
**ADDIS ABABA UNIVERSITY SCHOOLOF COMMERCE**

**DEPARTMENT OF PROJECT MANAGEMENT POST GRADUATE PROGRAM**

# ASSESSING THE EFFECT OF PROJECT MONITORING AND CONTROLLING PRACTICE ON PROJECT SUCCESS: IN THE CASE OF ETHIOPIAN AIRLINES CONSTRUCTION PROJECT MANAGEMENT OFFICE

**By: Rediet Tadesse**

**A Research Project Submitted in Partial Fulfillment of the Requirements for Obtaining the Degree of Masters of Project Management**

**Advisor: Dr. Worku Mekonnen**

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**BY: REDIET TADESSE**

**Approved by:**

_____ _____ _____

**Advisor Signature Date**

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**Internal Examiner Signature Date**

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**External Examiner Signature Date**

## DECLARATION

I certify that this research paper entitled “Assessing the Effect of Project Monitoring and Controlling Practice on Project Success in the case of Ethiopian Airlines Construction Project Management Office” has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree.

I also certify that the thesis/project has been0-B written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

**Declared by:**

Name: _____

Date: _____

Signature: _____

**Confirmed by Advisor:**

Name: _____

Date: _____

Signature: _____

**Approved by Examiner:**

Name: _____

Date: _____

Signature: _____

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**ACRONYMS**

**ET:** Ethiopian Airlines

**PMBOK -** Project Management Body of knowledge

**PMO** - Project Management Office

**SPSS -** Statistical Package for Social Science

**GTP** – Growth and transformation plan

**GDP** – Growth domestic products

**MRO** – Maintenance and repair organization

**M&E**- Monitoring and Evaluation

## ABSTRACT

The research paper was undertaken in order to find out if there is a practice of monitoring and controlling that is change control, project status meeting, and project status reporting in Ethiopian airline construction projects office. The effect of the practice on project success criteria, which are projects to be, finalized within the planned budget, cost, quality, scope, and stakeholder satisfaction, and health and safety issues. Qualitative and quantitative data analysis was conducted. The majority of the respondents agreed that projects are completed on or below the planned budget due to the turnkey agreement contract with a fixed budget. The majority of the respondents disagreed and were neutral that projects are completed on or below the planned schedule and were neutral regarding the satisfaction of stakeholders after projects are completed. Some practices of monitoring and controlling practice has a strong correlation with project success. The practices being; well-defined change procedure at the beginning of the project, change is processed or approved all stakeholders are informed, personnel is assigned who can monitor change in the project has a strong correlation with project success, regularly conducting project status reports, project status reports being accurate and well-documented, project status reports had strong causality with project success, project status meeting is efficient and effective, the participant having adequate information about the status of the project in meetings and well-documented minutes of the meeting are for future reference. Therefore, the researcher has identified even though the practice of monitoring and controlling is practiced the projects under ET construction PMO are not successful. Consequently, the researcher indicates that the PMO to revise and evaluate the existing monitoring and controlling practice. In addition, there needs to be further research regarding the efficiency of the practice of monitoring and controlling practice and study to be conducted on the other project lifecycle phases as well in regards to project success.

# CHAPTER ONE

## 1. Introduction

### 1.1 Background of the Study

Construction is an integral part of nation's infrastructure and industrial growth (Ethiopian economic association, 2008). It is one of rapidly growing sector in Ethiopia. According to GTP, launched late 2010; the Country's vision is to drive Ethiopia into middle-income countries by 2025. Despite major various transformation projects in progress in Ethiopia, construction industry have been the major development sector of the Country (African development bank group, 2011). Construction can develop the GDP of a country, and improve quality of life for example building of roads, schools, hospitals and other basic facilities (Ismail Abdul Rahman, Ahmad Abd Karim, Aftab Hameed Memon, 2013).Therefore, in order for Construction projects to be efficient and effective project management is required to meet the set goals and plans.

Projects are one of the vital components in an organizational structure. Project may be a temporary endeavor designed to supply a singular product, service or result with an outlined commencement and completion date (usually time constrained, and sometimes constrained by funding or deliverable) undertaken to meet unique goals and objectives, typically to bring about beneficial change or benefit(Adebayo O. R.1, Eniowo O. D.2 and Ogunjobi V. O.3, 2018). Therefore, according to this definition a project has life cycle, which incorporates a limited time and resource investment. It is important that the outcome of the project do not deviate in time, cost and quality from planning. According to PMBOK 4th edition, 2008, project life cycle has five stages, Project initiation, project planning, project execution, project monitoring and project closing. In this research paper, the major focus is on the fourth stage of the project management phases, which is monitoring and controlling of the project and its effect on the outcome of the project. According to Iman and Siew (2008), one of the major components for project failure is incompetent monitoring and controlling practice. Monitoring and controlling are essential components of any project and are

crucial for success. Project management will be effective by following defined knowledge, tools, skills, and techniques, so the right combination of processes and procedure will lead to accomplishing set objectives. Project monitoring and control process is measuring the ongoing project activities, monitoring project variables (cost, effort, scope, etc.) against the project management plan and the project performance baseline, Identify corrective actions to address issues and to integrate change control (Jack, Okeke, Okechukwu & Akinola, 2016). Effective project monitoring and controlling practice would reduce deviations from the project plans, by identifying and reporting the status of the project, comparing it with the plan, analyzing the deviations, and implementing the appropriate corrective actions. Hence, it includes the set of policies, methods and tools that would ensure the achievement of the project targets (Hazir, 2014). The development of an appropriate Project Control system is vital part of the project management (Adebayo O. R.1, Eniowo O. D.2 and Ogunjobi V. O.3, 2018).

Ethiopia Airline group being one of the fastest growing Airlines in the world has vast number of construction projects ongoing (BET Architects & Sohne and partners architects, 2014); the renowned construction project implemented being the new terminal expansion, skylight hotel and other major construction inside the compound. This paper would analyze the monitoring and controlling practice of Ethiopian Airlines and the effect on the outcome of the project success.

**1.2. Background of the Company**

An Ethiopian airline, which is one of the fastest growing airlines in Africa, is established in December 21st 1945 and began operations on April 8, 1946.Ethiopian made its maiden international flight to Cairo in 1946 flying a Douglas C-47 Sky train (Ethiopia: Academy Graduates, 2012).

Ethiopian Airlines is the flag carrier of Ethiopia. During the past sixty plus years, Ethiopian Airline has become one among the continent’s leading carriers, unrivaled in Africa for efficiency and operational success, turning profits for nearly all the years of its existence according to Reuters news the airline has profited in 2017/18, 233

million dollars with annual revenue of 3.9 billion dollars. Operating at the forefront of technology, it has also become one of the Ethiopia's major industries and a veritable institution in Africa. Furthermore, it is working diligently to form the Ethiopian Aviation Academy the leading aviation academy in Africa. To support all the growing capacity of the Airline additional physical structures is foreseeable.
Moreover, the airline has set as part of its strategic plan, to prepare a master plan for its premises for optimum utilization, proper management of the existing facilities and new facilities in the future (BET Architects & Sohne and partners' architects, 2014).
This Physical Development plan is based on Ethiopian Airlines Vision 2025. The development addresses future physical need of the airline through the utilization of the existing land with its existing structures. One of the main outputs is the image of Ethiopian Airlines reflected in its working environment (physically) as is in its service delivery. Ethiopian airlines (EAL) is laid on a premise of more than 80500 square meters. The site is further divided in to four parcels with individual title deeds; Aviation academy, ET-Cargo, MRO and Administration / catering sites. Ethiopian airlines has around 19000 employees, and planning to expand and this indicates and suggests a doubling effect on major developments by the projected year. This would lead to major expansion of projects to take place, i.e. like expansion of airline facilities, construction of new terminal, hotel projects and housing project for the employers (BET Architects & Sohne and partners' architects, 2014).

The office responsible for physical infrastructure projects in the company is Ethiopian Airlines Group Infrastructure Planning and Development Office, which was established in 1995 GC. The office was initiated 25 years ago as corporate planning due to the rapid growth of the Airline and the insufficient space with in the compound (Ethiopian Airlines master plan report, 2014). During the initial period with limited number of staffs on board, they executed small maintenance in the compound. However, as the Company expands many projects started to emerge for example building new terminal, big expansion projects in the technical area as well, Housing

projects, five star Hotel projects Etc., thus this paper would analyze and study the project monitoring and controlling of the projects and its effect on project success.

### 1.3 Statement of Problem

Project management studies usually stresses the significance of monitoring and controlling for a project success. Even though there are various factors that plays a greater role in project achievement, monitoring and controlling plays a major part. However, in many projects there is variation in cost, scope, schedule and quality in the outcome of the project from the planning process. This means that the success of a project can be dependent on the practices in every organization, with the construction industry not being an exception to such development. However, monitoring and controlling practices are given less recognition in the project execution processes (Arditi, J.D, 1985).

Project management is the implementation of knowledge skills, tools and techniques to project activities. Projects generally be unsuccessful because of poor planning, constant changes in the scope and consequently deadline and budget, as well as the lack of monitoring and controlling practice (Mir, Pennington, 2014). Managing successful construction projects has become a significant factor for project success and investment in project management becoming integral to that success. However, many organizations still struggle to achieve success with established plan. Numerous construction projects are not completed on schedule, budget, and within scope, which is resulting in cost overruns and delays (Saad H. Al-Jibouri, 2003). According to Flyvbjerg, 2003 nine out of ten-infrastructure projects will face cost overrun. Therefore, Monitoring and controlling process has in the recent become a necessary requirement for projects success. Successful Construction projects required to have optimum supervision and monitoring practice (Rahman, Karim, Memon, 2013). According to Ethiopian Country Program Evaluation [ECPE] (2010), in Ethiopia, most of the government organizations do not use effective project monitoring and controlling system in appropriate manner for their projects in addition there are no tangible research conducted on the project monitoring and controlling practice on construction projects. Currently there are many construction, expansion and renovations projects handled by Ethiopian Airlines group infrastructure

planning and development office to meet the organization 2025 strategic plan (BET Architects & Sohne and partners' architects, 2014). From interview with internal staffs, the projects under the PMO conducted by the internal management, engineering staffs, and subcontracted for consultant and contractors. However, it is evaluated that vast of the projects do not meet set plans. Various problems contribute to variate the outcome of the projects from the planning process in projects one of the factor being controlling and monitoring. Hereafter, this paper would assist in having a comprehensive assessment on the monitoring and controlling practice of the PMO and the relation of Project change control, Project status meeting and project status report with project success.

### 1.4. Research Question

- How is project monitoring and controlling processes carried out in the PMO?
- To what extent is the monitoring and controlling practice affecting the project success?

#### 1.4.1 Specific Research Questions

- How does project status reporting influences the project success?
- How does project status meeting influences the project success?
- How does project change control influence the project success?

### 1.5 Objectives of the study

#### 1.5.1 General Objectives

The main objective of this study is to identify monitoring and controlling practices and to assess the effect of project monitoring and controlling process practice on the project's successes of Ethiopian Airlines construction projects.

#### 1.5.1 The Specific Objectives-

Based on the general objective and in achievement of the research questions the following are the specific objectives the researcher has gathered

- To identify the existing monitoring and controlling process practices of the PMO
- To identify the relationship between Project status reporting and project success.

- To identify the relationship between project status meeting and project success.
- To identify the relationship change control and project success.

### 1.6 Significance of the study

The significance of the study is to identify the monitoring and controlling practice of Ethiopian airlines, to analyze the effect on project success or failure. It would complement the project listed below:

- The research would assist Ethiopian Airlines to critically understand the monitoring and controlling practice and its impact on project success.
- This research would assist Ethiopian airlines to identify variables (Change control, Project status report, Project status meeting) that has impact on project outcome.
- The findings would assist Ethiopian Airlines to develop intervention in the improvement of monitoring and controlling practice.

### 1.7 Scope of the study

The study is driven on assessing project monitoring and controlling practice of Ethiopian airlines construction projects. The projects are under Ethiopian Airlines group infrastructure planning and development office. The office has ongoing and completed project currently.

The paper analyzed monitoring and controlling tools and techniques from Project management processing groups and its impact on the project outcome. It would only focus on monitoring and controlling tools that are, change control, Project status report and project status meetings. However, there are many factors affecting project outcome so further studies can be conducted on other variables. Due to time constraint, this research is limited to the mentioned above monitoring and controlling practices.

### 1.8 Definitions of Terms

This section presents the definition of the key terms used in the study. The terms are defined within the context of the research paper.

**Monitoring and controlling process group**- It incorporates a process of tracking, reviewing, and arrange the progress and performance of a project. It identifies areas where change is needed and it corresponds to change (PMBOK Guide 4th, 2008)

**Project Control**: A process incorporates comparing actual performance and planned performance and taking appropriate corrective action or directing procedures to the right track so that the project outcome is a project baseline (PMBOK 4th edition, 2008).

**Project:** a temporary endeavor undertaken to create a unique product or service (PMBOK 4th edition, 2008).

**Practice**: Practice is the actual application or performance of monitoring and controlling system within the organization.

**Project success criteria**: is a quantifiable term of what should be the outcome of the project that is acceptable to the end-user, customer, and stakeholders (Cooper team, 2018).

**Project management office**: a management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques (PMBOK 4th edition, 2008).

**Project managers** is an individual responsible for leading a project from its commencement to execution. The tasks included are planning, execution, and monitoring people, resources and scope (Techopedi, 2014).

**Organizational structure**: it is a system used to define a hierarchy within an organization. It identifies jobs, Job function and a hierarchy of reporting within the organization (PMBOK 4th edition, 2008)

## CHAPTER TWO

## 2. Literature Review

### 2.1 Project life cycle

Project is a temporary exertion with a specific project timeline, scope, and costs in order to outcome unique product. Every project is unique because of different circumstances and environmental dynamics. So Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements stated as PMBOK guide in the fourth edition, 2008. The project has a life cycle with sequential phases or income circumstances by overlapping some of the phases. The project lifecycle can be determined by the unique situations of the company or projects in size and complexity (PMBOK 4th edition, 2008). The Generic life cycle is described below;


**Figure 2. 1. Cost and staffing levels across the project life cycle** (PMBOK 4th edition, 2008)

Therefore, as referred above in figure 2.1, the project manager can determine the extra effective control of certain deliverables according to the distinctiveness of the project. Project structure has different segments in order to make it easier for control and monitoring of the project. The segments (phases) might have and start and finishing point however the transition can overlap. Each phase has different

resource inputs and time duration (PMBOK 4th edition, 2008),

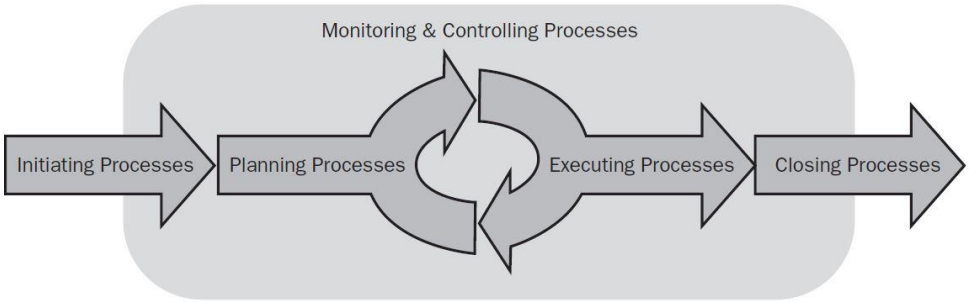



**Figure 2.2 Monitoring and controlling process** (PMBOK 4th edition,2008)

Project Governance and organizational structure play a major role in controlling and monitoring the projects and it must be specified in the planning process. It must be stated in the project initiation stage with the project manager and project team (PMBOK 4th edition, 2008). Project phases can be sequential, overlapping and for uncertain or rapidly growing projects iterative can be implemented. In the case of construction process, there is a design stage and construction, which would be sometimes overlapped (Shadan, 2012).

From various factors affecting projects, one of it is process and procedures conducting work in a project, it must be specified formally and informally. Some of the lists of activities that need to be incorporated in the procedure and process is financial control; deficient control, Change control; risk control procedures, templates, Organizational Standard and guidelines, Organization communication, Project closure requirement, and other related issues must be stated (PMBOK 4th edition, 2008).

### 2.2 Monitoring and Controlling

Monitoring controlling process does not only comprise in a sole phase of the project but paths the entire project from the commencement to completion. Project Monitoring and Control actions occur in corresponding with Project Execution Process Group activities in order that, while the project work is being executed, the project is being monitored and controlled by implementing the appropriate level of oversight and corrective action (Hassib, 2018). The project must be repeatedly perceived according to the project plan. It requires tracking, reviewing, and regulating the progress and performance of the project. Identify any areas in which

change is required and initiate the corresponding changes. In this process, regular and Consistent measurement is taken place according to the project plan (PMBOK 4th edition, 2008).

The main determination of monitoring and controlling activities is to be practical in finding issues ahead and taking corrective action. Corrective action can require revisiting Planning Process Group and updating the Project Management Plan as required with the last word goal of bringing the project back in line with project objectives and constraints and improving future execution to avoid repeating an equivalent issues (Hassib, 2018).

According to Hassib, 2018 the Output of Controlling and monitoring is;

- Recommended corrective actions
- Recommended preventive actions
- Forecasts
- Recommended defect repair
- Requested changes

### 2.2.1 Project Change Control

Change Control is the process that management uses to identify, document, and authorize changes to an environment. The change control procedures are designed with the dimensions and complexity of the environment in mind. Changes to a project may have an impact on time, cost, or quality. Broadly, the later within the development of the project that changes occur, the greater those impacts are likely to be (Decision Making on Building Design and Construction Projects, 2017).

Change proceeds with the permission of the client. At the end of the concept design stage if the project is tendered at this stage (for example on a building project). The change process can be implemented during design and construction projects. I.e. at the end of the concept design stage when the project brief, during the detailed design stage when the detailed design, technical design, and specification are finalized, During the tender stage when the tender documentation has been

prepared, When the contractor is appointed and any longer changes may qualify as variations (Towey, 2012).

While requesting some factors should be considered according to Hassib, 2018;

- The reasons for the change.
- The outcome of the change
- Proposal for the vindication for the consequence
- Listing and planning for the risks associated with the change
- Change proposal
- Schedule for the change to be implemented

By evaluating the above, the stakeholders would assess according to the capacity and the risks linked to the project. In handling change, a qualified person must be assigned who can handle and document the progress of change in the project life cycle. According to Risk Management & Audit Services, change control process should consider the subsequent elements (Hassib, 2018). :

- Change Request Initiation and Control – Change request must be reviewed by the management team of the project. The request must be consistent, categorized; ranked and definite measures must be placed.

- Affect Assessment – All listed changes must be assessed according to all possible effects on the project. The effect must be evaluated in a structural way.

- Control and documentation of Changes – Documenting change is a crucial part of a project life cycle. A structural log must be maintained stating the period of change, what the change was, who started the change, who approved the change, and the consequence of the change.

- Documentation and Procedures – documentation and procedures must be updated accordingly.

- Authorized Maintenance - Staff maintaining systems should have specific assignments and their work monitored as required. In addition, their system access rights should be controlled to avoid risks of unauthorized access to production environments.

It is important that the need for changes can be minimized by thorough site investigation and research prior to starting the project, all stakeholders to be involved from the beginning of the project, studying all social and political environment of the project, future risks, and measures to be identified, to plan the design and construction of the project thoroughly. However, a project by its nature has a dynamic environment so it is vital to plan how to manage change in the project lifecycle (Towey, 2012).

### 2.2.2 Project Scope control

It is managing the Scope of the project (Size of the project) against the project baseline; it ensures all changes to be precautionary or remedial actions to take place. There are uncontrollable changes called project scope creep. A project management plan, Scope baseline, work performance information, requirement documentation, and organization assets by using of variance analysis by assessing the magnitude of variation from original scope baseline and giving feedback on preventive or corrective issues (Hassib, 2018).

#### 2.2.2.1 Scope Creep

A project is a summation of different tasks and when an unplanned task is added to a project without any adjustment on cost, schedule, and resource scope creep occurs. If the scope creep is not attained promptly, it might fail. The reason behind scope creep according to Hassib, 2018

- **Poor documentation of scope**- if the scope is not well stated which could easily converse with the project stakeholders; it would create misunderstanding and unnecessary measures to be taken which would hinder the success of the project.
- **Poor requirement definition** – This would create missed information on the needed outcome of the project, it might create overestimation in cost and time which might result in budget and schedule overrun.
- **Poor communication -** Misunderstanding among stakeholders expectations might create a scope creep.

- **Defining the project –** it is lack of proper estimation of the project schedule, cost, and resource. Not having a proper baseline for the project would create improper use of budget and resources which later creates scope creep
- **External factors –** This might result because of the dynamic character of the project, external influence can alter the specific scope of the project.

Scope change is inevitable in small or mega projects, so during the project planning process, sufficient contingency must put in place. There are different techniques for scope control; one is variance analysis. Schedule and cost variance must be calculated within the lifecycle of the project. Then the performance index must be analyzed to estimate how far the project has evolved. Each of these must be analyzed in each task of the project (Wysocki, 2014).

### 2.2.3. Project Quality, Schedule and Cost Control

#### 2.2.3.1 Project schedule monitoring

Since a project has beginning and end, schedule control is a vital part of project success, because delay in a project would result in an additional cost to be invested in a project, which later would create overrun in the budget. Therefore, by identifying the span of each activity and by achieving each activity in the planned duration the project manager would succeed. Schedule monitoring is identifying the status of a project, by comparing the progress of the project with the planned schedule (Wysocki, 2014). The Project manager can use the software, the magnitude of variation, Performance reviews (measure, compare, and analyze schedule against the actual finish date, percentage completed, and remaining time to finalize the project activity), adjusting leads and lags, schedule compressing and schedule tools. It is always vital to list all tasks in their sequence in order to identify activities that float and on the critical path. Consequently, that proper measure is taken in order to avoid overall project delay. The schedule must be updated regularly (Hassib, 2018).

#### 2.2.3.2. Project cost monitoring

It is comparing the operational budget of the project according to the project baseline (Waris & Arazi, 2011). It is using optimally the project budget assigned for different tasks (work breakdown structure) of the project. During the planning stage,

sufficient contingency must be assigned for each task. These tasks are the building of the project so the proper use of budget would prevent cost overrun (Roseke, 2017).

**Earned Value management**

Project control takes place against the value baseline employing a technique called Earned Value Management. In this technique, several variables are determined from actual progress on the project tasks. The variables being planned value, earned value, and actual cost. By considering these values, we can calculate Cost and Schedule variance as well as cost and schedule performance index (Roseke, 2017). Then, by analyzing this the project manager is able to forecast the future and what needs to be done, Earned value analysis would assist the project manager to know and measure the progress of the project, which might result from a change in cost control. The project manager might inquire additional budget from the planned estimate. Therefore, updates on the management plan, and proper reporting must take place (Waris & Arazi, 2011).

### 2.2.3.3. Project quality monitoring

Optimum operation of different tasks in a project creates success in a project however if there is low performance in implementation of work breakdown it creates low-quality project outcomes. Therefore, Quality control is the measurement of project outputs if it meets the accepted criteria. So before the project is delivered to the subjected user it must be subjected to checking the quality according to planned standard in addition the process of project management is also must be measured (Wysocki,2014). The standard might be qualitative or quantitative. I.e. Technical review, trial runs, and inspection. During the planning stage, the planning team needs to produce forms that clearly state the expected project outcome. This would assist in measuring the outcome.

The management must come up with quantifiable criteria metrics, some examples like; failure rate, defect frequency, on-time performance, on-budget performance, reliability, mean time between failures, mean time to repair. Therefore, prevention, which is improving the process so that failure is minimized, is one of the techniques and

inspection is quality control before it reaches customers. While quality is controlled two types of measurement, can be taken; Attributes sampling (pass/fail criteria), Variable sampling (Rated by using a scale), and comparing the planned result with the actual output (Hartney, 2018).

### 2.2.4. Project status Reporting

Monitoring and controlling project work is tracking, reviewing, and regulating the progress consistent with the set plan, which incorporates status reporting, progress measurement, and forecasting (PMBOK 4th edition, 2008). It must be listed in detailed activities, accomplishments, milestones, identifies issues, and problems. Project reporting is one of the project tracking mechanism. It must contain information regarding schedule, budget, scope, quality, resource, stakeholder communication, risks, and procurement (Landau, 2017). It is an efficient way of communicating among project stakeholders and for documentation as well. It is vital to have a formal and consistent reporting format in the project life cycle. The key characteristics of a report is it has to communicate well, has to have a constant format, it has to have measurable data, has to be easily understandable and the report must reflect the actual work of the project (Landau, 2017). A project status report should incorporate the following;

**General project information** - in this part only the basic information is listed; for an example project name, project manager, and project team and invested resources (Landau, 2017).

**Milestone review** – in the major phase of the project this is written, which incorporates by comparing the planned and the actual work of the project(Landau, 2017).

**Project Metrix** – it is by incorporating measurable data of the project regarding cost, schedule, and scope (Landau, 2017).

**Issues & Risks** – In this area, the report must include any issues and risks that arose during the project lifecycle and the proper measures taken place in order to resolve the concerns (Landau, 2017).

**Project Summary** – In this area, the starting and completion date of the project

must be stated, the budget and tasks that have been consummate must be stated (Landau, 2017).

In project status reporting, it is recommended to have a weekly/daily reporting system in order to closely track project progress. The report incorporates completed work break down, future work action items, overall project completion and budget spent, action items, and project risks or issues. There are five types of status reports as stated below (Wysocki, 2014).

**Current period reports** – This report includes activities that have been completed in a given time frame; which shows the variance between the planned and the actual finishing point of activity. The report should also incorporate the cause behind each variance (Wysocki, 2014).

**Cumulative reports** – These type of reports shows the history of the project until the status of the project. In this report, the trend of the project can be observed (Wysocki, 2014).

**Exception reports** – It shows alteration from the planned activities. This type of report should be precise and easily understandable because it is intended for senior management (Wysocki,2014).

**Stoplight reports** – It is a type of report showing or marking reports using different colors, to easily be recognized as a work in good progress or if any activity is facing any hindrance. Consequently, that senior management would find it easy to identify activities that require more attention (Wysocki, 2014).

**Variance Reports** – This report shows the variance in the project consisting of planned data, Actual data, and the difference. This would help the project team to identify alteration in early-stage also; if the report is done consecutively, it can manifest the trend of the project (Wysocki, 2014).

#### 2.2.4.1 Project Status meeting

In addition to project reporting, Project status meeting is also essential. It assists the project team to focus on the project. It is important to held efficient status meetings by clearing the agenda of the meeting for all participants, preparing with adequate

information prior to attending the meeting, managing time properly, and active participation from all participants. In relation to the meeting, having a minute of meeting is very crucial as a proper documentation procedure. A meeting can be daily, weekly, or with more time interval as it is convenient with the project team and according to the type of the project (Wysocki, 2014).

## 2.2 Effects of monitoring and controlling on project success

According to Iyer, K., & Jha, K. (2006) Construction projects success factors are Project manager competency, Owner & top management support and Monitoring, feedback, and coordination. In addition, according to a study held by Damoah et al. (2015), showed that factors contributing for project failure in Ghana, and according to their research that the top influencing issues are related to project monitoring and controlling inefficiency. Therefore, in order for a project to be successful, efficient monitoring and controlling practices must take place. It identifies clear alterations in a project from the planned activity. It gives assurance that controlling each activity within planned cost, scope, and schedule, the summation of these activities will lead to project success. It also would lead the project team to learn from the documentation for future upcoming projects. In addition, efficient monitoring and controlling would create better communication among stakeholders and each stakeholder would have an input in the project (Callistus and Clinton, 2018).

### Project success criteria

According to traditional project management, the project success criteria are Cost, scope, and time. In construction projects, Project success can be determined in schedule performance, cost performance, Quality performance, health, and safety performance, and communication with stakeholders' performance (Lim and Mohamed 1999). In many projects, it is visible that cost overrun occurs significantly, and the unplanned budget expenditure is related to improper handling of the schedule, which would result additional cost in order for the project to proceed. Chan and Chan (2004)

described that Health and safety during construction performance is a vital aspect of success, if accidents occur frequently it would cost the project more overheads. Having ambiguous scope understanding would also deem the project to failure according to Muhammad et al. (2013)

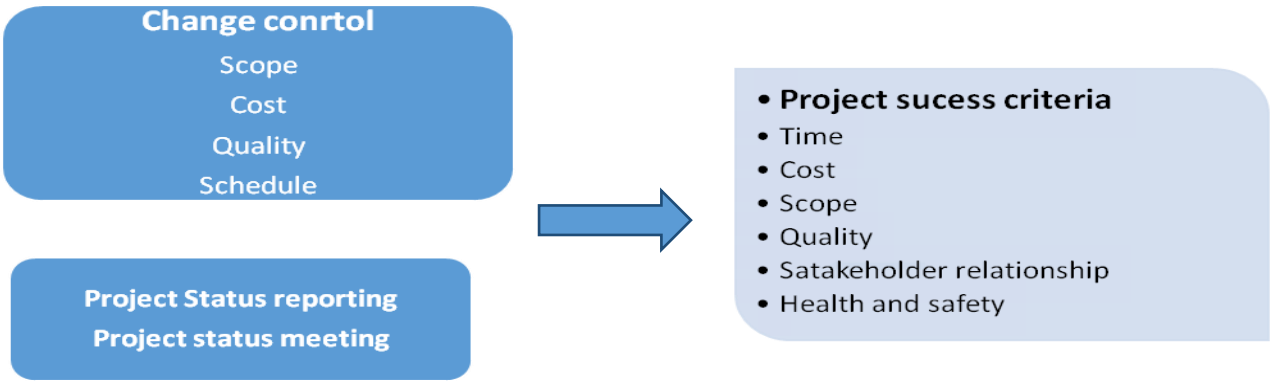
| Criteria | Sub-criteria |
|---|---|
| Cost performance (CP) | Effective resource planning<br>Efficient cost estimation<br>Proper cost budgeting<br>Effective cost control |
| Project schedule performance (PSP) | Availability of resources as planned<br>Efficient activity scheduling<br>Pre-tender proceedings |
| Project quality performance (PQP) | Top management support<br>Effective quality planning<br>Effective quality assurance<br>Effective quality control |
| Health and safety performance (HSP) | Top management support<br>Proper site layout planning<br>Proper use of PPEs<br>Availability of welfare facilities |
| Relationship with project stakeholder (REL ST) | Top management support<br>Effective communication<br>Regular monitoring and feedback by top management |
| Project scope (PS) | Involvement of stakeholders<br>Effective communication<br>Proper scope definition<br>Monitoring and feedback |

**Table 2.1 Project success criteria** (Kissi, Agyekum, Baiden and Tannor, 2019)

In related to these success criteria there are other factors that are viewed in macro viewpoint according to Lim and Mohammed, (1999), they identified it as time, satisfaction, utility and operation. A project is considered successful when it satisfies all stakeholders involved in the project as well as the end-users.

### 2.3 Conceptual framework

Therefore, the conceptual framework of the study would be by measuring the project success by referring to the following criteria Time, cost, scope, quality, Stakeholder relationship, and health and safety. By using these criteria the success of the project would be analyzed with the following project monitoring and controlling variables, which are Change control (Scope, Budget, Schedule, and Quality), Status reporting, Project status meeting, and documentation.




**Independent variable** **Dependent variable**

**Figure 2.3 Conceptual framework**

## CHAPTER THREE

## 3. Research Methodology

### 3.1 Introduction

According to Leedy and Ormond (2010), Research is the systematic process of collecting and analyzing information to increase our understanding of the phenomenon under study. This chapter would cover the research approach, research design, Sample selection, Data source and type, Data collection procedure, reliability and validity, Ethical consideration, and data analysis.

### 3.2 Research Approach

The research is conducted by using a mixed research approach. A mixed research approach is an approach that combines qualitative and quantitative research methods. It involves the utilization of both approaches together in order that the general strength of a study is bigger than either qualitative or quantitative research (Creswell & Plano Clark, 2007). A mixed research approach would assist to answer the research questions on how and to what extent the monitoring and controlling practices are affecting the project's success.

**Qualitative approach** - is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected within the participant's setting, data analysis inductively building from particulars to general themes, and therefore the researcher making interpretations of the meaning of the data. The final written report has a flexible structure. Those who engage during this

sort of inquiry support how of watching research that honors an inductive style, attention on individual meaning, and therefore the importance of rendering the complexity of a situation (adapted from Creswell, 2007).

**The quantitative approach** - is a means for testing objective theories by examining the relationship among variables. These variables, in turn, are often measured, typically on instruments, in order that numbered data are often analyzed using statistical procedures. The final report features a set structure consisting of introduction, literature, and theory, methods, results, and discussion (Creswell, 2008).

### 3.3 Research design

Research design may be a plan and procedure for research that span the choices from broad assumptions to detailed methods of knowledge collection and analysis. (Cresswell, 2008). In this research paper, the goal is to analyze monitoring and controlling practice and its effect on ET construction project success. Therefore, to answer the research question causal correlation of monitoring and controlling practices, which are Project change control, Project status report, and Project status meeting, and its effect on project success. Descriptive research is used to analyze the cause and effect of a project and to answer what Questions, by explaining the characteristics of the phenomenon.

### 3.4 Population and Sampling

The total population in the PMO of Ethiopian airline construction projects is taken for the research. The populations are permanent staff and directly involved in monitoring and controlling construction projects in Ethiopian Airlines. The number of the population that is directly engaged and used as primary sources are33; hence, the researcher has decided to collect information from the whole population. This will consider the 5% discrepancy observed in the collected data. The organizational structure of PMO is shown in Figure 3.1, so the samples are;1 department manager

- 6 Project managers
- 26 Engineering staffs

The total population being 33 staffs under the PMO.

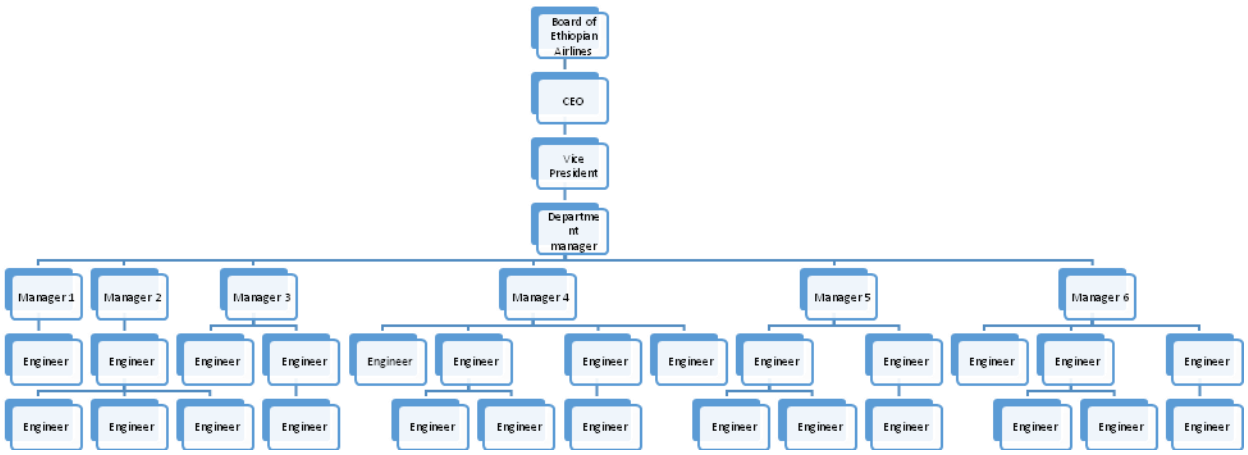



**Figure 3.1Organizational structure of ET PMO source ET PMO**

## 3.5 Data source and type

The data to be collected are primary and secondary data. Primary data is collected by unstructured interviews with the project managers and by distributing structured questioners to the staff with close-ended questions. Secondary data is obtained from reports, journals, and articles regarding controlling and monitoring the practice of ET construction projects and effect in the outcome of project success.

## 3.6 Data collection procedure

The data collection procedure was by interviews with the project and department managers. The interview included open-ended questions regarding the success rate of construction projects comparing with project success criteria (Cost, Schedule, Quality, Stakeholder communication, and Health and safety) and monitoring and controlling practice(Change control, Project status meeting, Project status reporting).

Questioners were distributed to all staff under PMO with close-ended questions regarding factors affecting project success. The questioner used the Linkert scale to assess the causal relation of the element, scaling one for strongly disagree, two for disagree, three for neutral, four for agree, and five for strongly agree. The questioners consist of two parts. One section is the background of the participants and the second section is Monitoring and Controlling practice. Under it, 24 questions are divided into 5 sections, Change control, Project status report, Project status meeting, Project success, and project monitoring and controlling a practice in project success.

Document review was also used as a data collection tool, progress reports and the researcher observed meeting minutes in conjunction with the results of the project. This was done through a document review format that was prepared by the researcher for this specific research.

### 3.7 Reliability and validity

Reliability and Validity analyses the quality of the research paper, where reliability focus on consistency and validity identifies the accuracy of the research.

**Reliability** - in order to check the reliability of the questioners, five questioners were distributed to the selected group based on availability, the test is conducted using SPSS version 21, and Cronbach's alpha test is identified. This result is separately and analyzed forehand to observe the reliability of the questioner that was conducted.

| Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | N of Items |
|---|---|---|
| .863 | .873 | 5 |

**Table 3.1 Reliability statistics (own survey)**

According to Statistics Solutions, Cronbach's Alpha value is between zero and one, the values above 0.70 is good, above 0.80 is better and above 0.9 is best. Therefore, according to the reliability statistics the result the researcher obtained from Cronbach's Alpha test conducted is 0.873 that makes the questioner reliable.

**Validity** – Validity would be measured by using the triangulation method. The collected data was triangulated between the responses of the population and data gathered from

reports from the organization itself. The document review was used as both a source of data and a means to verify the information that was sustained from the population. In addition, the questioner is adapted from Karangwa & Mbera, 2017, the researchers have tested the validity and reliability of the questioner. The researcher has customized questioner as per the research topic.

### 3.8 Ethical consideration

The researcher followed ethically acceptable processes throughout the research process. The data collection was conducted after the researcher has acquired full consent from all the research participants. In this regard, the names of the respondents are not be disclosed and Information was not available to anyone who was not directly involved in the study. Safeguarding the rights of the participants, the researcher also explained the benefits of the study to the participant. In addition, The researcher used proper citation, follow truthful collection & analysis of data, maintained data confidentiality, obtained the consent of the case organization and staffs and keep the identity of respondents unanimous based on their consent to meet the ethical obligations of the research.

### 3.9 Data analysis

The collected data analyzed using quantitative and qualitative data analysis methods. Descriptive statistics will be used to summarize the responses. The collected data from the study presented with the Descriptive method, in tabulated form to make all the data readable and understandable by all concerned parties. Pearson’s product-moment correlation will be used to assess the relationship between the independent variable and dependent variables.

## CHAPTER FOUR

## 4. Data analysis and presentation

### 4.1 Introduction

This chapter would present the findings from the qualitative and quantitative analysis, data is collected from interviews, reports, and questioners. The researcher has used SPSS software version 21 in order to compute the quantitative data. The findings are written in a descriptive format in order to be easily understandable for all readers. The questioners have been distributed to 33 people and 26 have responded with 78.8% responded back which makes it valid to proceed into the analysis.

### 4.2. Quantitative data analysis

#### 4.2.1 Demographic profile of the respondents

In this section, the researcher has presented the demographic profile of the respondent I.e. Gender, Age, and Work experience, position in the organization, and Educational background.

| | Frequency | Percent |
|---|---|---|
| Gender | | |
| Male | 23 | 88.5 |
| Female | 3 | 11.5 |
| Age | | |
| 18-25 | 1 | 3.8 |
| 26-35 | 15 | 57.7 |
| 36-45 | 4 | 15.4 |
| 46-55 | 3 | 11.5 |
| >55 | 3 | 11.5 |
| Educational background | | |
| Diploma | 2 | 7.7 |
| BSC | 18 | 69.2 |
| Masters | 6 | 23.1 |
| Work experience | | |

| | | |
|---|---|---|
| Below 5 years | 7 | 26.9 |
| 6-10 years | 3 | 11.5 |
| 10-20 years | 12 | 46.2 |
| above 20 years | 4 | 15.4 |
| Position in the organization | | |
| Department Manager | 1 | 3.8 |
| Project Manager | 6 | 23.1 |
| Engineer 1 | 10 | 38.5 |
| Engineer 2 | 8 | 30.8 |
| Engineer 3 | 1 | 3.8 |

**Table 4.1 Demographic data of respondents**

According to the data collected, 88.5% of the respondents are male with 11.5% female respondents. The age distribution in the PMO is; between the age 25 and 36 with the percentage of 57.7%, 15.7% of the population is between the age 36 and 45, 11.5% are between 46 and 55, 11.5% are above 55 years old and 3.8% are between the age 18 and 25 years old. The educational background of the respondents is; 69.2% are BSC holders, 23.1 % have master's degree and 7.7% have a diploma. Their respective work experience is; 46.2% of the respondents have 10 to 20 years of experience, 26.9% have below 5 years of experience, 15.4% have above 20 years' experience and 11.5 % have 6 up to 10 years' of experience. Based on the data collected the majority of the respondents are well experienced in their respective fields and are eligible to analyze and give valid information regarding the research topic.

The position of the respondent in the organization is 38.5% are Engineer 3 (5 years working experience in ET), 30.8% are Engineer 2(3 years working experience in ET), 23.1% are project managers, 3.8 are department manager and 3.8% are Engineer 1(2 years working experience in ET).

### 4.2.2 Analysis of Project monitoring and controlling practice

This section would analyze the practice of monitoring and controlling in Ethiopian airline construction projects. Data is collected and analyzed from the questioners distributed and is represented in the respective tables, descriptive representation is presented under each table to be understandable for all readers.

#### 4.2.2.1 Change Control

The researcher has analyzed the change control practice in Ethiopian airlines construction projects, the following data retrieved from the questioners. The mean average is taken from the response of the participants regarding change control. The data is shown on the table below;

| | Frequency | Percent |
|---|---|---|
| Disagree | 3.5 | 5.05 |
| Neutral | 3.25 | 17.3 |
| Agree | 14.25 | 54.8 |
| Strongly Agree | 6 | 23.0 |

**Table 4.2 Effective practice of Change control**

The data was collected from the questioners distributed to the PMO staff. From the 26 respondents,' only 25 responded on having a well-defined change control procedure; 57.7% of the respondents' agreed that there is a well-defined change control procedure at the commencement of the project. 19.2 % strongly agreed on the same issue, 11.5% disagreed and 7.7% were neutral that there is a well-defined change control at the beginning of a project. In addition, on the query, if the personnel is assigned who can monitor change in projects; 50.0% agreed, 19.2% strongly agreed, 23.1% were neutral and 3.8% disagreed that there is personnel assigned who is in charge of change control. Regarding the question if the change is accepted by assessing it with scope, schedule, budget, and quality, 50% have agreed, 30.8% have strongly agreed, 11.5% were neutral and 7.7% disagreed. On the question, that if there is a practice of informing all stakeholders involved in the projects when change is processed or approved; 38.5% agreed, 26.9% strongly agreed, 23.1% were neutral and 11.5% disagreed. Concerning

the question, if the change is followed according to structured procedures, 61.5% have agreed, 23.1% strongly agreed, 7.7% were neutral and 3.8% have disagreed.

#### 4.2.2.2 Project status report

The researcher has gathered data from the questioner distributed; the practice of project status reporting practice is presented in the section below; which is one of monitoring and controlling practice. The mean average of the respondents' response is shown on the table below;

| | Frequency | Percent |
|---|---|---|
| Strongly Disagree | 0.2 | 0.76 |
| Disagree | 2.6 | 10 |
| Neutral | 2.8 | 10.76 |
| Agree | 12.2 | 46.94 |
| Strongly Agree | 8.2 | 31.56 |

**Table 4.3 Effective Practice of Project status report**

According to the data collected, 50% of the respondents have agreed on having defined and structured reporting procedures, 38.5% have strongly agreed, 7.7% are neutral and 3.8% strongly disagree. Regarding regularly conducting of project status report, 53.8% agreed, 38.5% strongly agreed and 7.7% disagreed that there is a practice of regular project status reporting system. Furthermore concerning if the project status report reflects and compares the progress of the project. 46.2% of the respondents agreed that the project status report reflects and compare the progress of the project. 34.6% strongly agreed, 15.4% disagreed and 3.8% were neutral. In addition, 38.5% of the respondents agreed that all stakeholders are aware of the project status report, 23.1% have strongly agreed, 19.2% have disagreed and 19.2% were neutral. Regarding project status reports being well documented and accurate, 46.2% have agreed, 23.1% strongly agreed, 23.1% were neutral and 7.7% disagreed.

#### 4.2.2.3 Project status meeting

The researcher has presented data from the questioners regarding the practice of project status meeting practice in the following section. The mean average of the respondents' response is shown on the table below;

| | Frequency | Percent |
|---|---|---|
| Strongly Disagree | 0.25 | 0.95 |
| Disagree | 2.5 | 9.6 |
| Neutral | 4 | 15.35 |
| Agree | 13.75 | 52.825 |
| Strongly Agree | 5.5 | 21.15 |

**Table 4.4 Effective practice of Project status meeting**

Based on the response of the PMO staff, regarding having regular meeting within a reasonable time interval, 53.8% of the respondents have agreed that there is regular meeting within a reasonable time interval, 23.1% strongly agreed, 11.5% were neutral, 7.7% have disagreed and 3.8% strongly disagreed. In addition concerning the effectiveness and efficiency of project status meetings, 50% have agreed that project status meetings are efficient and effective, 19.2% of the respondents strongly agreed, 19.2% were neutral and 11.5% disagreed.

Regarding the query if the attendees of project status meetings have adequate information, 46.2% of the participants agreed that participants have adequate information regarding the project status in meetings, 26.9% were neutral, 15.4% strongly agreed and 11.5% disagreed. Moreover, 61.5% of the respondents agreed that minutes of meetings are well documented for future reference, 26.9% strongly agreed, 2.7% disagreed and 3.8% were neutral.

#### 4.2.2.4 Project success

The researcher has presented data from the collected questioners regarding the project success according to project success criteria (Cost, Schedule, Quality, Health and safety and Stakeholder satisfaction). The table is prepared by taking the mean average of the respondents' response

| | Frequency | Percent |
|---|---|---|

| | | |
|---|---|---|
| Strongly Disagree | 0.4 | 2.28 |
| Disagree | 5.2 | 20 |
| Neutral | 6.8 | 26.16 |
| Agree | 10.6 | 40.78 |
| Strongly Agree | 1.2 | 4.6 |

**Table 4.5 Project status meeting**

Regarding the quires concerning Project being completed on or below planned budget, 46.2% of the respondents agreed that projects under their supervision have been completed on or below planned budget, 26.9% were neutral, 15.4% of respondents disagree, 3.8% strongly disagree and 3.8% strongly agreed. In addition concerning projects being finalized on or below planned schedule, 30.8% of the respondents disagreed that projects under their supervision have been completed on or below planned schedule, 30.8% were neutral, 26.9% of respondents agreed, 3.8% strongly disagree and 3.8% strongly agreed.

Concerning projects being completed according to planned scope and quality, 69.2% agreed, 15.4% were neutral and 11.5% of the respondents disagreed. In addition, relating to stakeholder satisfaction after completion of a project, 34.6% were neutral, 30.8% of the respondents agreed, 19.2% disagreed, and 7.7% strongly agreed. About the question having none issues on health and safety, 30.8% of the respondents agreed that there are none health and safety issues during construction projects, 26.1% were neutral, 26.1% disagreed, 7.7% strongly agreed and 3.8% strongly disagreed.

### 4.2.3 Correlation between project monitoring and controlling practices and project success

Correlation is a degree of association between two variables (Asuero, Sayago, and Gonz´alez, 2006). The researcher has used Pearson correlation in order to analyze the two quantitative data. Pearson correlation is defined as a measure of the existence and the strength coefficient of between -1 and +1 between two linear variables. If the outcome is significant, it is concluded that correlation exists (Samuels, Peter & Gilchrist, Mollie. 2014). Positive correlation shows that both variables increase and reduce together, whereas indirect correlation indicates one

variable increases the opposite decrease and 0 indicates there's no relationship between the two variables.

#### 4.2.3.1 Change Control

The researcher has presented data from the collected questioners regarding the correlation between project success and change control, Table 4.6 shows the correlation matrix

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.2 | 0.378 | 0.665 | 0.19 | 0.977 | .527** | .517** | .514** | .435* | .685** |
| 2 | 0.36 | 0.077 | 0.158 | .513* | 0.031 | .424* | .470* | .480* | .487* | .498** |
| 3 | 0.13 | 0.039 | -0.133 | 0.039 | -0.071 | .417* | .407* | .412* | .549** | .692** |
| 4 | .407* | 0.148 | -0.068 | 0.318 | -0.136 | 0.327 | .533** | .499** | 0.366 | 0.351 |
| 5 | 0.311 | 0.255 | 0.037 | 0.257 | -0.014 | 0.18 | 0.306 | 0.146 | 0.232 | 0.328 |

**Table 4.6 Correlation between project success and change control**

**LEGEND**

**A** - Project under your supervision has been completed on or below the planned budget

**B** - Project under your supervision has been completed on or below the planned scheduled

**C** - Project under your supervision has been completed according to planned scope and quality

**D** - After the completion of a project all stakeholders are satisfied

**E** - During the construction project there is none health and safety issue

**F** - There is a structured procedure of monitoring and controlling practice in order to finish project on time

**G** - There is a structured procedure of monitoring and controlling practices in order to finish projects on budget

H - There is a structured procedure of monitoring and controlling practice in order to finish project as per planned quality

**I** - There is a strong monitoring and controlling procedure to handle safety and health issue during construction

**J** - There is effective monitoring and controlling procedure monitor cost, schedule, quality, and scope throughout the phase of the project

**1** - Change control procedure is well defined in the beginning of each project
**2** - When change is processed or approved all stakeholders are informed
**3** - personnel is assigned who can monitor change in the project
**4** - Change is accepted by assessing it with scope, schedule, budget and quality
**5** - Project change is followed according to the structured procedures

Based on Table 4.6, there is a weak correlation between well-defined change control procedures at the beginning of each project and project success. According to Pearson, r data results in the value which is close to 1 have a strong correlation, based on that there is a strong correlation between well-defined change procedure at the beginning of the project and effective monitoring and controlling procedure to monitor cost, schedule, quality and scope throughout the phase of the project.

According to the data, it indicates that there is a slightly stronger causality between when change is processed or approved all stakeholders are informed and satisfaction of stakeholders after completion of a project. There is strong causality between change is processed or approved all stakeholders are informed and effective monitoring and controlling procedure monitor cost, schedule, quality, and scope throughout the phase of the project. There is a stronger correlation between personnel is assigned who can monitor change in the project and Evaluation and monitoring practice. Particularly there is a stronger causality relationship between the variables effective monitoring and controlling procedure to monitor cost, schedule, quality, and scope throughout the phase of the project and personnel assigned who can monitor change in the project.

There is a weak and indirect causality between Changes that are accepted by assessing it with scope, schedule, quality, and budget and Project success. However, there is a slightly stronger correlation between variable Change is accepted by assessing it with scope, schedule, and budget and quality, and Project under supervision have been completed on or below the planned budget. There is a weak correlation between Change is accepted by assessing it with scope, schedule, budget and quality, and

Effective project monitoring and controlling practice. However, there is a stronger correlation among structured procedure of monitoring and controlling practices in order to finish projects on budget and Effective project monitoring and controlling practice. The correlation between Project changes is followed according to the structured procedures and project success is weak. The correlation between Project changes is followed according to the structured procedures and Effective monitoring and controlling is weak

#### 4.2.3.2 Project status reporting

This section shows correlation between project status reporting and project success; the following table would show the correlation between the two variables

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.084 | 0.055 | -0.092 | 0.029 | -0.276 | .437* | 0.137 | 0.379 | .401* | 0.382 |
| 2 | 0.076 | 0.01 | -0.072 | 0.031 | -0.315 | .389* | 0.114 | 0.322 | .399* | 0.358 |
| 3 | 0.057 | -0.002 | -0.139 | 0.141 | -0.221 | 0.352 | 0.22 | 0.334 | 0.216 | 0.349 |
| 4 | 0.178 | 0.065 | -0.113 | 0.177 | -0.174 | 0.123 | 0.207 | 0.213 | 0.247 | 0.259 |
| 5 | -0.02 | -0.01 | -0.068 | 0.113 | 0.126 | 0.235 | 0.082 | 0.205 | .404* | .430* |

**Table 4.7 Correlation between Project success and project status reporting**

**A** - Project under your supervision has been completed on or below the planned budget

**B** - Project under your supervision has been completed on or below the planned scheduled

**C** - Project under your supervision has been completed according to planned scope and quality

**D** - After the completion of a project all stakeholders are satisfied

**E** - During the construction project there is none health and safety issue

**F** - There is a structured procedure of monitoring and controlling practice in

order to finish project on time

**G** - There is a structured procedure of monitoring and controlling practices in order to finish projects on budget

**H** - There is a structured procedure of monitoring and controlling practice in order to finish project as per planned quality

**I** - There is a strong monitoring and controlling procedure to handle safety and health issue during construction

**J** - There is effective monitoring and controlling procedure monitor cost, schedule, quality, and scope throughout the phase of the project

**1** - There is a defined and structured reporting procedure

**2** - Project status reports are regularly conducted

**3** - Report reflect and compare the progress of the project according to the plan (Schedule, Scope, Quality, and cost)

**4** - Project status report is informed to all participating stakeholders

5 - Project status report are accurate and well documented

According to data gathered and based on Pearson r data, the correlation between well-defined and structured reporting procedures and project success is weak. Correlation between well-defined and structured reporting procedures and Effective monitoring and controlling practice is also weak but there is a slightly stronger correlation with the structured procedure of monitoring and controlling a practice in order to finish the project on time and well-defined and structured reporting procedure.

Correlation between regularly conducting Project status reports and project success is weak. Correlation between regularly conducting Project status reports and Effective monitoring and controlling practice is weak. However, there is a slightly stronger relationship with strong monitoring and controlling procedure to handle safety and health issues during construction and regularly conducting Project status reports.

The correlation between reports reflects and compares the progress of the project according to the plan (Schedule, Scope, Quality, and cost) and Project success is weak. Correlation between reports reflects and compares the progress of the project according to the plan (Schedule, Scope, Quality, and cost), and Effective monitoring and controlling practice is weak. There is a weak correlation between Project status report being informed to all participating stakeholders and project success. There is a weak correlation between Project status report being informed to all participating stakeholders and Effective monitoring and controlling practice

There is a weak correlation between Project status reports being accurate and well documented and project success. There is a weak correlation between Project status reports being accurate and well documented and Effective monitoring and controlling practice. However, there is a slightly stronger relationship with effective monitoring and controlling procedure to monitor cost, schedule, quality, and scope throughout the phase of the project and Project status reports being accurate and well documented.

#### 1.2.3.3 Project status meeting

According to the data collected, this section is a summary of the correlation between project status meetings and project success. The correlation between regularly conducted project status meetings and project success as well as and Effective monitoring and controlling practice is weak.

Correlation between Project status meetings being efficient and effective and project success is weak. However, there is a slightly stronger correlation with Project being completed on or below the planned budget and Project status meeting being efficient and effective. The Correlation between Project status meetings being efficient and effective and Effective monitoring and controlling practice is weak. Nevertheless, there is a slightly stronger correlation with effective monitoring and controlling procedure to monitor cost, schedule, quality, and scope and Project status meetings being efficient and effective.

There is a weak Correlation between participants having adequate information about the status of the project in meeting and project success as well as Effective monitoring and controlling practice. Nevertheless, there is a slightly strong correlation with strong monitoring and controlling procedure to handle safety and health issue during construction and participant having adequate information about the status of the project in meetings

There is a weak Correlation between well-documented Minutes of the meeting are for future reference and Project success. However, there is a strong correlation between monitoring and controlling procedures to handle safety and health issues during construction and well-documented Minutes of meetings are for future reference.

Therefore, according to the data, some practice of project status meetings has a strong correlation with project success, the table down below the correlation between project success and project status meeting.

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.115 | 0.119 | -0.236 | -0.04 | -0.402 | 0.205 | 0.116 | 0.263 | 0.178 | 0.199 |
| 2 | .408* | 0.369 | 0.146 | 0.04 | -.476* | 0.194 | 0.046 | 0.274 | 0.369 | .397* |
| 3 | 0.367 | 0.177 | 0.136 | 0.144 | -0.211 | 0.145 | -0.006 | 0.156 | .441* | 0.373 |
| 4 | 0.038 | -0.052 | -0.269 | -0.062 | -0.163 | .433* | 0.208 | 0.342 | .523** | .470* |

**Table 4.8 Correlation between Project success and project status meeting**
**LEGEND**

A - Project under your supervision has been completed on or below the planned budget
B - Project under your supervision has been completed on or below the planned scheduled
C - Project under your supervision has been completed according to planned scope and quality
D - After the completion of a project all stakeholders are satisfied
E - During the construction project there is none health and safety issue
F - There is a structured procedure of monitoring and controlling practice in order to finish

project on time

G - There is a structured procedure of monitoring and controlling practices in order to finish projects on budget

H - There is a structured procedure of monitoring and controlling practice in order to finish project as per planned quality

I - There is a strong monitoring and controlling procedure to handle safety and health issue during construction

J - There is effective monitoring and controlling procedure monitor cost, schedule, quality, and scope throughout the phase of the project

1 - Project status meeting is conducted regularly with reasonably time interval

2 - Project status meeting are efficient and effective

- In the meeting all participants have adequate information about the status of the project

4 - Minutes of meeting are well documented for future reference

#### 1.2.3.4 Correlation of Project success criteria

The following table would shows the correlation between project success criteria variables, it would imply the inter relationship and influence on one another.

| | A | B | C | E | F |
|---|---|---|---|---|---|
| **A** | 1 | .600** | .449* | .449* | -0.178 |
| **B** | .600** | 1 | 0.337 | 0.206 | -0.296 |
| **C** | .449* | 0.337 | 1 | .529** | 0.101 |
| **D** | .449* | 0.206 | .529** | 1 | .508* |
| **E** | -0.178 | -0.296 | 0.101 | .508* | 1 |

**Table 4.9 Correlation between Project success variables**

**Legend**

A - Project under your supervision has been completed on or below the planned budget

B - Project under your supervision has been completed on or below the planned scheduled

C - Project under your supervision has been completed according to planned scope and quality

D - After the completion of a project all stakeholders are satisfied

E - During the construction project there is none health and safety issue

According to Table 4.9, there is a stronger correlation between Project under supervision to be completed on or below the planned scheduled and Project under supervision to be completed on or below the planned budget. In addition, a stronger correlation between Projects completed according to planned scope, quality, and Stakeholders satisfaction after completion of a project.

### 4.3. Qualitative data analysis

The researcher has collected the following data's through interviews and reports and documentation from PMO. The researcher has interviewed the project managers of ET construction projects. The project managers stated that Ethiopian Airlines gets in to contract using FIDIC (the international federation of consulting engineers) contract that is turnkey agreement. Turnkey agreement is an agreement where the contractor is in possession of the project even though the Employer monitor and control the project (Turner, 2020). The PMO uses turnkey agreement with fixed Budget in the contract. Therefore, there is small variation in cost from the planned estimate. However, the PM informed that there is a significant variance in schedule, scope and quality. The following table is a report of 16 projects undergoing in the current time in Ethiopian airlines construction projects, for confidentiality purpose the names are changed

| **Projects** | **Project schedule** | | **Days Left for the Project** | **% work planned to Date** | **% Work Completed** |
|---|---|---|---|---|---|
| | **Start date** | **End date** | | | |
| **Project 1** | 18-Apr-19 | 18-Oct-21 | 510 | 27.33% | 18.78% |
| **Project 2** | 8-Jul-19 | 9-Jul-22 | 774 | 27.33% | 7.80% |
| **Project 3** | 8-Jul-19 | 9-Jul-22 | 331 | 25.00% | 8.80% |
| **Project 4** | 1-Jan-18 | 30-Jun-19 | 178 | 25.00% | 78.00% |
| **Project 5** | 1-Jul-18 | 30-Jun-21 | 400 | 100.00% | 22.60% |
| **Project 6** | 1-Jul-19 | 30-Jun- | 157 | 80.00% | 9.00% |

| | | | | | |
|---|---|---|---|---|---|
| | | 21 | | | |
| **Project 7** | 1-Jul-19 | 30-Oct-20 | 35 | 30.00% | 10.00% |
| **Project 8** | 1-Jul-19 | 30-Jun-20 | 35 | 60.00% | 9.70% |
| **Project 9** | 1-Jul-19 | 30-Jun-20 | 35 | 90.00% | 100.00% |
| **Project 10** | 1-Jul-19 | 30-Jun-20 | 35 | 90.00% | 100.00% |
| **Project 11** | 6-Dec-19 | 21-Apr-20 | 35 | 90.00% | 47.00% |
| **Project 12** | 19-Jul-19 | 17-Jul-21 | 417 | 70.00% | 8.00% |
| **Project 13** | 17-Aug-19 | 30-Jun-20 | 35 | 13.40% | 10.00% |

**Table 4.10 ET PMO monthly report (Source PMO)**

According to Table 4.10, it is shown that from the 13 projects twelve of them are behind a planned schedule. Therefore, the researcher has observed that there is a delay in delivering the project. The project manager also informed the researcher that the quality of the project outcome is not as per standard and stakeholders are not satisfied as well. According to the PMO, projects are monitored based on a set planned schedule, cost, and quality. Quality control is monitored by consistent site visits by PMO and performing frequent technical tests on the construction materials, even though there is a practice of quality control the PM stated that due to strict budget the quality of the output is compromised. Schedule control is monitored by preparing a program of works at the beginning of the project and by updating it every month.

The PM informed that Health and security on construction sites are not well maintained currently, therefore, the PMO is organizing to create a new department dedicated to health and security because of several burglaries occurring in construction sites.

The PM, in addition, stated that there is a hierarchy of reporting in the organizational structure and all stakeholders are informed by email in each progress of the project status (see figure 4.1)The PMO engineering staff visit the construction site once a day to

observe and to report the progress to the respective management team (see Appendix C). The PM and their respective engineers have weekly meetings in addition to the PM, department manager and VP have meetings once in 15 days.


**Figure 4.1 Reporting hierarchy**

Any change occurring in the project the CEO has to accept in order to change to be accepted/rejected. Therefore, Change request would take some time in order to get the approval or to be rejected. The weekly meeting with the contractor consists of progress on construction works, health and safety issues, Procurement of material updates, updates on documents that need to be submitted, and upcoming challenges as well as requests (Weekly meeting MOM of Ethiopian Airlines construction projects, April 2020).

### 4.4. Findings

The data is analyzed based on quantitative and qualitative data analysis, according to quantitative data 88.5% of the respondents were male and 11.5% female respondents. The majority of the respondents are between the age of 25 and 36 with a percentage of 57.7% and 69.2% have BSC holders. Most of the respondents are well experienced in their respective fields with a percentage of 46.2%.

The position of the respondent in the organization is 38.5% are Engineer 3 (5 years working experience in ET), 30.8% are Engineer 2(3 years working experience in ET), 23.1% are project managers, 3.8 are department manager and 3.8% is Engineer 1(2 years working experience in ET).

The research, with such population for study, was conducted to discover if monitoring and controlling practice is implemented in Ethiopian Airlines and the causal correlation between monitoring and controlling practice and Project success.

#### 4.4.1 Monitoring and controlling practice in ET

Based on monitoring and controlling practices focused on are change control, project status meeting, and project status reporting practices, the researcher has inquired data

within Ethiopian airline construction projects, According to the quantitative analysis represented in table 4.2, regarding change control practice, 54.8% of the respondents agreed that there is a change control practice implemented in Ethiopian airlines construction projects. In addition, 50.0% agreed that personnel is assigned who can monitor change in projects. According to table 4.3, 46.94% of the respondents have agreed that there is a practice of project status reporting. Furthermore, 40.78% of the respondents agreed that there is a project status meeting practice. In addition based on qualitative data the researcher has identified that the reporting system and hierarchy of informing in the organizational structure refer to figure 4.1, the PMO conducts consistent meetings. The PMO holds weekly meeting within the PMO staff and with contractors, there is reporting of progress of works on construction site, the daily reports do not include planned outcomes they only show the progress of work shown in Appendix C. Change is requested by the PMO the accepted/rejected by the CEO of ET. Therefore the researcher concluded that there is a practice of monitoring and controlling in ET construction projects.

### 4.4.2 Monitoring and controlling practice and its effect in ET construction project success

Based on the data collected and by using Pearson r analysis, the researcher has analyzed the casual relationship of project monitoring and controlling practice and project success. By this study, the researcher has found out regarding change control and project success as follows, there is a strong correlation between well-defined change procedure in the beginning of the project and effective monitoring and controlling procedure to monitor cost, schedule, quality, and scope. There is a slightly stronger causality between when change is processed or approved all stakeholders are informed and satisfaction of stakeholders after completion of a project. There is strong causality between change is processed or approved all stakeholders are informed and effective monitoring and controlling procedure monitor cost, schedule, quality, and scope. There is a stronger relationship between personnel is assigned who can monitor change in the project and Evaluation and monitoring practice. Particularly there is a stronger causality relationship between the variables effective monitoring and controlling procedure to

monitor cost, schedule, quality, and scope throughout the phase of the project and personnel assigned who can monitor change in the project.

There is a weak and indirect causality between Changes that are accepted by assessing it with scope, schedule, quality, and budget and Project success. However, there is a slightly stronger correlation between Change is accepted by assessing it with scope, schedule, and budget and quality and Project under supervision have been completed on or below the planned budget. There is a stronger correlation among structured procedure of monitoring and controlling practices in order to finish projects on budget and Effective project monitoring and controlling practice.

The correlation between Project changes is followed according to the structured procedures and project success is weak. In addition, the correlation between Project changes is followed according to the structured procedures, and Effective monitoring and controlling are weak. In addition, there is a weak correlation between well-defined change control procedures at the beginning of each project and project success. Therefore, according to the analysis, some variables in change control has a stronger correlation with project success and Effective monitoring and control practice. However, some variables do not have a strong causality relationship.

According to the data analyzed regarding the correlation of project status meetings and project success. The correlation between well-defined and structured reporting procedure and project success as well as Effective monitoring and controlling practice is weak, However, there is a slightly stronger correlation with the structured procedure of monitoring and controlling a practice in order to finish the project on time and well-defined and structured reporting procedure.

The correlation between regularly conducting Project status reports and project success in addition to effective monitoring and controlling practice is weak. However, there is a slightly stronger relationship with strong monitoring and controlling procedure to handle safety and health issues during construction and regularly conducting Project status reports.

The correlation between reports reflects and compares the progress of the project according to the plan (Schedule, Scope, Quality, and cost), and Project success as well as effective monitoring and controlling practice is weak. There is a weak correlation between Project status report being informed to all participating stakeholders and project success as well as Effective monitoring and controlling practice

There is a weak correlation between Project status reports being accurate and well documented and project success. The correlation between Project status reports being accurate and well documented and Effective monitoring and controlling practice is weak. However, there is a slightly stronger relationship with effective monitoring and controlling procedure to monitor cost, schedule, quality, and scope throughout the phase of the project and Project status reports being accurate and well documented.

Therefore, it can be analyzed that there is a strong correlation between some practice of project status reporting and project success as well as effective monitoring and controlling practice.

According to the data collected, the correlation between regularly conducted project status meetings and project success as well as and Effective monitoring and controlling practice is weak. Correlation between Project status meetings being efficient and effective and project success is weak. However, there is a slightly stronger correlation with Project being completed on or below the planned budget and Project status meeting being efficient and effective. The Correlation between Project status meetings being efficient and effective and Effective monitoring and controlling practice is weak. Nevertheless, there is a slightly stronger correlation with effective monitoring and controlling procedure to monitor cost, schedule, quality, and scope and Project status meetings being efficient and effective.

There is a weak Correlation between participants having adequate information about the status of the project in meeting and project success as well as Effective monitoring and controlling practice. Nevertheless, there is a slightly strong correlation with strong monitoring and controlling procedure to handle safety and health issue during

construction and participant having adequate information about the status of the project in meetings

There is a weak Correlation between well-documented Minutes of meetings are for future reference and Project success. However, there is a strong correlation between monitoring and controlling procedures to handle safety and health issues during construction and well-documented Minutes of meetings are for future reference.

Therefore, according to the data, some practice of project status meetings has a strong correlation with project success. Therefore, the researcher can identify that some monitoring and controlling practice of Ethiopian Airlines construction projects has a correlation with project success.

### 4.4.3 ET construction project success

According to the gathered data from the quantitative analysis of the success of the project in the PMO, majority of the respondents agreed that projects are completed on or below planned budget, projects have been completed according to the planned scope and quality and that there are none health and safety issues. However, the majority of the respondents disagreed and were neutral that projects are completed on or below planned schedule and the majority of the respondents were neutral regarding the satisfaction of stakeholders after projects are completed.

Furthermore, there is a stronger correlation between Project under supervision to be completed on or below the planned scheduled and Project under supervision to be completed on or below the planned budget. In addition, a stronger correlation between Projects completed according to planned scope, quality, and Stakeholders satisfaction after completion of a project. Therefore, there is interdependence within project success criteria as well.

In the qualitative data collected from interviews and reports, the projects have variations between the planned and the outcome of the project. The managers pointed out that since the budget is strict there is none variation in cost. However, there is variation in

quality and scope from the planning, there is a delay in schedule, the PMO is facing safety issues and stakeholders are not fully satisfied with the outcome.

Based on the findings the researcher found out that there is a practice of monitoring and controlling however, projects are not successful based on the project success criteria. The pointed out shortcomings from the success criteria are; delay in schedule, quality and scope variation, health and safety issues, and stakeholder satisfaction. Therefore, according to the data gathered, the efficiency of the practice should be analyzed, regarding the data gathered change control practices;

- Well-defined change procedure at the beginning of the project
- Change is processed or approved all stakeholders are informed
- Personnel is assigned who can monitor change in the project.

The above practices regarding change control have a direct effect on stakeholder satisfaction, effective and efficient monitoring, and controlling practices. Efficient Change control is processed by incorporating change requests, which follow the standard protocol. On the qualitative data, the researcher found out that there is a long process of the change request to be approved/ rejected. This must be taken into consideration as well due to the fact that it can contribute to the delay in project delivery.

According to the correlation data; based on project status reporting practices the listed items down below had strong causality with finalizing the project with planned schedule quality, scope, and in order to avoid health and safety issues

- Well-defined and structured reporting procedure.
- Regularly conducting Project status reports
- Project status reports being accurate and well documented

Project status reports to be efficient must incorporate according to the literature review milestone reviews, issues and risks must be clearly stated, exception report (alteration from the plan), Stoplight report, variance report, and cumulative report in order to track the history of the project.

Regarding project status meeting; based on the quantitative data the following practices have a stronger correlation with project success;

- Project status meeting being efficient and effective.

- Participant having adequate information about the status of the project in meetings
- Well-documented Minutes of the meeting are for future reference.

According to the literature review, efficient project status meetings incorporate by clearing the agenda of the meeting for all participants, preparing with adequate information prior to attending the meeting, managing time properly, and active participation from all participants. In relation to the meeting and having a well-documented minute of the meeting.

It is managing the Scope of the project (Size of the project) against the project baseline; it ensures all changes to be precautionary or remedial actions to take place. There are uncontrollable changes called project scope creep. A project management plan, Scope baseline, work performance information, requirement documentation, and organization assets by using of variance analysis by assessing the magnitude of variation from original scope baseline and giving feedback on preventive or corrective issues.
In order to avoid delay in schedule, the PM must carefully see the magnitude of variation, Performance reviews (measure, compare, and analyze schedule against the actual finish date, percentage completed, and remaining time to finalize the project activity), adjusting leads and lags, schedule compressing and schedule tools. It is always vital to list all tasks in their sequence in order to identify activities that float and on the critical path. Consequently, that proper measure is taken in order to avoid overall project delay. The schedule must be updated regularly.
The quality of the project deliverable must be as per standard, Technical review, trial runs, and inspection. During the planning stage, the planning team needs to produce forms that clearly state the expected project outcome. This would assist in measuring the outcome. The management must come up with quantifiable criteria metrics, some examples like; failure rate, defect frequency, on-time performance, on-budget performance, reliability, mean time between failures, mean time to repair.
Therefore based on the data retrieved the efficiency of the monitoring and controlling practice must be evaluated according to the data mentioned above. The PMO needs to

consider enhancing the practice of the ET construction projects in order projects ongoing to be successful as per project criteria.

# CHAPTER FIVE

# 5. SUMMMARY, CONCLUSION AND RECOMMENDATION

## 5.1 SUMMARY

The research paper was undertaken in order to find out if there is a practice of monitoring and controlling that is change control, project status meeting and project status reporting in Ethiopian airline construction projects office. In addition, the effect of the practice on project success criteria, which are projects to be finalized within the planned budget, cost, quality, scope, stakeholder satisfaction, and health and safety issues.

The researcher has used qualitative and quantitative analysis. Quantitative analysis by distributing questioners to the total population of PMO with close-ended questions. The collected data were analyzed by Pearson r data analysis and descriptive analysis. Descriptive reporting was used in order the data to be easily understandable. The qualitative data was gathered by conducting interviews with open-ended questions and referring to reports as well as necessary documents. The data is analyzed based on quantitative and qualitative data analysis, according to quantitative data 88.5% of the respondents were male and 11.5% female respondents.

The majority of the respondents are between the age of 25 and 36 with a percentage of 57.7% and 69.2% have BSC holders. Most of the respondents are well experienced in their respective fields with a percentage of 46.2%. The position of the respondent in the organization is 38.5% are Engineer 3, 30.8% are Engineer 2(3 years working experience in ET), 23.1% are project managers, 3.8 are department manager and 3.8% is Engineer 1(2 years working experience in ET).

Monitoring and controlling practices of change control, project status report and project status meeting are executed in the PMO. the quantitative analysis represented regarding change control practice 54.8% of respondents agreed that there is a change control practice implemented in Ethiopian airlines construction projects, 46.94% of the respondents have agreed that there is a practice of project status reporting. 40.78% of

the respondents agreed that there is a practice project status meeting in the PMO. The PMO holds weekly meeting within the PMO staff and with contractors. There is reporting of progress of works on construction site, the daily reports do not include planned out comes they only show the progress of work. Change is requested by the PMO and accepted / rejected by the CEO of ET. Therefore, the researcher concluded that there is a practice of monitoring and controlling in ET construction projects.

According to the gathered data from the qualitative and quantitative analysis of the success of the project in the PMO, majority of the respondents agreed that projects are completed on or below planned budget due to the turnkey agreement contract with fixed budget. However, majority of the respondents disagreed and were neutral that projects are completed on or below planned schedule and were neutral regarding the satisfaction of stakeholders after projects are completed. According to the interview with the PM, project outcome do not satisfy stakeholders, there is a variation of quality and there is health and safety issues on site.

Therefore, projects are not successful as per given criteria. So the efficiency of the practice should be evaluated. regarding the data gathered change control practices; Well-defined change procedure at the beginning of the project Change is processed or approved all stakeholders are informed Personnel is assigned who can monitor change in the project has strong correlation with project success. Project status reporting practices that are regularly conducting Project status reports Project status reports being accurate and well-documented Project status reports had strong causality with project success.

According to the literature review milestone reviews, issues and risks must be clearly stated, exception report, Stoplight report, variance report, and cumulative report in order to track the history of the project. In the practice of project status meeting, the following practices had strong correlation with project success, Project status meeting being efficient and effective, Participant having adequate information about the status of the project in meetings, and Well-documented Minutes of the meeting are for future reference.

Therefore the PMO need to reevaluate the practice of monitoring and controlling in order the project to be successful as per given criteria.

## 5.2 CONCLUSION

The researcher has identified monitoring and controlling practice and project success criteria. Monitoring and controlling practice being Change control, Project status meeting, and project status reporting. Project success criteria are a project being finalized according to the planned schedule, budget, scope, and quality, In addition, stakeholder satisfaction, health, and security. The respondents acknowledged that there is change control, project status reporting, and Project status meeting practice in place. Regarding project success based on given criteria, the majority of the respondents disagreed and were neutral that projects are completed on or below planned schedule and the majority of the respondents were neutral regarding the satisfaction of stakeholders after projects are completed.

Consequently, according to the researcher's criteria, the project is not successful. In addition, in the qualitative analysis from interviews and reports the researcher has found out that projects have been completed within budget because of the strict turnkey contractual agreement of Ethiopian airline construction PMO. However, the PMO has pointed out that projects are not finalized according to set schedule, quality, and scope. In addition, the researcher has identified that stakeholders are not satisfied and health and safety issues occur during construction. Consequently, the researcher has concluded that even though there is monitoring and controlling practice the projects are not successful based on set criteria.

The researcher also analyzed the correlation of different variables, the causality of Monitoring and controlling practice, and project success. In the data analyses from the respondents, some variables of change control, Project status meetings, and Project status reporting have a strong correlation with project success. The main practices that has a strong correlation are;

- Well-defined change procedure at the beginning of the project
- Change is processed or approved all stakeholders are informed
- Personnel is assigned who can monitor change in the project.

- Well-defined and structured reporting procedure.
- Regularly conducting Project status reports
- Project status reports being accurate and well documented
- Project status meeting being efficient and effective.
- Participant having adequate information about the status of the project in meetings
- Well-documented Minutes of the meeting are for future reference.

Managing the Scope of the project against the project baseline. In order to avoid delay in schedule, the PM must carefully see the magnitude of variation, Performance reviews, adjusting leads and lags, schedule compressing, and schedule tools. The quality of the project deliverable must be as per standard, Technical review, trial runs, and inspection. The management must come up with quantifiable criteria metrics, some examples like; failure rate, defect frequency, on-time performance, on-budget performance, reliability, mean time between failures, mean time to repair

Therefore, the researcher has identified even though the practice of monitoring and controlling is practiced however, the projects under ET construction PMO are not successful according to the criteria. Therefore, the researcher has identified even though the practice of monitoring and controlling is practiced the projects under ET construction PMO are not successful. Consequently, the researcher indicates that the PMO to revise and evaluate the existing monitoring and controlling practice

## 5.3 RECOMENDATION

Based on the research, the practice of monitoring and control is implemented in ET construction PMO. However, projects are not successful based on criteria (quality, time, scope, health and safety, stakeholder satisfaction). Moreover, data analysis monitoring and controlling practice have a correlation with project success. Therefore, the researcher recommends ET construction PMO to study the efficiency of monitoring and controlling practice. The researcher found that the practices through done through educated and experienced personnel and follow procedures are still lacking in causing

project success. Thus, there needs to be a consideration, revision, and revitalization of the practices to suit the project for success.

In addition, this research paper has focused only on monitoring and evaluation; however, other phases of the project lifecycle (Initiation, Planning, execution, and closing) impact project success (PMBOK 4th edition, 2008). Therefore, the researcher recommends further study to be conducted on the other project lifecycle phases. This research has been able to see the causal relations between effective and efficient monitoring, evaluation practices, and project success, harnessing the result that though there is a causal correlation it is not always strong. This indicates to some extent the need to see the causal relation of project lifecycle phases with its success; this identification needs to be done in the same measure as that of the monitoring and controlling practices where correlation signifying causality needs to be considered.

### 5.3.1 Practical recommendation for ET construction projects PMO

The researcher indicates practical suggestions for ET construction projects PMO;

- The status report and meeting to measure and monitor accurate performance especially regarding schedule, quality and health and safety issues, this would assist the PMO to know the accurate work done and to identify any dalliance in work the soonest possible

- To determine variances early and to take proper measure, variance in cost, schedule, and quality can be identified by assessing the work done, through meetings and reports from the observation seen on construction site. This would be suitable to take immediate action

- Since many projects are delayed in ET construction projects the PMO need to assess the progress on work and to evaluate the monitoring and controlling practice in order to find out the causes of schedule delays on each project.

- Project status meeting to focus on schedule, quality and health and safety issues and improve the monitoring and controlling process by creating efficient meeting. As

described project status must incorporate the active participation of participant, it needs to reflect the project progress and all participant need to be informed on the agendas to be discusses prior to the meeting so that they can be prepared beforehand. Minuets of meetings to be well documented for future reference.

- Reports to incorporate milestone reports on the progress of works, Project matrix report to be prepared by comparing the progress with schedule and cost including the daily reports, Reports must include issues and risks. In addition, Stoplight reports should implemented for activities that require special attention in order to avoid delays. In addition reports to be accurate and well documented

- The PMO to establish forecasting mechanism so that any upcoming hindrance can be resolved the soonest possible. This can be prepared in a reporting format by discussing with all stakeholders involved.

- Continuous quality control assessment to be conducted. Technical review, trial runs and inspection. By using quantifiable criteria metrics for example by using failure rate, defect frequency, mean time between failures, mean time to repair and so on.

- Revising the contractual agreement, which is the turnkey agreement with fixed budget allocation. The fixed budget allocation might hinder the project execution as per set quality standards.

- Since in the actual work of the PMO, change is requested by the ET construction projects PMO and accepted/rejected by the CEO of ET, which requires a long, period therefore the researcher suggests Change request and approval process to be more efficient.
- Change procedure to be well defined, all stakeholders to be informed and dedicated personnel to be assigned who can monitor change.

**Appendix A - Questionnaire**

**Questionnaire**

**Addis Ababa University School of Commerce**

**Post Graduate Program**

**Department of Project Management**

**Dear Respondents**

Dear Participants, I am student of MA (PM) at Addis Ababa University, School of Commerce. I am conducting a research on **"Assessing the Effect of Project Monitoring and Controlling Practice on Project Success in the case of Ethiopian Airlines Construction Project Management Office"**

**Confidentiality:** I want to assure you that, this research is only for academic purpose authorized by AAU, Thus your ideas and comments are highly honored and kept confidential. To create conducive environment for your free and genuine responses you are not required to write your name. The quality of the result of this research is based on the accuracy of the information you provided. To the end, I would like to forward my deepest gratitude for your unreserved cooperation in filling the questionnaire.

Rediet Tadesse
Email: reditadesse@gmail.com

Thank you for your cooperation.

**General Guideline:**

- No need to Write your Name
- Please put **a tick "√" mark** for your choices.
- The response scale for the questions is as below

**Questioner Section 1**

**Background information**

1.1 Gender

Female ☐ M ☐

1.2 Age

18 – 25 ☐ 36 – 45 ☐ Above 55 ☐

26 - 35 ☐ 46 - 55 ☐

1.3 Educational background

Diploma ☐ Master ☐

BSC ☐ PHD ☐

1.4 Position in the organization

Department Manager ☐ Engineer 2 ☐

Project Manager ☐ Engineer 3 ☐

Engineer 1 ☐

1.5 Work experience in Ethiopian airline construction projects

Below 5 years ☐ 10 -20 years ☐

6 – 10 years ☐ above 20 years ☐

**Questioner section 2**

**Project monitoring and controlling practice**

Kindly specify if you strongly disagree (1), disagree (2), Neutral (3), agree (4) and strongly agree (5) accordingly.

| No | Statements | Strongly disagree | disagree | Neutral | agree | Strongly agree |
|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 |
| | **Change control** | | | | | |
| 1 | Change control procedure is well defined and structured in the beginning of each project | | | | | |
| 2 | Personnel is assigned who can monitor change in the project | | | | | |
| 3 | Change is accepted by assessing it with scope, schedule, budget and quality | | | | | |
| 4 | When change is processed or approved all stakeholders are informed | | | | | |
| 5 | Project change is followed according to the structured procedures. | | | | | |
| | **Project status report** | | | | | |
| 1 | There is a defined and structured reporting procedure | | | | | |
| 2 | Project status reports are regularly conducted | | | | | |
| 3 | Reports reflect and compare the progress of the project according to the plan (Schedule, Scope, Quality | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | and cost) | | | | | |
| 4 | Project status report is informed to all participating stakeholders | | | | | |
| 5 | Project status reports are accurate and well documented | | | | | |
| | **Project status meeting** | | | | | |
| 1 | Project status meeting is conducted regularly with reasonable time interval | | | | | |
| 2 | Project status meeting are efficient and effective | | | | | |
| 3 | In the meeting all participant have adequate information about the status of the project | | | | | |
| 4 | Minuets of meeting are well documented for future reference | | | | | |
| | **Project success** | | | | | |
| 1 | Project under your supervision has been completed on or below the planned budget | | | | | |
| 2 | Project under your supervision has been completed on or below the planned schedule | | | | | |
| 3 | Project under your supervision has been completed according to planned scope and quality | | | | | |
| 4 | After the completion of a project all stakeholders are satisfied | | | | | |
| 5 | During the construction project there is none health and safety issue | | | | | |
| | **Effective monitoring and controlling practice** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | There is a structured procedure of monitoring and controlling practice in order to finish projects on time | | | | | |
| 2 | There is a structured procedure of monitoring and controlling practice in order to finish projects on budget | | | | | |
| 3 | There is a structured procedure of monitoring and controlling practice in order to finish projects as per planned quality | | | | | |
| 4 | There is a strong monitoring and controlling procedure to handle safety and health issue during construction | | | | | |
| 5 | There is effective monitoring and controlling procedures monitor cost, schedule, quality and scope throughout the phase of the project | | | | | |

**Thank you again for your willingness to participate and for your genuine answer.**

**Signature**

## Appendix B – Interview questions

Interview questions

1. How often does variation occurs ( in cost, schedule, quality and scope)
2. If there is change happening in cost, schedule, quality and scope. What is the procedure?
3. How is the reporting system?
4. What is the meeting incorporates? How often do you have meetings?
5. Documentation?
6. Is all stakeholders aware of the changes happening in construction project?
7. Is all stakeholders are satisfied in the outcome
8. Is health and safety meetings in progress and how often does it occur?

## Appendix C – Daily progress report

| Chinese | Local | Total | Working Hour |
|---|---|---|---|
| 50 | 31 | 81 | 8hrs |

| U.O.M | Total Quantity | As Built Quantity (previous) | Quantity Installed Today | To date Installed Quantity | Progress (%) |
|---|---|---|---|---|---|
| | | | | | |
| $m^2$ | 2,978 | 2,978 | - | 2,978 | 100.00% |
| $m^2$ | 1,150 | 1,142 | - | 1,142 | 99.27% |
| $m^2$ | 5,956 | 5,926 | - | 5,926 | 99.50% |
| $m^2$ | 2,300 | 2,126 | - | 2,126 | 92.42% |
| $m^2$ | 4,801 | 3,192 | 40 | 3,232 | 67.32% |

| | | | | | |
|---|---|---|---|---|---|
| $m^2$ | 376 | - | - | - | 0.00% |
| Ls | Estimated | 35% | - | 35% | 35.00% |
| $m^2$ | 2,597 | - | - | - | 0.00% |
| $m^2$ | 1,802 | 328 | 13 | 341 | 18.91% |
| m | 980 | - | - | - | 0.00% |
| | | | | | |
| $m^2$ | 1,742 | 1,388 | 29 | 1,417 | 81.33% |
| $m^2$ | 526 | 429 | 33 | 462 | 87.88% |
| | | | | | |
| | | | | | |
| $m^2$ | 4,744 | 4,744 | - | 4,744 | 100.00% |
| $m^2$ | 4,695 | 3,403 | - | 3,403 | 72.48% |
| $m^2$ | 4,695 | 62 | 30 | 92 | 1.97% |
| $m^2$ | 4,431 | - | - | - | 0.00% |
| | | | | | |

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