research in the study organization give recommendation as follows: -

- The most common communication channel in the study organization are telephone and verbal (face to face) for external and internal communications respectively. However, both telephone and most verbal communications are considered as informal communication. So that, it better to support the informal communication by formal methods of communication to ensure accountability and transparency to avoid problems occurrence in the projects site. And (Wu et al., 2017) and other researches support that formal communication and communication-willingness were positively related to project success, but informal communication affected project success negatively. so, it is recommended to use formal communications in addition to informal communications.

So, its recommended to implement systems (tools and or software) that are designed for project management to avoid informal communication additional features like Teamwork project, Open Project, and others. In addition, these tools help the other knowledge areas of project management massively.

- The current project success rate (completing projects as per the projects plan, cost, and achieving its objectives) in ETRE service facility construction projects is not satisfying and this could damage the study organization by losing the expected revenue generated from the projects, rise of project cost and loss of road users' satisfaction by the service.

Hence, it is recommended to consider restructuring the process of communication management of projects followed by PMBOOK guide through the five communication management process steps including other knowledge areas of project management principles to leverage the current success rate of construction projects.

- The practice of identifying stakeholders, and understanding their interests, involvement, was observed as poor and this activities should be done in the planning phase of projects and this is helpful to ease the next level of stakeholder communication.

So, its recommended that the organization start a practice of preparation of written project management plan during the preparation phase which clearly identifies and prioritize the stakeholders by its interest and impacts before the implementation of the project.

- Preparation of communication plane document to answer (what, how, who, when, why to communicate with stakeholders and project team/s), review plan regularly, and implementing according to the plan has not experienced as per the respondents' opinion. And it is recommended to adopt the practice of communication planning by deciding:
 - What tools and techniques to use for communication between stakeholders?
 - How communication will be performed for all stakeholders
 - Who will be responsible for communications between stakeholders?
 - When and why communication will be triggered etc.
- The practice of having procedures and processes to communicate and work with stakeholders to meet their needs and address any issues if occurred was also weak. so that, adopting procedure and process from standard practices of communication management is recommended.

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Appendix A: Questionnaire

ST. MARY UNIVERSITY SCHOOL OF GRADUATE STUDIES DEPARTMENT OF PROJECT MANAGMENT

Dear Participants, I am Ermias Kibru a student of Sent Mery University college of Graduate studies project management department, conducting a research project for Master of Arts in project management (MAPM) on the practice of communication management of Construction projects in case of Ethiopian toll roads enterprise (ETRE). For successful accomplishment of the research paper, I need your assistance. The survey will take about 10 minutes of your time. The information gathered is anonymous and will remain strictly confidential. It will be used only to advance knowledge and for the dissemination of the overall results at academic or professional forums. Only the researchers will have access to the data collected. Completing this questionnaire will be considered as your consent to participate in our research project and permission to use the data collected from this questionnaire in future research.

The questionnaire has personal information as introduction and it contains 3 sections with total of twenty (20) objective questions.

Thank you in advance for taking your precious time to fill out the questions.

Personal Information of Respondents

1. Gender: Male Female
2. What is your level of education: Diploma Bachelor Degree Masters PHD
3. Your current position: Expert Team leader Manager Director

Section I: communication forms in project management phase & success rate

1. From the following communication tools and techniques which one do you use frequently within the project team/s? (Multiple responses allowed).

Verbal (face-to-face) Telephone Electronic (Email) Written (letter, memo)
Tools designed for project management communication

2. From the following communication tools and techniques which one do you use frequently with project manager/staff engineers? (Multiple responses allowed)

Verbal (face-to-face) Telephone Electronic (Email) Written (letter, memo) Tools designed for project management communication

3. From the following communication tools and techniques which one do you use frequently with consult/contractors? (Multiple responses allowed)

Verbal (face-to-face) Telephone Electronic (Email) Written (letter, memo) Tools designed for project management communication

4. Tools and techniques which one do you use frequently with higher officials /other stakeholders? (Multiple responses allowed)

Telephone Electronic (Email) Written (letter, memo) Tools designed for project management communication

5. What is the project success rate in your organization in terms of time?

Very poor poor Good Very Good excellent

6. What is the project success rate in your organization in terms of cost?

Very poor poor Good Very Good excellent

7. What is the project success rate in your organization in terms of meeting objectives?

Very poor poor Good Very Good excellent

8. Project manager's communication skill with in the project?

Very poor poor Good Very Good excellent

9. Staff engineers' communication skill with in the project?

Very poor poor Good Very Good excellent

10. Stakeholder's communication skill with in the project?

Very poor poor Good Very Good excellent

11. Level of conflict (disagreement) between the members of the project and/or between teams of the project in project.

None Few Medium High Very high

12. Level of conflict (disagreement) between client (ETRE) and other stakeholders (Contractors, consultant and others) in project

None less severe Moderate Sever extremely severe

Section II: Practice of communication management

For the following 7 questions, please select the level of agreement for each question.

1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

No	Questionnaires	Level of Agreement				
		1	2	3	4	5
	Section II					
1.	<p>Identify stakeholders</p> <ol style="list-style-type: none"> 1. Stakeholders are identified in a suitable tool that enables to have proper communication. 2. Stakeholders prioritized in a suitable tool that enables to have proper communication. 3. Stakeholders registered in a suitable tool that enables to have proper communication. 					
2.	<p>Plan communication</p> <ol style="list-style-type: none"> 1. A communication plan identifies what to communicate with the stakeholders and project team/s is planned and implemented accordingly. 2. A communication plan identifies how to communicate with the stakeholders and project team/s is planned and implemented accordingly. 3. A communication plan identifies whom to communicate with the stakeholders and project team/s is planned and implemented accordingly. 4. A communication plan identifies, when to communicate with the stakeholders and project team/s are planned and implemented accordingly. 					

	5. A communication plan addresses why to communicate with the stakeholders and project team/s is planned and implemented accordingly.				
3.	Distribute Information 1. We make information available to project stakeholders as planned(using suitable tools and techniques)				
4.	Manage Stakeholder Expectations 1. We have procedure or process to communicate with stakeholders to meet their needs. 2. We have procedure or process to communicate to address any issues as and when they occur.				
5.	Report Performance 1. We have procedure or process to collect and distribute performance information, which includes status reports, progress measurements, and forecasts of the project.				
6.	1. We have a system that allows all teams and stakeholders to share challenges, progress report, or any information of the project. 2. We use communication tools and techniques that allows all teams and stakeholders to share challenges, progress report, or any information of the project.				
7.	Clear communication processes, clarifying roles of stakeholders have been prepared.				
8.	Communication plan reviewed regularly, and adjusted, if need be, throughout the project life cycle.				

Section III: Importance of project management knowledge areas for success of project

Evaluate the level of importance of the following knowledge areas of project management to success of your project. 1= none, 2=few, 3= medium, 4=high, 5=Very high

No.	Knowledge Areas	Importance for project success				
		1	2	3	4	5
1.	Integration Management					
2.	Scope Management					
3.	Time Management					
4.	Cost Management					
5.	Quality Management					
6.	Resource Management					
7.	Communications Management					
8.	Risk Management					
9.	Procurement Management					
10.	Stakeholder Management					

Appendix B: Interview

Interview Questions

1. How it looks like the current status of Construction project success rate in terms of time plan, cost and achieved objectives in ETRE?
2. Do you use project management tools that include communication management as a feature and? If you don't have yet, do you have a plan to do so?
3. What is the formal method of communication between stakeholders and why you choose it over the other options?
4. Were there any conflicts occurred between the bank and other stakeholders like vendor, consultant or any other?
5. How do you feel the effect of communication management on the project success rates of your company?