
# ADDIS ABABA UNIVERSITY

# COLLEGE OF BUSINESS AND ECONOMICS

# SCHOOL OF COMMERCE

# CHALLENGES OF PROJECT MANAGEMENT PRACTICE IN ETHIOPIAN AIRPORTS INFRASTRUCTURE DEVELOPMENT PROJECTS

**By: Misgana Aragaw Mekuria**

**Advisor: Dr. Adane Atara (PhD)**

**September, 2019**

**Addis Ababa**

# CHALLENGES OF PROJECT MANAGEMENT PRACTICE IN ETHIOPIAN AIRPORTS INFRASTRUCTURE DEVELOPMENT PROJECTS

**By: Misgana Aragaw Mekuria**

**Advisor: Adane Atara (PhD)**

A PROJECT WORK SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MA IN PROJECT MANAGEMENT IN AAU SCHOOL OF COMMERCE

**September, 2019**

**Addis Ababa**

# Statement of Declaration

I, Misgana Aragaw, have carried out independently a research project on the topic entitled "Challenges of Project Management Practice in Ethiopian Airports Infrastructure Development Projects" in partial fulfillment of the requirement for the Degree of Masters of art in Project Management with the guidance and support of the research advisor Adane Atara (PhD)

This study is my own work that has not been submitted for any Degree or Master program in this or any other institutions.

**Misgana Aragaw**

**Signature _____**

**Date _____**

**Addis Ababa, Ethiopia**

# Statement of Certification

This is to certify that Misgana Aragaw has carried out this research project on the topic entitled "Challenges of Project Management Practice in Ethiopian Airports Infrastructure Development Projects" under my supervision. This work is original in nature and it is sufficient for submission for the partial fulfillment for the award of Degree of Masters of Art in Project and Management.

**Adane Atara (PhD)**

**Signature _____**

**Date _____**

**Addis Ababa, Ethiopia**

**ADDIS ABABA UNIVERSITY SCHOOL OF COMMERCE**

**GRADUATE PROGRAM**

**Research Project for MA in Project Management**

**By:**

**Misgana Aragaw**

**Approved by Board Examiners**

| | | |
|---|---|---|
| **Adane Atara (PhD)** | _____ | _____ |
| **Advisor** | **Signature** | **Date** |
| _____ | _____ | _____ |
| **Examiner** | **Signature** | **Date** |
| _____ | _____ | _____ |
| **Examiner** | **Signature** | **Date** |

## Acknowledgement

First and foremost, I thank the Almighty God for his support and protection in all aspects of my life. Then I would like to express my sincere gratitude to my advisor Dr. Adane Atara (PhD), for his guidance and valuable suggestion of this project work. I would like to thank all the respondent participants especially all team members of Ethiopian Airports Infrastructure development planning experts and project team members who gave me their time to fill the questioners and conduct a slight but fruitful discussion with some of project managers. Finally, I would like to express my sincere appreciation to my wife Mekdelawit Mekbib, my friend Dawit Yibgeta for your valuable assistance and all other individuals who forwarded their help and support to me.

## ABBREVIATIONS

ADB = African Development Bank

EA = Ethiopian Airports

CSF = Critical Success Factors

GOE = Government of Ethiopia

ICAO = International Civil Aviation Organization

PMBOK = Project Management Body of Knowledge

PMI = Project Management Institute

PMO = project management office

PMO = Project Management Office

SPSS= Statistical Package for Social Scientists

WBS = Work Breakdown Structure

# Table of Contents

## LIST OF FIGURES

## LIST OF TABLES

## ABSTRACT

The main purpose of the study was to identify and evaluate the challenges encountered through project management practices in Ethiopian Airports Infrastructure development projects. The study aims to point out these difficulties and thus improve the project management practice in order to benefit from the findings. A descriptive research method was used in order to achieve the intended purpose of the study. Questionnaire, interview and review were used for the purpose of collecting required data for the study. The Questionnaire survey were collected from the Ethiopian Airport employees who are directly involved in infrastructure development project planning, Executing and controlling. Purposive sampling technique was employed in selecting the samples. The data were analyzed using software Statistical Package for Social Science (SPSS V.20) to generate mean, frequencies, standard deviation and percentages of the statics. The study found out that among 45 challenging factors identified in the literature participants are agreed on 18 factors as a significant challenge in projects they have been involved recently. Again ten of the identified factors are the major significant challenging factors these are; These are Lack of Project Management Skills and training in project management; Unexpected events with no effective response possible; Project schedule delays; Changing requirements late in the project and continuing change requests; Low commitment of Stakeholders towards planned projects; Failure to manage expectations; Poor risk management; Not obtaining stakeholder approval; Low commitment of Stakeholders towards planned projects; Lack of clearly defined Rules and procedures for project management. Furthermore, the study revealed that factors within four knowledge areas including Enterprise Environmental factors are significantly challenged; these are Project Risk Management, Project Schedule Management, Project Stakeholder management and Project Scope Management. Therefore, based on the findings, it is suggested that stronger emphasis should be given on the major challenges identified in the study, appropriate project management methodology should be adopted and all factors should be studied carefully.

# CHAPTER ONE

# INTRODUCTION

## 1.1. Background of the study

Air transport is a crucial development driver bringing both economic and social benefits, including regional integration. It has major rippling effects on job creation as well as trade and tourism and the overall economy. As a part of overall strategy to promote economic growth, priority was given by the Government of Ethiopia (GOE) to the development of transport infrastructure of the country with emphasis on airport infrastructure (African Development Bank, 2006). The availability of efficient airports in one's country is the key to influence an investor's decision on whether or not to invest in that particular country since air transport enables faster commute.

Ethiopian Airports engaged in construction and administration of airports in Ethiopia. It provides airport infrastructure development and management services. The company operates and manages regional airports in Ethiopia. The company is currently undertaking expansion project which include additional air strip built both inside and outside of the existing Bole International Airport facility to accommodate the growing air traffic turnover and the services of private airline operators in Ethiopia. There is also a plan for the construction of new regional airports in Mizan Amman, Yabello, Negele Borena, and Debre Markos.

Following merger into Ethiopian Airlines Aviation Group the Ethiopian Airports Enterprise is developing various global standard airport developments, operation and management capabilities. The Group has also announced it is under preparation to embark on the design and construction of a new international airport outside of Addis Ababa that will have the capacity to handle 80 million passengers per annum. The proposed mega hub will not only be an airport but includes the construction of various other related infrastructures that would make it an airport city.

Organizations are increasingly using project management tactics to plan and organize resources to achieve a specified outcome within a given timeframe and a constrained budget (Singh, 2019). They also try to manage and anticipate risks in a structured manner.

Organizations using project management have shown better utilization of resources, shorter development times, reduced costs, interdepartmental cooperation that builds synergies across the organization, and a better focus on results and quality (Singh, 2019).

Though the Airport has already undertaken the construction beyond what was planned for the GTP, Further expansion and development of mega projects are on the pipeline to address the traffic congestion and match highly growing number of travelers mainly due to the rapid expansion of the national carrier.

Effective project management can give a strong competitive advantage in project delivery, provide quality services, and reduce project costs. Excellence in effective project management can also guarantee measureable and tangible results based on scope, time, and cost, which are the cornerstone to project success (Kerzner, 2017).

Hence, the purpose of this study is to assess major barriers to effectively undertake project management practices in the organization with respect to project management knowledge areas.

### 1.2. Statement of the problem

Air transport is a crucial development driver bringing both economic and social benefits, including regional integration. It has major rippling effects on job creation as well as trade and tourism. As a part of overall strategy to promote economic growth, priority was given by the Government of Ethiopia (GOE) to the development of transport infrastructure of the country with emphasis on airport infrastructure. As a follow up, Addis Ababa Airport which is the country's main international and domestic airport, situated at Bole on the southern outskirts of the city, was accorded priority for its immediate development to the requirements of ICAO standards (ADB, 2006).

A proper management of airport infrastructure projects is therefore necessary for successful implementation of these massive efforts. Organization uses project management to realize business objectives and goals crucial for the success of the organization. Better and effective project management practices are essential for the success of projects (Sreekumar and Menon, 2015).

Effective project management can give a strong competitive advantage in project delivery, provide quality services, and reduce project costs. Excellence in effective project management can also guarantee measureable and tangible results based on scope, time, and cost, which are the cornerstone to project success (Kerzner, 2017).

Maintaining a suitable project management methodology is necessary for the success of the organization. While organizations use processes that are repeatable on projects, adopting and maintaining an appropriate project methodology is crucial (Sreekumar and Menon, 2015).

There are no evidences or previous research studies which show Ethiopian Airport Infrastructures development project practices are effective. Rather several evidences from ongoing projects and review of documents cast doubt on the effectiveness of project management practice in Ethiopian Airports. There has been an extended delay in some of project and there were some unattended goals of the project. These problems are believed to be among other factors due to lack of efficient project management practices and certain barriers to do that.

Previous literatures regarding Airport Infrastructure development do not cover all aspects of challenges of project management practices in one study. Most of them focus on single aspect project management issues such as Stakeholder management, Risk management, Airport design and planning and Monitoring and evaluation. But a challenging factor in one area will have a significant ripple effect on all other related areas. The organization also not conducted assessment on challenges of project management practices. Thus comprehensive view of all project management practices is necessary in order to effectively manage projects being implemented. In line with this, the study intends to fill this research gap to identify and evaluate major challenges of infrastructure development project in Ethiopian Airports in all project management practice areas.

### 1.3. Research questions

1. What are the challenges encountered during practicing project management in Ethiopian Airports Infrastructure development projects?

2. What are the major/most significant challenges exist during practicing project management in Ethiopian Airports Infrastructure development projects?

3. How does the organization deal with the challenges of practicing project management?

## 1.4. Objective of the study

### 1.4.1 General Objective

The general objective of this study is to identify and evaluate the challenges encountered through project management practices in Ethiopian Airports Infrastructure development projects.

### 1.4.2 Specific Objective

Based on the general objective of the study and the research questions above, this study has the following specific objectives.

1. To identify major challenges encountered in the practice of project management at Ethiopian Airport Infrastructure Development projects

2. To evaluate major challenges of project management practice that needs highest attention and forward recommendation for further improvement.

## 1.5. Significance of the Study

This research project paper will particularly help to look in to challenges encountered while implementing project management in Airport development projects undertaken by Ethiopian Airports Enterprise

This study aims to point out these difficulties and thus improve the project management practice in order to benefit from the findings. Project managers and project teams who are involved in the planning, designing, implementation and control of Airport Infrastructure Development projects could make use of the obtained information of this study. Finally, it will also contribute for project management knowledge in that the research paper follows a

different approach in categorizing the challenges with project management knowledge areas that can be used as a baseline for further study.

# CHAPTER TWO

# LITERATURE REVIEW

The main objective of this chapter is to provide an understanding to the concept of project, Project Management, the context of project management practice in Airport infrastructure projects to help us underline the research subject and objectives.

## 2.1 Definition of Project

According to PMI (PMBOK, 2013) a project is defined as a temporary endeavor undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end. Temporary does not necessarily mean the duration of the project is short. It refers to the project's engagement and its longevity. Temporary does not typically apply to the product, service, or result created by the project; most projects are undertaken to create a lasting outcome. Every project creates a unique product, service, or result. Although repetitive elements may be present in some project deliverables and activities, this repetition does not change the fundamental, unique characteristics of the project work. Because of the unique nature of projects, there may be uncertainties or differences in the products, services, or results that the project creates.

According to (Kerzner, 2013) A project can be considered to be any series of activities and tasks that: have a specific objective, with a focus on the creation of business value, to be completed within certain specifications, have defined start and end dates, have funding limits (if applicable), consume human and non-human resources (i.e., money, people, equipment), are multifunctional (i.e., cut across several functional lines).

All projects share one common characteristic the projection of ideas and activities into new endeavors. The ever present element of risk and uncertainty means that the events and tasks leading to completion can never be accurately foretold (Triant and Dennis, 2008).

According to Triant and Dennis, (2008), there are four common types of projects:

**Civil Engineering and Construction**

Projects in this category spring to mind whenever industrial projects are mentioned. One common feature is that work must be conducted on a site that is exposed to the elements, and usually remote from the contractor's head office. These projects are thus open to public gaze. They incur special risks and problems of organization. They may require massive capital investment, and they deserve rigorous management of progress, finance, and quality. Operations are often hazardous so that health and safety aspects demand special attention, particularly in work such as heavy construction, tunneling, and mining

**Manufacturing Projects**

Manufacturing projects result in a piece of mechanical or electronic equipment, a machine, ship, aircraft, land vehicle, or some other product or item of specially designed hardware. The finished product might be purpose-built for a single customer but internal research and development projects for products to be sold in all market sectors also fall into this manufacturing category. Manufacturing projects are usually conducted in a laboratory, factory, shipyard, hangar, or other home-based environment, where the company should be able to exercise on-the-spot management and provide an optimum environment in which to do and manage the work.

**IT Projects and Projects Associated With Management Change**

This class of project proves the point that every company, whatever its size, can expect to need project management expertise at least once in its lifetime. These are the projects that arise when companies relocate their headquarters, develop and introduce a new computer system, launch a marketing campaign, prepare for a trade exhibition, produce a feasibility or other study report, restructure the organization, mount a stage show, or generally engage in any operation that involves the management and coordination of activities to produce an end result that is not identifiable principally as an item of hardware or construction.

**Projects for Pure Scientific Research**

Pure scientific research projects (not to be confused with research and development projects) are a special case. They occasionally result in dramatically profitable discoveries.

Conversely, they can consume vast amounts of money over many years, yet yield no practical or economic result.

Research projects carry the highest risk because they attempt to extend the boundaries of human knowledge. The project objectives are usually difficult or impossible to define and there may be no awareness of the possible outcome. Therefore, pure research projects are not usually amenable to the project management methods that can be applied to industrial, manufacturing, or management projects.

Any one or any mix of the four above-named project types might be found within an aviation project (Triant and Dennis, 2008). For example, a project to build a new runway, terminal building, or even an entire airport is primarily a construction project, but that project will undoubtedly be associated with manufacturing project and Type IT and management change projects. The navigational system is primarily a management change and IT project but it also has an important manufacturing element at the works of the principal equipment supplier.

## 2.2 Project Management

Project management according to (Kerzner2017) is the planning, organizing, directing, and controlling of company resources for a relatively short-term objective that has been established to complete specific goals and objectives. Project management as defined as PMI (PMBOK 2013) is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.

Managing a project typically includes, but not limited to: Identifying requirements; addressing the various needs, concerns, and expectations of the stakeholders in planning and executing the project; setting up, maintaining, and carrying out communications among stakeholders that are active, effective, and collaborative in nature; managing stakeholders towards meeting project requirements and creating project deliverables; Balancing the competing project constraints, which include, but are not limited to: Scope, Quality, Schedule, Budget, Resources, and Risks.

The specific project characteristics and circumstances can influence the constraints on which the project management team needs to focus.

The purpose of project management is to predict, plan, organize, and control activities and resources so that projects are completed successfully in spite of all the difficulties and risks. This process should start before any resource is committed, and must continue until all work is finished (Triant and Dennis, 2008).

## 2.3 Different Approaches to Project Management

### 2.3.1 Project Management Methodology

Maintaining a suitable project management methodology is necessary for the success of the organization. While organizations use processes that are repeatable on projects, adopting and maintaining an appropriate project methodology is crucial.

Achieving project management excellence, or maturity, is more likely with a repetitive process that can be used on each and every project. This repetitive process is referred to as the project management methodology. If possible, companies should maintain and support a single methodology for project management (Kerzner, 2017).

Good methodologies are best practices and can lead to sole-source contracting based on the ability of the methodology to continuously deliver quality results and the faith that the customer has in the methodology (Kerzner, 2018).

Project Management Methodology refers to a technique, tool, method, or approach used effectively to arrive at the desired outcome. In this sense, project management body of knowledge (PMBOK) and projects in controlled environment (PRINCE2) are some of the effective project management Methodologies.

According to (Kerzner 2017) the characteristics of a good methodology based upon integrated processes include: A recommended level of detail, Use of templates, Standardized planning, scheduling, and cost control techniques, Standardized reporting format for both in-house and customer use, Flexibility for application to all projects, Flexibility for rapid

improvements, Easy for the customer to understand and follow, Readily accepted and used throughout the entire company, Use of standardized life-cycle phases (which can overlap) and end of phase reviews, Based upon guidelines rather than policies and procedures.

Hence choosing the right project management methodology to execute projects in an organization is a vital step. There are many different and, in some cases, overlapping methodologies and approaches to managing project complexities. Some of the most popular project management methodologies include agile, waterfall, PRINCE2.

## 2.4 Project Management success and Failure

In traditional project management, projects are often measured in terms of budget, schedule, scope, or quality. Benefits management as a concept, however, focuses more on the actual value that the projects are able to deliver to the end customer (Kerzner, 2018). PMI, (2017) also states that traditionally, the project management metrics of time, cost, scope, and quality have been the most important factors in defining the success of a project. More recently, practitioners and scholars have determined that project success should also be measured with consideration toward achievement of the project objectives.

Project stakeholders may have different ideas as to what the successful completion of a project will look like and which factors are the most important. It is critical to clearly document the project objectives and to select objectives that are measurable. Three questions that the key stakeholders and the project manager should answer are: What does success look like for this project? How will success be measured? And what factors may impact success? The answer to these questions should be documented and agreed upon by the key stakeholders and the project manager (PMI, 2017). Hence it is possible for a project to be successful from a scope, schedule and budget viewpoint, and to be unsuccessful from a business viewpoint (PMI, 2017).

Triant and Dennis, (2008) holds that in aviation project management The success of the contractor and the project manager will usually be judged according to how well they achieve the three primary objectives, which are; project completion within the cost budget; the project delivered or handed over to the customer on time; and good performance, which

requires that all aspects of the project are finished in accordance with the project specification. Further Triant and Dennis, (2008), identified the following factors necessary for achieving these three objectives: good project definition and a sound business case; appropriate choice of project strategy; strong support for the project and its manager from higher management; availability of sufficient funds and other resources; firm control of changes to the authorized project; technical competence; a sound quality culture throughout the organization; a suitable organization structure; appropriate regard for the health and safety of everyone connected with the project; good project communications; well-motivated staff; and quick and fair resolution of conflict.

This will lead us to the concept of critical success factors(CSFs); (Kerzner, 2018) holds that success factors are defined at the initial stages of the project or program, even before they become actual contracts, and are a direct consequence of the strategic goals allocated to the project or program. CSFs vary with projects and intent here is some that apply over a large variety of projects (Kerzner, 2018): Early customer involvement; High-quality standards; Defined processes and formalized gate reviews; Cross-functional team organizational structure; Control of requirement, prevention of scope creep; Commitment to schedules; disciplined planning to appropriate level of detail and objective and frequent tracking; Commitment of resources; right skill level at necessary time; Communication among internal teams and with customer; Early risk identification, management, and mitigation; no surprises and Unequaled technical execution based on rigorous engineering.

Critical success factors (CSFs) are inputs to project management practice which can lead directly or indirectly to project success (Alias et al., 2014). From a Project Management perspective, critical success factors (CSFs) are characteristics, conditions, or variables that can have a significant impact on the success of the project when properly sustained, maintained, or managed (Alias et al., 2014).

Effective and efficient management of critical success factors is the basic requirement of project success (Iram, 2016). Alias et al., (2014) stated that to increase the chances of a project succeeding it is necessary for the organization to have an understanding of what are the critical success factors, to systematically and quantitatively assess these critical factors, anticipating possible effects, and then choose appropriate methods of dealing with them.

There are many researchers who conducted different researchers in order to find out various critical success factors for the project success (Frefer et al., 2018).

Frefer et al. (2018) identified ten critical success factors related to successful implementation from Pinto (1998), six critical success factors for successful projects from Kerzner (1987), and studied ten critical success factors at each of the four stages of the project lifecycle from Pinto and Prescott (1988). Frefer et al. (2018) stated that the development of is related to answers the following questions: “what factors lead to project management success?”, “what factors lead to a successful project?” and “what factors lead to consistently successful projects?”

Collins and Baccarini (2004) differentiated between success criteria and success factors by stating that “criteria are used to measure success whilst factors facilitate the achievement of success. Further Collins and Baccarini (2004) holds Project success criteria consists of two components product success and project management success. Project Management Success focuses upon the project process and has three criteria: Meeting time, cost and quality objectives, Quality of the project management process, and satisfying project stakeholders’ needs where they relate to the project management process (primarily project owner and project team). Product Success deals with the effects of the project’s final product and has three criteria: Meeting the project owner's strategic organizational objectives (goal), Satisfaction of users’ needs (purpose), and Satisfaction of stakeholders' needs where they relate to the product (primarily customer/user).

Project Management Success influences Product Success - Project management success can influence the achievement of product success. Good project management can contribute towards product success but is unlikely to be able to prevent product failure. For example, project management may help to identify the unfeasible nature of the project, and indicate that it should be abandoned or change. Poor project management in terms of cost and/or time overruns may result in the non-attainment of product success such as profitability or market share (Collins and Baccarini, 2004).

**Project failure**

A project is considered as a failure one if a project fails to meet the expectation in line with the stakeholders and the failure incident of project is associated with consideration of cost, quality and time (Saxena, 2016). According to Saxena (2016) the significant part of a project failure is associated with the consideration with not meeting specific targeted benefit for business case.

Major reason behind the failure of the project not only associated with only one reason. There are several reasons that contribute to the failure of the project. It is clear that anything opposite to success indicator of project work can be considered as failure (Saxena, 2016). VR.Montequin et al, (2016) explains 'failure' as the systematic and widespread non-compliance of the criteria which defines a successful project

## 2.5 Project Management Practices in Airport Development Projects

An airport industry is a very large investment with a high level of impact on a region's economic values and development. This is associated with extreme complexities and difficulties that face an airport operator, which is responsible for operation, management and infrastructure development (Nasser, 2013).

Binnekade et al. (2009) states that airports are becoming a multimodal transportation hub link with large numbers of buildings within substantial areas that constantly require refurbishment and/or expansion in order to meet the community needs, growth and changing needs of the industry. According to Nasser, (2013), the air transportation sector, in particular, has been promoting various industries to expand their business and markets which eventually benefit the region. Other factors, such as cross border investment, increased communications, international market operations and growth in population, travel and tourism, have brought more emphasis on the vital role that airports play.

Nasser, (2013) further explains the below are Key Characteristics of Airport Development Projects

1. **Security levels in airports are always high**

The majority of airport staff face a number of obstacles when, for instance, entering terminal or airside. Supplementary security procedures must be applied to personnel involved in

construction projects that would not be the case if working elsewhere. These might include security checks by a specific security agency in the country along with badges and licenses for all workers, drivers and vehicles.

2. **Insurance policies also differ markedly from ordinary construction sites**

Contractors must be fully aware of safety rules and regulations that are not applicable on landside, more challenges and difficulties are associated with expansion and refurbishment projects, which are the most common type of airport construction activity, in terms of the selection of materials, operating and facility systems that must be coherent with the existing area. As an airport is typically open 24/7, construction works can often only be carried out when traffic and passenger capacity is low; normally during inconvenient night working hours.

3. **Airport construction projects have many different stakeholders**

All of whom have a significant input during the project life cycle. **This is due to large number of activities** associated with aircraft and passenger flows. Consequently, reaching an agreement among various demands and requirements is not a straightforward process. Several key stakeholders within an airport development project can drive various requirements based on their functions; for instance, terminal coordination, commercial, traffic coordination, customs/security and design.

4. **The scheduled time frame is extremely crucial in Airport development projects;**

Besides a country's growth and development demands, the reasoning behind many expansion, refurbishment and new airport projects are plans and preparations to host big sporting events.

In order to successfully manage, control and execute such mega projects, diverse players must effectively and efficiently deal with diversity and confront this challenge. The successful achievement of organizational objectives relies on delivering various projects within a scheduled time frame, budget estimate and expected quality.

## 2.6 Challenges of Project Management Practice

Literatures have revealed various challenges in the project management the researcher identified the major challenges that are applicable in the context of Ethiopian Airport Infrastructure Development projects.

Hence the variables identified in the research as challenges in project management practice are derived from critical factors that lead to project success or failure.

When mentioning Airport development projects majority of activities are related to construction projects. Among the different types of construction projects, airports projects are recognized as being some of the most complex (Baghdadi and Mohammed, 2015). Challenges and difficulties of managing construction project increases when the context is related to an airport environment (Nasser, 2013).

The challenges are categorized based on the knowledge areas that include the five constraints Scope, Quality, Schedule, Budget, Resources, and Risks and additional factors specific to Airport Development projects. The challenges identified are not challenges of specific projects undertaken by the organization rather than perceived challenges believed to be encountered while undertaking practice of project management in the organization.

### 2.6.1 Challenges of Enterprise Environmental Factors

Enterprise environmental factors (EEFs) refer to conditions, not under the control of the project team, that influence, constrain, or direct the project. These conditions can be internal and/or external to the organization. EEFs are considered as inputs to many project management processes, specifically for most planning processes. These factors may enhance or constrain project management options (PMI, 2017).In fact this study stress on the factors internal to the organization supposed to have a constraining effect on Ethiopian Airport projects.

As discussed earlier Airport infrastructure development project primarily involves mega construction projects and according to Ayman and Ezzat, (2013) the development of mega construction projects in developing countries is a two edged problem. On the one hand, these projects require high design knowledge and technical skills, competent human resources,

professional managerial capabilities and large financial investment. In contrast, developing countries have shortage in many of these requirements, which ultimately hindered the development of these essential projects.

Ayman and Ezzat, (2013) identified challenge factors related to Performing Organization Structure such as “Insufficient experience of performing organization in managing complex undertakings”. He also holds that in mega construction projects in developing countries the main contractor or consortium of contractors are usually privately owned, financed and often from various countries with variety of cultural differences, backgrounds, political systems, and languages, seeking success with different objectives.

Kerzner (2017) characterize Mega projects as having a different set of rules and guidelines from those of smaller projects. For example, in large projects: Vast numbers of people may be required, often for short or intense periods of time; Continuous organizational restructuring may be necessary as each project goes through a different life-cycle phase; and The matrix and project organizational form may be used interchangeably.

Hence Kerzner (2017) point out Training in project management and Rules and procedures clearly defined in mega projects as critical for success.

### 2.6.2 Project Integration Management Challenges

Project integration management includes the processes and activities to identify, define, combine, unify, and coordinate the various processes and project management activities within the Project Management Process Groups (PMI, 2017). Project Integration Management includes seven major processes from the start of the project through completion of the project. Hence most of the challenges identified from various literature fall in this knowledge area.

Failure to assign and identify Project Manager early in the project is the first challenging factor in identified in this category. Project Integration Management is specific to project managers. Whereas other Knowledge Areas may be managed by specialists (e.g., cost analysis, scheduling specialists, risk management experts), the accountability of Project Integration Management cannot be delegated or transferred (PMI, 2017). Hence A project

manager identified and assigned as early as possible, preferably while the project charter is developed and always prior to the project prior to the start of planning is an important element (PMI, 2017).

Skill, competency and leadership of the project manager is also important an important factor. According to XABA, (2011), in most organizations, project managers are accountable for the successful delivery of complete projects. Increasingly, this success depends on project managers' possessing and utilizing skills and competencies.

Lack of clarity of goals and missions is also another important challenge factor identified. The key benefits of developing Project Charter process are that it provides a direct link between the project and the strategic objectives of the organization (PMI, 2017). Clearly defined goals including the general project philosophy or general mission of the project, as well as commitment to those goals on the part of project team members is the first success criteria identified by Pinto and Slevin (1987).

Project Management Plan is the process of defining, preparing, and coordinating all subsidiary plans and integrating them into a comprehensive project management plan. The project management plan defines how the project is executed, monitored and controlled, and closed (PMI, 2017). Lack of proper planning is one of a challenge factor that inhibits the successful completion of projects (Stephen, 2018). Poor planning does not provide any coherent mechanism by which the project would be implemented. Therefore employers and team members at certain points of the projects do not have a clear direction as what to do, when and how (Stephen, 2018).

There should be detailed project plan documented this include how the Project Manager maintain information about each project example project time, cost, duration, client name, start and end date, requirements changes, and client's comments and feedback against each project. Project manager use project management planning tool to plan the project management activities.

An effective means of learning from experience that combines explicit and tacit knowledge to the continuous improvement of project management processes and practices is one of a success factor Davies (2002). According to Cooke (2002) continuous improvement

represents the fifth and highest stage of project management maturity in an organization. Knowledge is commonly split into “explicit” (knowledge that can be readily codified using words, pictures, and numbers) and “tacit” (knowledge that is personal and difficult to express, such as beliefs, insights, experience, and “know-how”). Knowledge management is concerned with managing both tacit and explicit knowledge for two purposes: hence Lack of Process for project knowledge management and capturing lessons learned is an important challenge factor in this study.

Budgeting for monitoring and evaluation tasks and overall responsibilities must be listed and analyzed where necessary. Items associated with each task must be determined, including their cost, and there must be a budget for staffing, including full-time staff, external consultants, capacity building/training, and other human resource expenses (Tengan and Aigbavboa, 2016). If the objectives of monitoring and evaluation are not measurable, cannot be used to evaluate project performance and achievements or to communicate project results (Tengan and Aigbavboa, 2016). Hence Limited resources and budgetary allocations for monitoring and evaluation and poor data quality, data gaps and inconsistencies are important challenging factors identified for this study.

### 2.6.3 Scope Management Challenges

Project scope management includes the processes required to ensure that the project includes all the work required, and only the work required, to complete the project successfully (PMI, 2017). Managing the project scope is primarily concerned with defining and controlling what is and is not included in the project.

Mirza, Pourzolfagha and Shahnazari (2013) a major contribution to unsuccessful projects is the lack of understanding or defining project and product scope at the start of the project. A properly defined and managed scope leads to delivering a quality product, in agreed cost and within specified schedules to the stake-holders. Mirza et al. (2013) a project scope deals with the required work to create the project deliverables. The scope of the project is specific to the work required to complete the project objectives. A product scope, on the other hand, is the attributes and characteristics of the deliverables in the project creation. The product scope is measured against requirements, while the project scope is measured against the project plan.

Without an agreed upon and documented vision, there is little hope of achieving success. It is essential for each project to clearly define and document its scope so that the project can move forward in a coordinated manner and requirements can be written (Mirza, et al., 2013).

In aviation projects Triant and Dennis, (2008) holds that every project should be defined as accurately and fully as possible before it is allowed to start. The customer's specification should set out all the requirements in unambiguous terms, so that they can be understood and similarly interpreted by customer and contractor alike. However it has to be admitted that some projects are so surrounded by uncertainty that they cannot be defined adequately before work starts (Triant and Dennis, 2008). from existing bibliography and the previous work on the matter Montequin et.al, (2016) identified scope management challenges such as Continuous or dramatic changes to the initial requirements, Customer's requirements inaccurate, incomplete or not Defined, Badly defined specifications, Unrealistic customer expectations, Project requirements deficiently documented as constraining factors in project management.

### 2.6.4 Quality Management Challenges

Project quality management includes the processes and activities of the performing organization that determine quality policies, objectives, and responsibilities so that the project will satisfy the needs for which it was undertaken (PMI, 2017).

It is evident that quality requirement in airport infrastructure development is very high. Study by (Hong and SUN, 2006) indicated that quality control can be divided into three stages in airport infrastructure development: namely, construction preparation, construction period and completion acceptance. It is very important to take adequate quality control measures for the stages above mentioned.

Quality control at preparation period is the key point for project quality control. Based on the project management practice, the following main control measures can be taken during the preparation period.

1. Review construction management plans submitted by contractors
2. Review the qualification of subcontractor.

3. Check the qualification of material and building component suppliers.
4. Strictly control the application and check procedure of material, equipment, semi-products and products.
5. Prepare quality standards for as cast concrete and additional standards for steel structure manufacturing and installation.

During construction Quality control measures can be

1. Use all kinds of instruction, such as rectification, working stop, delay payment, change construction team and major responsible person as control measures.
2. Jointly check the quality per month. The project management team, together with members from client, main contractor and construction team to check the quality and evaluate the quality.

At completion acceptance stage, the quality control work includes check the scope of contract, rectification, check as-built drawings and technical documents, writing quality review reports about the whole project work and assist the client to organize completion acceptance work and relative authorities confirmation.

Amalraj et.al, (2007), holds that quality assurance and quality control should be managed by the parent company, not by a contractor or other third party. It is also required that the parent company should review and approve job specific construction contractor quality plans prior to the work being started. Montequin et.al, (2016) survey identified Quality checks badly performed or not performed at all as constraining factors in project management.

### 2.6.5 Time Management Challenges

Project time management includes the processes required to manage the timely completion of the project (PMI, 2017). As mentioned in section 2.5 item, scheduled time frame is extremely crucial in Airport development projects. And the odds of successfully completing a project under unreasonable deadlines are generally not feasible expectations. Ikediashi, et al (2014) in their study stated that Schedule delays, otherwise known as time overruns, ranked as the fourth highest challenge factor and are considered critical to the failure of projects in Saudi Arabia Infrastructure Projects. Further holds that Inadequate planning by contractors and

project managers, improper site management by contractors, inadequate experience handling projects, and delays in payments to contractors by clients are factors that result in schedule delays (Ikediashi, et.at, 2014).

In their study (Hong and SUN, 2006) identified control measures for the effective project time management of mass infrastructure. Review the overall construction progress organization submitted by main contractor and critical path and milestones of schedule network. Dynamically check the execution of schedule planning according to review the annual, seasonal and monthly schedule reporting. In addition, use computer aided system to manage the schedule network control and check construction progress records every day analyze every week and summarize and adjust every month. Reasonably arrange the lag relationship between the activities.

### 2.6.6 Cost Management Challenges

As defined by (PMI, 2017) Project cost management includes three major functions called cost estimating, budgeting and cost control. The task for the cost management function is to produce information for internal users who need accurate, detailed and frequent economic information for making decisions (Kujala et al., 2014). Project management practice depends a lot on forecasting in planning for the projects and the organization and a lot of project failures known in literature are mostly due to wrong estimate or costing problem (Abdulrahman, 2016). Kujala et al. (2014) on their empirical study on challenges of complex projects identified major cost management challenges as highlighted below which are also more relevant in Airport infrastructure development projects.

1. Due to uniqueness of each project there is no accurate information for pricing and setting up appropriate contingencies in the sales phase. For example, cost of purchasing unique services is difficult to estimate.
2. Prices of resources can vary during a long project, which causes problems for estimating costs.
3. In complex projects, there are more project management and integration engineering costs, which are more difficult to calculate that product costs.

4. High uncertainty leads to large contingencies. Multiple contingencies are related to the different WBSs, so perceiving the total value of the contingencies is challenging.

### 2.6.7 Human Resource Management Challenges

Project human resource management includes the processes that organize, manage, and lead the project team (PMI, 2017). The human resource need of project management is the biggest challenge of project management practice in the 21st century (Mir and Pinnington, 2014). It is the human resource that plan and execute the project, and ensuring that project teams are competent enough to successfully manage the project to exceed stakeholders' expectation is crucial. Every project has different human resources needs with different skills. Most time it is difficult to get the right employees on the project and this staffing problem may therefore have several implications on the success of the project (Abdulrahman, 2016).

The successful achievement of organizational objectives relies on delivering various projects within a scheduled time frame, budget estimate and expected quality. However, it is argued that the traditional drivers of successful project management are no longer adequate to guarantee project success and eventually reach organizational goals and objectives (Shenhar and Dvir, 2007). Instead, the implementation of effective project management and human-related strategies is the most appropriate approach for the current business environment where most projects are associated complexity and uncertainly (ALNASSERI et.al, 2013).

According to Alsseri et.al, 2013, project managers who follow traditional ways of managing and executing projects often give little attention or even disregard the allocation of human-related factors within their management agendas.

### 2.6.8 Risks Management Challenges

According to PMI (2017), project risk management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project. When mentioning Airport development projects majority of activities are related to construction projects.

A number of studies have outlined and explained the challenges associated with airport projects (Baghdadi and Mohammed, 2015). Baghdadi and Mohammed, (2015) Identified the following challenges highly associated with Airport projects.

1. Ongoing or expected expansion and renewal projects: A number of domestic, regional and international airports are undergoing expansion to increase their ability to face increasing demand
2. The variance of stakeholders involved, all of whom are very involved during the project lifecycle: As a result, the achievement of a consensus among these stakeholders is quite challenging
3. A wide variety of activities and functions are involved. which might force the design concept and specification of airports to be produced and prepared by an airport organization before the initiation of the construction process
4. The time schedule is crucial in aviation projects, with airport clients usually concerned with the completion time of the project.
5. A number of systems can make airports more complex, such as sophisticated devices for security, electrical and data systems, distinct firefighting and alarm systems all of which might add additional levels of complexity to the design and construction process.
6. Security in airports needs to be consistently high

According to Baghdadi and Mohammed (2015) these challenges can be directly contributing to the increased risks of airports projects and risks are typical reasons for delays or cost overruns that can occur in a project.

Picking up on that important point, risk management should be seen as a management tool designed to improve planning, budgeting, performance management and other core business processes. Risk management also helps management to make more informed business decisions about achieving strategic or operational goals and sometimes may even highlight the need to change the strategy altogether due to an unacceptable level of risk.

### 2.6.9 Communication Management Challenges

Project communications management includes the processes that are required to ensure timely and appropriate planning, collection, creation, distribution, storage, retrieval, management, control, monitoring, and the ultimate disposition of project information (PMI, 2017). Communication is the most important element to project success and yet it remains a challenge throughout the engagement (Prassad and Reddi, 2017). According to eds. Trocki and Bukłaha, (2016) the Primary objective of Communication Management is to provide the relevant stakeholders with the right information at the right time using properly selected measures. In other words, the transfer of information with details matched to customer's expectations while minimizing the communication barriers that could distort the communication process and hinder mutual understanding of a message.

Investigating the failures in the projects shows that the lack of professional communication support at any stage of the project life cycle can lead to problems in the project and to project failure (eds. Trocki and Bukłaha, 2016).

According to McManus and Wood, (2007) communication problems are one of the key factors contributing to failures in a project or to significant problems in the project. This may include various aspects related to the preparation, execution or completion of the project. In the case of initiating a project most often points to the problems related to the lack of identification of stakeholders, communication needs and their sources, and inadequate communication with key stakeholders. During the planning phase of the project difficulties arise due to the lack of planned communication in the project, selective communication of plan to stakeholders and lack of commitment of key stakeholders. In the implementation phase there is often a lack of information about the status of the project or changes, insufficient exchange of information and number of meetings with stakeholders, the lack of a detailed review of the project, inadequate stakeholder management, the lack of communication when making decisions, And during completion no formal communication of the project, no process of communicating project experiences and best practices.

However, elements of communication and communication management can be found in a much larger number of indicated success factors in the project, including: support from

management, or customer/user engagement requires proper communication. Proper planning, or effective monitoring and control also include communication planning process. Leadership requiring effective communication skills and effective teamwork requires the ability to communicate.

### 2.6.10 Stakeholder Management Challenges

Project stakeholder management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution (PMI, 2017). When mentioning Airport development projects majority of activities are related to construction projects. Because of the large number of different activities that are carried out at an airport, there are different stakeholders in a construction project (Adrem, 2006). It is critical for project success to identify the stakeholders early in the project or phase and to analyze their levels of interest, their individual expectations, as well as their importance and influence (PMI 2013).

Schaar and Sherry (2010) classified and described the airport stakeholders and their goals at the Airport as shown in Table below. The list is relevant to generate a model which represents relationships between airport stakeholders existing in Ethiopian airports context.

Table 2.1 Description of Airport Stallholders and their Goal (Schaar and Sherry, 2010)

| **Stakeholder Group** | **Definition** | **The Stakeholder‘s Goals for the Airport** |
|---|---|---|
| Passengers | O&D and transferring passengers | Move passengers quickly and conveniently<br>Ensure on-time performance<br>Provide access to low fares |
| Organizations | Organizations in region | Maximize passenger and traffic volumes<br>Maximize number of destinations served and frequency of those services |

| | | |
|---|---|---|
| Air carriers | Passenger and cargo carriers | Ensure on-time performance<br>Ensure low cost of operations<br>Ensure safety of operations<br>Provide access to high yields |
| General aviation | Air taxi, corporate transportation, business aviation, etc. | Serve as access point to the NAS through good availability and high equipment capability |
| Airport organization | Individual airports or multi-airport systems, including management and staff, with responsibility for building and operating the airport | Achieve high security and safety<br>Grow revenue and manage costs<br>Drive economic growth<br>Grow passenger numbers<br>Find opportunities for new destinations and increase service frequency<br>Ensure sufficient (but not excessive) infrastructure capacity<br>Maximize non-aeronautical |
| ground transportation providers | cars, limousines, and on and off airport parking services | volumes Minimize fees paid |
| Airport suppliers | Suppliers of contractor and consulting services and equipment | Maximize traffic volumes |
| Investors and bond-holders | Individuals/organizations holding bonds, and the credit ratings agencies | Optimize performance in factors under consideration |
| Concessionaires | Operators of passenger services such as food and beverage and retail | Maximize passenger volumes<br>Minimize fees paid |
| Service providers | Providers of services to air carriers, such as fuel | Maximize traffic volumes<br>Minimize fees paid |
| Employees | Employees of the airport | Provide secure jobs, wages, and benefits |

| | | |
|---|---|---|
| | organization and airport tenants | |
| Federal government | Bill-payer for infrastructure (AIP), operator of air traffic control and security, and system regulator. | Ensure that airports can accommodate growth<br>Keep airports up to standards<br>Ensure safety, security, and efficiency of operations |
| Local government | Local entities such as counties or cities which own airports. | Maximize economic impact<br>Maximize number of destinations served and frequency of those services<br>Minimize noise and emissions |
| Communities affected by airport operations | Residents in region, andin particular residents near the airport | Maximize economic impactMaximize number of destinations served and frequency of those servicesMinimize noise and emissions |
| NGOs, such as environmental bodies | Airport interest groups | Varies depending on the interest group |
| Parking operators and | Rail service, taxicabs, buses, shuttles, rental | Maximize passenger |

The variance of stakeholders involved, all of whom are very involved during the project lifecycle: As a result, the achievement of a consensus among these stakeholders is quite challenging. Survey from literature revealed that lack of stakeholder engagement, lack of user involvement and lack of executive support are in the forefront causes of project failure.

One of the most critical factors for the successful completion of projects is top management support Xaba (2011). The level of support provided by the functional manager is usually determined by the level of support from top management (Xaba, 2011).Top management is perceived to have a stake in the successful completion of the project. As a result of their perceived stake in the task, they have certain expectations, and consequently, engage in certain types of behavior, sometimes constructive and sometimes destructive (Bourne &

Walker, 2006).Pinto, Slevin (1987), identified top or divisional management support for the project that has been conveyed to all concerned parties as important critical success factor.

### 2.6.11 Procurement Management Challenges.

Project procurement management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team (PMI, 2017). According to Manu et.al (2018) where procurement capacity deficiencies are paramount in several countries in the sub-Saharan African region, challenges related to transparency, integrity and accountability are amongst the top most challenges adversely affecting the effectiveness of public infrastructure procurement.

Ethiopian Airports being in this region believed to have such challenges in procurement of its infrastructure development projects. Procurement related project management factors are also evident in delivery of infrastructure projects. Babatunde et.al (2012) identified critical success factors related to procurement management through survey questionnaires; these are competitive procurement process, thorough and realistic assessment of the cost and benefits, and transparency in the procurement process. Truong et.al, (2008) in their study of benchmarking approach indicated that large contractors applied an effective procurement system including well-prepared material procurement planning, clear-documented solicitation, transparent choosing among potential suppliers, and well managing the relationship with suppliers. Truong et.al, (2008) also holds that more specific and more detailed contract documents as a key element in avoiding disputes in the future. According to Manu et al. (2018) where procurement capacity deficiencies are paramount in several countries in the sub-Saharan African region, challenges related to transparency, integrity and accountability are amongst the topmost challenges adversely affecting the effectiveness of public infrastructure procurement. Ethiopian Airports being in this region believed to have such challenges in procurement of its infrastructure development projects.

## 2.7 Summary of Conceptual framework

Project management is the application of knowledge, skills, tools and techniques to project activities to meet project requirements. Project management is accomplished through the

application and integration of the project management processes of initiating, planning, executing, monitoring and controlling, and closing.

Various literatures reviewed revealed that variables considered as a success factor for project management practice are similar to the variables identified as reason for failure when stated negatively. Though projects are not declared as failed these variables can be considered as a source of challenge in project management. Hence proactively tackling these challenges helps to avert any possible situations that can become barriers to effective implementation of project management practices.

Accordingly 45 possible areas are identified from the literatures presented in section 2.8 in which the infrastructure development projects in Ethiopian Airports may have been challenged.

Table 2.2 Conceptual Summary

| | |
|---|---|
| **Challenges Related to Enterprise Environmental Factors** | Ayman and Ezzat, 2013, Kerzner, 2017, Pinto, Slevin, 1987 |
| Lack of Project Management Skills and training in project management | |
| Lack of Information technology support | |
| Lack of clearly defined Rules and procedures for project management | |
| **Project Integration Management Challenges** | XABA, 2011, Pinto, Slevin, 1987, Stephen K, 2018, Davies (2002), Tengan and Aigbavboa, 2016 |
| Failure to assign and identify Project Manager early in the project | |
| Lack of efficient change management | |
| Lack of Clear vision and goals of the project | |
| Not breaking down development into phases or clear millstones. | |
| Not prioritizing operational activities or objectives. | |
| gaps in defining key performance indicators, the retrieval, collection, preparation and interpretation of data for | |

| | |
|---|---|
| monitoring and evaluation | |
| Limited resources and budgetary allocations for monitoring and evaluation | |
| Lack of Process for project knowledge management and capturing lessons learned | |
| **Project Scope Management challenges** | VR. Montequin et.al, 2016 |
| Changing requirements late in the project and continuing change requests | |
| Incomplete, wrong or not defined Requirements and Specifications | |
| Design discrepancies | |
| Project requirements inadequately documented | |
| Using a poor technical design that does not allow for modification | |
| **Project Schedule Management challenges** | Ikediashi, et.at, 2014, |
| Project schedule delays | |
| Too tight project schedule and unrealistic deadlines | |
| Inaccurate time estimations | |
| **Project Cost Management challenges** | Abdulrahman, 2016, Othman, 2013, Kujala et. al 2014 |
| Inaccurate cost estimation. | |
| Cash flow difficulties | |
| Lack of Cost Control | |
| Inadequate funding/capital or poor use of funding/capital. | |
| **Project Quality Management Challenges** | Montequin et.al, 2016, Hong and SUN, 2006, FDIC, 2019 |
| Use of poor initial testing techniques. | |
| Lack of strict quality control measures | |
| Quality checks not performed at satisfactory level | |
| **Project Human Resource Management Challenges** | Mir and Pinnington, 2014, Abdulrahman, 2016 |
| Wrong selection of project team | |
| Lack of skilled personnel with adequate capacity | |

| | |
|---|---|
| Inadequate project structure | |
| Lacking clear roles and responsibilities among team members. | |
| Being unable to resolve conflicts. | |
| **Project Stakeholder management challenges** | XABA, 2011, Pinto, Slevin, 1987, |
| Late identification of stakeholders the project | |
| Low commitment of Stakeholders towards planned projects | |
| Lack involvement of end users of Airport infrastructures | |
| Lack of continuous support from executive | |
| Not obtaining stakeholder approval | |
| **Project Communication Management Challenges** | Eds. Trocki and Bukłaha, 2016,McManus and Wood, (2007 |
| Lack of professional communication support | |
| Lack of effective communication between stakeholders | |
| **Project Risk Management Challenges** | Baghdadi and Mohammed, 2015, |
| Poor risk management | |
| Failure to manage expectations | |
| Unexpected events with no effective response possible | |
| **Project Procurement Management Challenges** | Babatunde et.al 2012, Manu et.al, 2018, Truong et.al, 2008 |
| Lack of well-prepared procurement planning | |
| Lack of competitive procurement process | |
| Lack of transparency and integrity in the procurement process | |
| Lack of well-prepared contracts with much detail and clear-documentation | |

# CHAPTER THREE

# METHODOLOGY

This chapter aims to provide an overview of the methodological approaches and research design selected to assess the different project management processes and practices followed by Ethiopian airports Infrastructure Development projects.

## 3.1 Research Design and Approach

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions (Cooper and Schindler, 2014). Descriptive research design was adopted to undertake this study. Descriptive research design is typically concerned with describing the characteristics of a phenomenon. It can be used for the purpose of estimates of the proportions of a population that have these characteristics (Cooper and Schindler, 2014). As a result the researcher believes that this design enables to identify and define the opinion and attitude held by participants of the study on challenges of project management practices of Airport Infrastructure development projects in the Ethiopian Airports.

The study was conducted as per the below step

1. Reviewing the nature and characteristics of Airport infrastructure development projects and identifying the challenges of project management practices.
2. Classifying the identified challenges into appropriate categories based on knowledge areas in project management to help conceptualize.
3. Validating the challenges identified from Literature review through structured questionnaire and semi-structured interviews to know the perceived opinion of project management team in Ethiopian airports.
4. Collecting and analyzing structured questioners and semi-structured interviews and drawing research conclusions and recommendations useful for successful undertaking of Airport infrastructure development projects.

The research approach adopted for this study was mixed method qualitative and quantitative which involve interview and questionnaire. The quantitative aspect of the research refers the generation of descriptive statistical analysis from the use of survey to be carried out from

responses of participants using structured questionnaires. This research is also qualitative since it includes attitude or opinion of the participants in both aspects of structured questionnaires and semi-structured interview. The role of semi-structured interviews is learning how to probe effectively; that is, to stimulate an informant to produce more information without injecting the researcher's words, ideas or concepts into the conversation.

Challenges to the effective implementation of project management practices has been identified from literature which to help as a basis for this study. The factors are restructured for participants of the study to rank them on a five-point Likert scale to help measure the strength and intensity of respondents' opinions of the identified challenging factors.

## 3.2 Population of the Study and Sampling

Target population is said to be a specified group of people or object for which questions can be asked or observed made to develop required data structures and information. Therefore, for this study, the target population of the study was employees of Ethiopian Airports particularly involved in planning, implementation and control of projects undertaken in Ethiopian Airports Infrastructure Development.

Purposive sampling technique was used to select study participants in order to get the right respondents who are capable of giving the relevant and accurate information based on the practical experience they have regarding the issues under study. Purposive or judgmental sampling enables you to use your judgment to select cases that will best enable you to answer your research question(s) and to meet your objectives (Sanders et al., 2009). Since the size of target population under study was small and manageable the researcher decided to involve all thirty (30) employees (experts, middle and higher level managers) on the study. Interview session was also held with seven (7) management level members in order to get further information regarding the challenges in project management practice of the Airport infrastructure development projects in addition to the information gathered through questionnaire.

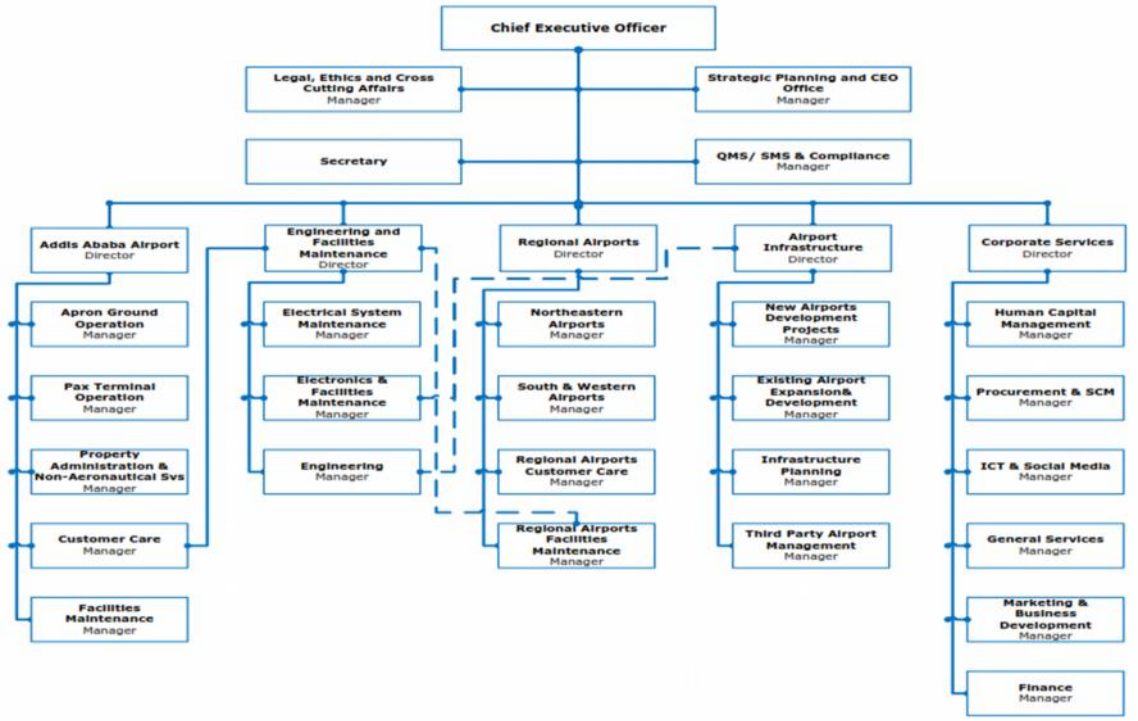


Fig 3-1.Organizational Structure of Ethiopian Airports (EA, 2017)

## 3.3 Method of Data Collection

Primary data sources was used from employees involved in infrastructure development planning, implementing and controlling includes the project team and support staff, top level executives and internal documents that could give information related to the challenges of project management practice of the project. Secondary data on the other hand were used from related journals, articles, books and some project publications.

## 3.4 Method of Data Analysis

Data collected from the survey was analyzed using descriptive statistical techniques. For this purpose the computer software Statistical Package for Social Science (SPSS V.20) was used as the best options available.

In evaluating the results of the survey on the challenges faced during the implementation of project management practice in the Ethiopian Airport Infrastructure development projects, the research will try to evaluate the significance of each barrier to the implementation of

project management practices. Descriptive statistics including mean, frequencies, standard deviation and percentages were used for quantitative data analysis. Tables, charts and figures were used to present the analyzed data.

### 3.5 Validity of Reliability

The validity and reliability of the research will been taken into consideration. Questionnaire and interview questions were developed based on the conceptual framework of the study designed to address the intended assessment questions and objectives.

Further a reliability test of Cronbach's Alpha was made for the likert scale type questions on SPSS 20. Cronbach's alpha is a measure used to assess the reliability, or internal consistency, of a set of scale or test items. In most social science research situations The general rule of thumb is that a Cronbach's alpha of .70 and above is good, .80 and above is better, and .90 and above is best. This study's Cronbach's Alpha result was .943

**Reliability Statistics**

| Cronbach's Alpha | N of Items |
|---|---|
| .920 | 45 |

### 3.6 Limitation of the Study

The research does not represent all the project management challenges and it may skip some minor challenges which may affect the project manager repeatedly. The developed model will suggest some key points which may be taken as a guideline in order to avoid these challenges. Lack of adequate and formally organized available data and tight schedule of the respondents to give detailed information were major constraints.

### 3.7 Ethical Considerations

The researcher followed ethically acceptable processes throughout the research process. The participants were informed of the purpose of the study before the information collected from them thus conforming to the principle of voluntary and informed consent. In this regard, the

names of the respondents not be disclosed and Information were not available to anyone who were not directly involve in the study. The researcher further consider that all the sources used in this research report have been properly recognized and acknowledged as in-text-citation and reference list.

# CHAPTER FOUR

# DISCUSSION AND RESULTS

This chapter deals with presentation, analysis and interpretation of the data obtained through questionnaire and interview. The results are depicted in the form of figures, tables and also using descriptive statistics. A total number of 30 questionnaires were distributed and out of them 28(93%) of them were found valid and used in the study for further analysis.

## 4.1 Results of the Questionnaire

### 4.1.1 Characteristics of the respondents

Table 4.1 Age of Respondents

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | below 30 years | 12 | 42.9 | 42.9 | 42.9 |
| | 30 to 40 years | 4 | 14.3 | 14.3 | 57.1 |
| | 40 to 50 years | 8 | 28.6 | 28.6 | 85.7 |
| | above 50 years | 4 | 14.3 | 14.3 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

Table 4.2 Sex of Respondents

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Male | 28 | 100.0 | 100.0 | 100.0 |

Table 4.3 Job Category of Respondents

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Project Team | 12 | 42.9 | 42.9 | 42.9 |
| | Support Staff | 8 | 28.6 | 28.6 | 71.5 |
| | Middle Level Manager | 4 | 14.3 | 14.3 | 85.7 |
| | Higher Level Manager | 4 | 14.3 | 14.3 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

Table 4.4 Educational Status of Respondents

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Diploma/TVT | 4 | 14.3 | 14.3 | 14.3 |
| | BA/BSC | 16 | 57.1 | 57.1 | 71.4 |
| | MA/MSC | 4 | 14.3 | 14.3 | 85.7 |
| | PhD | 4 | 14.3 | 14.3 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

Table 4.5 Work Experience of Respondents

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 0-5 years | 8 | 28.6 | 28.6 | 28.6 |
| | 6-10 years | 8 | 28.6 | 28.6 | 57.1 |
| | more than 15 years | 12 | 42.9 | 42.9 | 100.0 |
| | Total | 28 | 100.0 | 100.0 | |

As indicated in the above table Age of the 12(42.9%) were below 30 years, 4(14.3%) were between 30 and 40 years, 8(28.6%) were between 40 and 50 years and 4(14.3%) were above 50 years. The whole respondents are male. In terms Job Category 12(42.9%) were project team members, 8(28.6%) were support staff, 4(14.3%) were middle level manager and 4(14.3%) were Higher Level Manager. With respect to their academic qualification 4(14.3%) were Diploma/TVT, 16 (57.1%) were BA/BSC, 4(14.3%) were MA/MSC and 4(14.3%) were PhD holders, 19 were BA/BSC holders and 1 was diploma holder. Among the total respondents 8(28.6%) have less than 5 years' experience, 8(28.6%) have between 6 and 10 years' experience and 12(42.9%) have more than 12 years' experience.

The researcher believed that respondents with high academic qualification and higher position tend to give more detailed information regarding the issues under study and give more weight to the opinion of the challenges encountered in Airport development projects.

### 4.1.2 Results Related to Challenges of Project Management Practice

Respondents were asked to indicate their opinion about the possible challenges in project management practices they think are exist in Airport development projects. Accordingly, their response presented in the following tables and discussed based on the responses, interview results.

Table 4.5: Respondent answers for Challenges of Project Management Practice.

| NO | | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| 1 | Lack of Project Management Skills and training in project management | 28 | 4 | 5 | 4.21 | .418 |
| 2 | Unexpected events with no effective response possible | 28 | 3 | 5 | 4.07 | .466 |
| 3 | Project schedule delays | 28 | 3 | 5 | 4.07 | .466 |
| 4 | Changing requirements late in the project and continuing change requests | 28 | 3 | 5 | 3.96 | .637 |
| 5 | Low commitment of Stakeholders towards planned projects | 28 | 1 | 5 | 3.93 | .940 |
| 6 | Failure to manage expectations | 28 | 2 | 4 | 3.86 | .525 |
| 7 | Poor risk management | 28 | 2 | 4 | 3.82 | .548 |
| 8 | Not obtaining stakeholder approval | 28 | 3 | 5 | 3.82 | .476 |
| 9 | Lack involvement of end users of Airport infrastructures | 28 | 1 | 5 | 3.82 | .983 |
| 10 | Incomplete, wrong or not defined Requirements and Specifications | 28 | 3 | 5 | 3.82 | .476 |
| 11 | Too tight project schedule and unrealistic deadlines | 28 | 3 | 5 | 3.71 | .810 |
| 12 | Lack of clearly defined Rules and procedures for project management | 28 | 2 | 5 | 3.71 | 1.117 |
| 13 | gaps in defining key performance indicators, the retrieval, collection, preparation and interpretation of data for monitoring and evaluation | 28 | 3 | 5 | 3.68 | .548 |
| 14 | Late identification of stakeholders the project | 28 | 1 | 5 | 3.68 | 1.156 |
| 15 | Not prioritizing operational activities or objectives. | 28 | 2 | 5 | 3.64 | .911 |
| 16 | Design discrepancies | 28 | 2 | 4 | 3.64 | .731 |
| 17 | Lack of efficient change management | 28 | 2 | 5 | 3.57 | .997 |
| 18 | Lack of Information technology support | 28 | 2 | 5 | 3.57 | .836 |
| 19 | Lack of well-prepared procurement planning | 28 | 2 | 4 | 3.50 | .745 |
| 20 | Lack of effective communication between stakeholders | 28 | 2 | 4 | 3.50 | .745 |
| 21 | Lack of Clear vision and goals of the project | 28 | 1 | 5 | 3.46 | 1.261 |
| 22 | Lack of continuous support from executive | 28 | 2 | 5 | 3.46 | .922 |
| 23 | Inadequate project structure | 28 | 2 | 4 | 3.43 | .836 |
| 24 | Project requirements inadequately documented | 28 | 2 | 4 | 3.43 | .836 |
| 25 | Lack of Process for project knowledge management and capturing lessons learned | 28 | 1 | 4 | 3.43 | .836 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | Cash flow difficulties | 28 | 2 | 5 | 3.36 | .989 |
| 27 | Inaccurate time estimations | 28 | 2 | 5 | 3.36 | .911 |
| 28 | Lack of skilled personnel with adequate capacity | 28 | 1 | 4 | 3.36 | .989 |
| 29 | Inadequate funding/capital or poor use of funding/capital. | 28 | 1 | 5 | 3.32 | 1.124 |
| 30 | Lack of competitive procurement process | 28 | 2 | 4 | 3.32 | .723 |
| 31 | Wrong selection of project team | 28 | 2 | 4 | 3.29 | .600 |
| 32 | Limited resources and budgetary allocations for monitoring and evaluation | 28 | 2 | 4 | 3.29 | .713 |
| 33 | Using a poor technical design that does not allow for modification | 28 | 1 | 4 | 3.29 | 1.243 |
| 34 | Failure to assign and identify Project Manager early in the project | 28 | 2 | 4 | 3.14 | .756 |
| 35 | Quality checks not performed at satisfactory level | 28 | 2 | 5 | 3.14 | 1.145 |
| 36 | Inaccurate cost estimation. | 28 | 2 | 5 | 3.14 | 1.079 |
| 37 | Lack of well-prepared contracts with much detail and clear-documentation | 28 | 2 | 5 | 3.00 | 1.155 |
| 38 | Lacking clear roles and responsibilities among team members. | 28 | 2 | 4 | 3.00 | 1.018 |
| 39 | Lack of strict quality control measures | 28 | 2 | 5 | 3.00 | 1.217 |
| 40 | Not breaking down development into phases or clear millstones. | 28 | 2 | 5 | 3.00 | .943 |
| 41 | Lack of professional communication support | 28 | 2 | 4 | 2.93 | .716 |
| 42 | Being unable to resolve conflicts. | 28 | 2 | 4 | 2.89 | .685 |
| 43 | Lack of Cost Control | 28 | 2 | 5 | 2.89 | 1.133 |
| 44 | Use of poor initial testing techniques. | 28 | 2 | 4 | 2.71 | .897 |
| 45 | Lack of transparency and integrity in the procurement process | 28 | 2 | 4 | 2.71 | .713 |

Table 4.5 shows that among 45 challenging factors identified in the literature participants are agreed 18 factors with mean above 3.5 are considered highly significant challenges, 18 factors mean above 3 up to 3.5 are considered moderate challenges, 9 factors with mean 3 and below 3 are considered less significant challenges.

As can be seen in Table 4.5, most barriers had a standard deviation of less than and close to one (1), indicating there was agreed consistency in respondents' opinion of the challenging factors.

Table 4.6 Means and standard deviation of the items in Enterprise Environmental Factors

| | **Challenges Related to Enterprise Environmental Factors** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q1 | Lack of Project Management Skills and training in project management | 28 | 4 | 5 | 4.21 | .418 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Q2 | Lack of Information technology support | 28 | 2 | 5 | 3.57 | .836 |
| Q3 | Lack of clearly defined Rules and procedures for project management | 28 | 2 | 5 | 3.71 | 1.117 |
| | Average Mean Score | **28** | **2.67** | **4.67** | **3.8333** | **.52509** |

Table 4.6: shows that the Average mean score of Challenges Related to Enterprise Environmental Factors is (3.8333) with a Std. Deviation of (.52509) which indicates that Enterprise Environmental challenging factors are considered as highly significant.

Table 4.7 Means and standard deviation of the items in Project Integration Management

| | **Project Integration Management Challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q4 | Failure to assign and identify Project Manager early in the project | 28 | 2 | 4 | 3.14 | .756 |
| Q5 | Lack of efficient change management | 28 | 2 | 5 | 3.57 | .997 |
| Q6 | Lack of Clear vision and goals of the project | 28 | 1 | 5 | 3.46 | 1.261 |
| Q7 | Not breaking down development into phases or clear millstones. | 28 | 2 | 5 | 3.00 | .943 |
| Q8 | Not prioritizing operational activities or objectives. | 28 | 2 | 5 | 3.64 | .911 |
| Q9 | gaps in defining key performance indicators, the retrieval, collection, preparation and interpretation of data for monitoring and evaluation | 28 | 3 | 5 | 3.68 | .548 |
| Q10 | Limited resources and budgetary allocations for monitoring and evaluation | 28 | 2 | 4 | 3.29 | .713 |
| Q11 | Lack of Process for project knowledge management and capturing lessons learned | 28 | 1 | 4 | 3.43 | .836 |
| | **Average Mean Score** | **28** | **2.25** | **4.00** | **3.4018** | **.46567** |

Table 4.6: shows that the total mean score of Project Integration Management Challenges is (3.4018) with a Std. Deviation of (.46567) which indicates that Integration Management Challenges are considered as moderate.

Table 4.8 Means and standard deviation of the items in Project Scope Management

| | **Project Scope Management challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q12 | Changing requirements late in the project and continuing change requests | 28 | 3 | 5 | 3.96 | .637 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Q13 | Incomplete, wrong or not defined Requirements and Specifications | 28 | 3 | 5 | 3.82 | .476 |
| Q14 | Design discrepancies | 28 | 2 | 4 | 3.64 | .731 |
| Q15 | Project requirements inadequately documented | 28 | 2 | 4 | 3.43 | .836 |
| Q16 | Using a poor technical design that does not allow for modification | 28 | 1 | 4 | 3.29 | 1.243 |
| | **Average Mean Score** | **28** | **2.40** | **4.20** | **3.6286** | **.44460** |

Table 4.8: shows that the Average mean score of Project Scope Management challenge Factors is (3.6286) with a Std. Deviation of (.44460) which indicates that Project Scope Management challenging factors are considered as significant. As can be seen in the table among the factors in scope management challenges "Changing requirements late in the project and continuing change requests" is rated as a major challenge.

Table 4.9 Means and standard deviation of the items in Project Schedule Management

| | **Project Schedule Management challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q17 | Project schedule delays | 28 | 3 | 5 | 4.07 | .466 |
| Q18 | Too tight project schedule and unrealistic deadlines | 28 | 3 | 5 | 3.71 | .810 |
| Q19 | Inaccurate time estimations | 28 | 2 | 5 | 3.36 | .911 |
| | **Average Mean Score** | **28** | **2.67** | **4.67** | **3.7143** | **.51090** |

Table 4.9: shows that the Average mean score of Project Schedule Management challenges is (3.7143) with a Std. Deviation of (.51090) which indicates that Project Schedule Management challenge factors are considered as significant.

Table 4.10 Means and standard deviation of the items in Project Cost Management

| | **Project Cost Management challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q20 | Inaccurate cost estimation. | 28 | 2 | 5 | 3.14 | 1.079 |
| Q21 | Cash flow difficulties | 28 | 2 | 5 | 3.36 | .989 |
| Q22 | Lack of Cost Control | 28 | 2 | 5 | 2.89 | 1.133 |
| Q23 | Inadequate funding/capital or poor use of funding/capital. | 28 | 1 | 5 | 3.32 | 1.124 |
| | **Average Mean Score** | **28** | **1.75** | **5.00** | **3.1786** | **.93753** |

Table 4.10: shows that the Average mean score of Project Cost Management challenges is (3.1786) with a Std. Deviation of (.93753) which indicates that Project Cost Management challenge factors are considered as moderate but not with higher consensus standard deviation close to one. As can be seen in the table among the factors in cost management challenges "Lack of Cost Control" is not considered as significant challenge this indicate project cost control practices are effective.

Table 4.11 Means and standard deviation of the items in Project Quality Management

| | **Project Quality Management Challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q24 | Use of poor initial testing techniques. | 28 | 2 | 4 | 2.71 | .897 |
| Q25 | Lack of strict quality control measures | 28 | 2 | 5 | 3.00 | 1.217 |
| Q26 | Quality checks not performed at satisfactory level | 28 | 2 | 5 | 3.14 | 1.145 |
| | **Average Mean Score** | **28** | **2.00** | **4.67** | **2.9524** | **1.00088** |

Table 4.11: shows that the Average mean score of Project Quality Management challenges is (2.9524) with a Std. Deviation of (1.00088) which indicates that Project Quality Management challenge factors are considered as less significant but not with higher consensus standard deviation more than one.

Table 4.12 Means and standard deviation of the items in Project Human Resource Management

| | **Project Human Resource Management Challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q27 | Wrong selection of project team | 28 | 2 | 4 | 3.29 | .600 |
| Q28 | Lack of skilled personnel with adequate capacity | 28 | 1 | 4 | 3.36 | .989 |
| Q29 | Inadequate project structure | 28 | 2 | 4 | 3.43 | .836 |
| Q30 | Lacking clear roles and responsibilities among team members. | 28 | 2 | 4 | 3.00 | 1.018 |
| Q31 | Being unable to resolve conflicts. | 28 | 2 | 4 | 2.89 | .685 |
| | **Average Mean Score** | **28** | **2.00** | **4.00** | **3.1929** | **.48222** |

Table 4.12: shows that the Average mean score of Project Human Resource Management challenges is (3.1929) with a Std. Deviation of (.48222) which indicates that Project Human Resource Management challenge factors are considered as moderate with higher consensus.

Table 4.13 Means and standard deviation of the items in Project Stakeholder Management

| | **Project Stakeholder management challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q32 | Late identification of stakeholders the project | 28 | 1 | 5 | 3.68 | 1.156 |
| Q33 | Low commitment of Stakeholders towards planned projects | 28 | 1 | 5 | 3.93 | .940 |
| Q34 | Lack involvement of end users of Airport infrastructures | 28 | 1 | 5 | 3.82 | .983 |
| Q35 | Lack of continuous support from executive | 28 | 2 | 5 | 3.46 | .922 |
| Q36 | Not obtaining stakeholder approval | 28 | 3 | 5 | 3.82 | .476 |
| | **Average Mean Score** | **28** | **1.80** | **4.80** | **3.7429** | **.72184** |

Table 4.13: shows that the Average mean score of Project Stakeholder Management challenges is (3.7429) with a Std. Deviation of (.72184) which indicates that Project Stakeholder Management challenge factors are considered as highly significant.

Table 4.14 Means and standard deviation of the items in Project Communication Management

| | **Project Communication Management Challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q37 | Lack of professional communication support | 28 | 2 | 4 | 2.93 | .716 |
| Q38 | Lack of effective communication between stakeholders | 28 | 2 | 4 | 3.50 | .745 |
| | **Average Mean Score** | **28** | **2.00** | **4.00** | **3.2143** | **.62994** |

Table 4.14: shows that the Average mean score of Project Communication Management challenges is (3.2143) with a Std. Deviation of (.62994) which indicates that Project Communication Management challenge factors are considered as moderate with higher consensus.

Table 4.15 Means and standard deviation of the items in Project Risk Management

| | **Project Risk Management Challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q39 | Poor risk management | 28 | 2 | 4 | 3.82 | .548 |
| Q40 | Failure to manage expectations | 28 | 2 | 4 | 3.86 | .525 |
| Q41 | Unexpected events with no effective response possible | 28 | 3 | 5 | 4.07 | .466 |
| | **Average Mean Score** | **28** | **2.33** | **4.33** | **3.9167** | **.46812** |

Table 4.15: shows that the Average mean score Project Risk Management Challenge Factors is (3.9167) with a Std. Deviation of (.46812) which indicates that Project Risk Management challenging factors are considered as highly significant with higher consensus.

Table 4.16 Means and standard deviation of the items in Project Procurement Management

| | **Project Procurement Management Challenges** | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|---|
| Q42 | Lack of well-prepared procurement planning | 28 | 2 | 4 | 3.50 | .745 |
| Q43 | Lack of competitive procurement process | 28 | 2 | 4 | 3.32 | .723 |
| Q44 | Lack of transparency and integrity in the procurement process | 28 | 2 | 4 | 2.71 | .713 |
| Q45 | Lack of well-prepared contracts with much detail and clear-documentation | 28 | 2 | 5 | 3.00 | 1.155 |
| | **Average Mean Score** | **28** | **2.50** | **4.00** | **3.1339** | **.53352** |

Table 4.16: shows that the Average mean score of Project Procurement Management challenges is (3.1339) with a Std. Deviation of (.53352) which indicates that Project Procurement Management challenge factors are considered as moderate with higher consensus. But as can be seen from the table "Lack of well-prepared procurement planning" is a significant challenge among the factors in procurement management challenges.

## 4.2 Results of Interview Questions

Unstructured interviews were conducted with key persons of middle and top level managers who have direct relationship with projects undertaken by Ethiopian Airports.

Interview participants are asked what specific challenges encountered on projects that they have been involved, what the impact was and how the organization deals with these challenges.

Most of the participants indicated that delay of project construction and commissioning is a common challenge. further they have mentioned the following factors as a major challenges of effective project management practices; Contractors' poor performance and lack of project management practice: cost variations projects are not completed in the contract price; work variation, discrepancy between design drawing and actual site condition; lack of standard rules and regulations; and poor quality of planning and design.

The impact of the above challenges were also indicated as completion of projects beyond the contractual period and above the allocated budget, let delivery of projects ready for operation loss of income.

The question related to the third research question was how the organization deals with these challenges. Most of them have responded they come back with stakeholders and contractors to jointly resolve issues; apply liquidated damage to compensate the losses; take contractual measures; tight follow up on the schedule on remaining tasks; conflict resolution measures; strategic planning.

### 4.3 Summary of Findings

Among 45 challenging factors identified in the literature participants are agreed as 18 factors are significant challenges mean above 3.5. Ten of the identified factors having above mean 3.8 with relatively low standard deviation can be considered major or most significant challenging factors. These are Lack of Project Management Skills and training in project management; Unexpected events with no effective response possible; Project schedule delays; Changing requirements late in the project and continuing change requests; Low commitment of Stakeholders towards planned projects; Failure to manage expectations; Poor risk management; Not obtaining stakeholder approval; Low commitment of Stakeholders towards planned projects; Lack of clearly defined Rules and procedures for project management.

Nine of the identified factors are not considered as significant factor as per the opinion of participants. These are: Lack of well-prepared contracts with much detail and clear-documentation; Lacking clear roles and responsibilities among team members; Lack of strict quality control measures; Not breaking down development into phases or clear millstones; Lack of professional communication support; Being unable to resolve conflicts; Lack of Cost Control; Use of poor initial testing techniques; Lack of transparency and integrity in the procurement process.

Analysis of the data based on project management knowledge area give the below result. Challenging factors considered as the most significant areas are Project Risk Management Challenges with average mean score (3.9167); Challenges Related to Enterprise

Environmental Factors with average mean score (3.8333); Project Stakeholder management challenges with average mean score (3.7429); Project Schedule Management challenges with average mean score (3.7143); Project Scope Management challenges with average mean score (3.6286);

While challenge factors considered as moderate are Project Integration Management Challenges with average mean score (3.4018); Project Communication Management Challenges with average mean score (3.2143);

Challenge factors considered as less significant are Project Human Resource Management Challenges with average mean score (3.1929); Project Cost Management challenges with average mean score (3.1786); Project Procurement Management Challenges with average mean score (3.1339); Project Quality Management Challenges with average mean score (2.9524)

# CHAPTER FIVE

## CONCLUSION AND RECOMMENDATION

### 5.1 Conclusion

From the finding of the study we can conclude that there is agreement among research participants on possible challenges in project management practice of Airport development projects.

Ten of the identified factors are the most significant or major challenging factors. These are Lack of Project Management Skills and training in project management; Unexpected events with no effective response possible; Project schedule delays; Changing requirements late in the project and continuing change requests; Low commitment of Stakeholders towards planned projects; Failure to manage expectations; Poor risk management; Not obtaining stakeholder approval; Low commitment of Stakeholders towards planned projects; Lack of clearly defined Rules and procedures for project management. Hence the organization should give high priority and treat these factors individually.

The findings also revealed that challenge factors within four knowledge areas including Enterprise Environmental factors are significantly challenged; these are Project Risk Management, Project Schedule Management, Project Stakeholder management and Project Scope Management.

As learned from the Interview questions the organization way of dealing the challenges are more of retroactive than proactive except in some cases. The solutions such as comeback with stakeholders and contractors to jointly resolve issues; apply liquidated damage to compensate the losses; take contractual measures; indicate that remedial actions are taken after a setback on the progress of the project. The study finds that actions such as tight schedule control and applying strategic planning appropriate measures taken by the organization to deal with the challenges in project management.

## 5.2 Recommendation

From the study we have seen that Lack of Project Management Skills and training in project management is the most significant challenge factor highly agreed most of the participants. Hence it is crucial for the organization work in this area. Without sufficient project management skill and training it will be difficult to achieve the goal.

Stronger emphasis should be given for Enterprise Environmental factors such as Project Management Skills and training in project management, Information technology support and clearly defined Rules and procedures for project management.

Project Management practice should be reinforced and all factors should be studied carefully in those knowledge areas whose factors are significantly challenged compared to other knowledge areas. These are Risk project management, Project Schedule Management, Project Stakeholder management and Project Scope Management.

The identified interrelated challenges are due to lack well-structured project support office both in owner and contracture side; hence establish project management office will be very helpful. Project management office (PMO) is a management structure that standardizes the project-related governance processes and facilitates the sharing of resources, methodologies, tools, and techniques. The responsibilities of a PMO can range from providing project management support functions to actually being responsible for the direct management of one or more projects (PMBOK, 2013). In line with this the organization must take into consideration adopting a well-defined project management methodology. It will improve the performance and close up the gap mentioned earlier with respect to challenged factors.

The opinion of the respondents on some of the identified challenging factors as less significant, this requires further study whether the results are due to effective implementation of best practices. Further research also required to determine project management maturity level of each of the knowledge areas.

**REFERENCES**


1. A. J. Shenhar and D. Dvir, Reinventing Project Management, Boston, USA: Harvard Business School Press, 2007.
2. Abdulrahman B. Alotaibi, "Project Management Practice: Redefining Theoretical Challenges in the 21st Century", Journal of Economics and Sustainable Development, Vol.7, No.1, 2016
1. Adrem, D. Schneiderbauer, E. Meyer, and F. Majdalani. (2006), "Managing airports construction projects." Allen & Hamilton Inc, pp. 1-8, 2006.
3. African Development Bank, 2006, "Project Completion Report Addis Ababa International Airport Development Project Federal Democratic Republic of Ethiopia" Transport Division Infrastructure Department-North, East & South Region February 2006
2. Ahmad Baghdadi, Mohammed Kishk, 2015, Saudi Arabian aviation construction projects: Identification of risks and their consequences, Creative Construction Conference
4. Akash Saxena, 2016, "Avoiding Project Failure by using Project Management methodologies", Dissertation submitted in part fulfilment of the requirements for the degree of Master of Business Administration (Project Management) at Dublin Business School
3. ALNASSERI, N., OSBORNE, A. and STEEL, G., 2013. Managing and Controlling Airport Construction Projects: A Strategic Management Framework for Operators. Journal of Advanced Management Science Vol, 1(3),
4. Ayman Ahmed, Ezzat Othman., "Challenges of mega construction projects in developing countries," Organization, Technologyand Management in Construction an International Journal, 5(1), pp.730-746, 2013.
5. Babatunde, S.O.; Opawole, A.; Akinsiku, O.E. Critical success factors in public-private partnership (PPP) on infrastructure delivery in Nigeria. J. Facil. Manag. 2012, 10, 212–225.
6. Bourne, L. & Walker, D. H. T. 2006, Visualizing and mapping stakeholder influence. Management Decision, 43(5/6), 649–660.
5. Coley, P.*Why projects fail?* Retrieved on Feb 27, 200 from www.coleyconsulting.co.uk Project fail, 2007.

7. Collins, A. Baccarini.D. (2004). Project Success. A Survey, Jornal of construction Research .
8. Cooke-Davies,T. 2002. The Real Success Factors on Projects. International Journal of Project Management,21:185-190.
9. Cooper, D.R. and Schindler, P.S. (2014) Business Research Methods. 12th Edition, McGraw-Hill Irwin, Boston.
10. Dr. Stephen K. A. Hammond, DBA, 2018, Project Failure and Challenges of Project Management in Ghana, Dama Academia Pubisher: Vol 3, Issue 11, November, 2018, Pages 27-31
11. Dubem I. Ikediashi, Stephen O. Ogunlana and AbdulazizAlotaibi, 2014, "Analysis of Project Failure Factors for Infrastructure Projects in Saudi Arabia: A Multivariate Approach" Journal of Construction in Developing Countries, 19(1), 35–52, 2014
12. F. Binnekade, R. Biciocchi, B. E. O'Rourke, and C. Vincent, Creating Smarter Airports: An Opportunity to Transform Travel and Trade. USA: IBM, 2009.
13. Frefer AA, Mahmoud M, Haleema H and Almamlook R (2018)Overview Success Criteria and Critical Success Factors in Project Management Frefer et al., Industrial Engineering Management 2018, 7:244
6. G. V. Bhanu Sai Prasad, V. B. N. V Sai1 and Dr. Kiran Kumar Reddi " Challenges Of Project Management Aligning To The Process Groups That Can Fulfill The Clients' Expectations". International Journal of Advanced Research, 2017,
7. Harold Kerzner, Ph.D. (2017) A Systems Approach to Planning, Scheduling, and Controlling. John Wiley & Sons, Inc., Hoboken, New Jersey
8. Harold Kerzner, Ph.D. (2018) "PROJECT MANAGEMENT BEST PRACTICES Achieving Global Excellence" Published by John Wiley & Sons, Inc., Hoboken, New Jersey
14. Hong Bo ZHOU, Jin Ke SUN, 2006, "Project Management Practice of Terminal Building of Shanghai Pudong International Airport"
15. Iram N, Khan B, Sherani AW (2016) Critical Factors Influencing the Project Success: An Analysis of Projects in Manufacturing and Construction in Pakistan. Arabian Journal of Business and Management Review 6: 20-22.

16. J. Amalraj, C. Hernani, K. Ladouceur and A. Verma, “Project Management: Challenges & Lessons Learned,” BUEC 663, 2007
17. J. McManus, T. Wood-Harper, Understanding the Sources of Information Systems Project Failure, “Management Services”, Autumn 2007, pp. 38–43; J.
18. JaakkoKujala, Tim Brady &JaakkoPutila, 2014 “Challenges of Cost Management in Complex Projects”, International Journal of Business and Management; Vol. 9, No. 11; 2014.
19. Jeffrey K. Pinto and Dennis P. Slevin, 1987, “Critical Factors in Successful Project Implementation”, IEEE Transactions on Engineering Management. VOL EM-34, February 1987.
20. Joseph Amalraj, Christine Hernani, Kelly Ladouceur, AparnaVerma, (2007), Project Management:Challenges& Lessons Learned
21. Kerzner, H. (2010). *Project management best practices: Achieving global excellence*. Hoboken, NJ: John Wiley & Sons.
22. M. XABA, 2011, “Root Cause Analysis of Major Capital Projects Failure at Transnet Freight Rail” A Research Proposal presented to theGraduate School of Business LeadershipUniversity of South Africa.
23. Manu, P.; Mahamadu, A.-M.; Booth, C.; Olomolaiye, P.; Ibrahim, A.D.; Coker, A. Assessment of procurement capacity challenges inhibiting public infrastructure procurement: A Nigerian inquiry. Built Environ. Proj.Asset Manag. 2018, 8, 386–402.
24. Mir, F. A. and Pinnington, A. H. (2014). Exploring the Value of Project Management: Linking Project Management Performance and Project Success. International Journal of Project Management, 32, 202-217.
25. Muhammad Nabeel Mirza, Zohreh Pourzolfaghar, Mojde Shahnazari, (2013) Significance of Scope in Project Success, International Conference on Project MANagement / HCIST 2013, Procedia Technology 9 ( 2013 ) 722 – 729
26. Nasser Alnasseri, Allan Osborne, and Glenn Steel (2013) Managing and Controlling Airport Construction Projects: A Strategic Management Framework for Operators. Journal of Advanced Management Science Vol. 1, No. 3
27. Sandeep Kashayap, 2019, 10 Common Challenges in Project Management & Their Solutions, retrieved on June 2019 from www.proofhub.com/author/SandeepKashayap

28. Saunders, M., Lewis, P. and Thorn hill,A. (2009), “Research Methods for Business Students”, 5th ed., Pearson Professional Limited, England
29. Sreekumar A. Menon, 2015, Best Practices and Implementation Challenges in Effective Project Management” Ph.D Scholar in General Business Management Capella University – School of Business and Technology
30. Tengan Callistus, Aigbavboa, 2016“Clinton Evaluating barriers to effective implementation of project monitoring and evaluation in the Ghanaian construction industry”, Creative Construction Conference 2016, CCC 2016, 25-28 June 2016, Procedia Engineering 164 ( 2016 ) 389 – 394
31. The Federal Deposit Insurance Corporation (FDIC) Office of Minority and Women Inclusion (OMWI) Education Module: “Avoiding the Common Causes of Project Failure” accessed from web on August 20, 2019 https://www.fdic.gov/about/diversity/sbrp/39avoidingthecommoncausesofprojectfailure.ppt
32. Triant Flouris and Dennis Lock, 2008, “Aviation Project Management”. Ashgate Publishing Limited
33. Trocki, M. and Bukłaha, E. (eds) (2016) Project Management – Challenges and Research Results, Warsaw School of Economics Press, Warsaw 2016
34. Van Truong Luu, Soo-Yong Kim, Tuan-Anh Huynh, 2008, “Improving project management performance of large contractors using benchmarking approach” International Journal of Project Management 26 (2008) 758–769
35. VR. Montequin, SM. Cousillas, V. Alvarez, J. Villanueva, 2016“Success Factors and Failure Causes in Projects: analysis of clusterpatterns using self-organizing maps”Procedia Computer Science 100 ( 2016 ) 440 – 448
36. Zarina Alias, E.M.A. Zawawi, Khalid Yusof, Aris, NM, 2014, “Determining Critical Success Factors of Project Management Practice: A conceptual framework” Procedia - Social and Behavioral Sciences 153 ( 2014 ) 61 – 69
37. Manjeet Singh, 2019, “ProjectMinds’ Quick Guide to Project Management” accessed on July 2019. www.projectminds.com;

# APPENDIX

**ADDIS ABABA UNIVERSITY**
**COLLEGE OF BUSINESS AND ECONOMICS**
**SCHOOL OF COMMERCE**

Dear Participant,

I am a graduate student at Addis Ababa University School of Commerce and currently I am conducting a research for the completion of my masters in Project Management.
This project work is on "**Challenges of Project Management Practice in Ethiopian Airports Infrastructure Development Projects**". The purpose of this study is to identify and evaluate the challenges encountered through project management practices in Ethiopian Airports Infrastructure development projects.

Your participation in this research study is voluntary and will require 15-20 min of your time. The information provided will be used for academic purpose but the individual survey information will remain confidential and there is no need to write your name.

The questionnaire requires you to consider each question and rank it from strongly disagree to strongly agree. There are no correct or incorrect answers you will be required to answer them based upon your experience in handling recent project.
If you have any questions regarding this research study, you may contact me at
E-mail: misgana01@gmail.com. Tel 0935203182

Thank you very much for your cooperation,

Misgna Aragaw

**SECTION 1: GENERAL PROFILE OF THE RESPONDENT**

1. Age of category:
   1.☐ Below 30 2.☐ 30-40 3. ☐ 40-50 4.☐ above 50

2. Sex: 1.☐ Male 2.☐ Female

3. Job Category:
   1. ☐ Project Team 2.☐ Support staff
   3. ☐ Middle level Manager 4.☐ Higher Level Manager

4. Educational status
   1. ☐ Diploma/TVT 2.☐ BA/BSc 3.☐ MA/MSc 4. Others; specify……

5. Work Experience
   A. ☐ 0 – 5 years B. ☐ 6 – 10 years
   C. ☐11 – 15 years D. ☐ More than 15 years

## Appendix I

## SECTION II: Survey Questionnaire

**Instructions:** Please carefully read each of the following statements and respond by ticking on the appropriate box which best suits your opinion about possible challenges you think are exist in Airport development projects.

| | | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | **Challenges Related to Enterprise Environmental Factors** | | | | | |
| Q1 | Lack of Project Management Skills and training in project management | | | | | |
| Q2 | Lack of Information technology support | | | | | |
| Q3 | Lack of clearly defined Rules and procedures for project management | | | | | |
| | **Project Integration Management Challenges** | | | | | |
| Q4 | Failure to assign and identify Project Manager early in the project | | | | | |
| Q5 | Lack of efficient change management | | | | | |
| Q6 | Lack of Clear vision and goals of the project | | | | | |
| Q7 | Not breaking down development into phases or clear millstones. | | | | | |
| Q8 | Not prioritizing operational activities or objectives. | | | | | |
| Q9 | gaps in defining key performance indicators, the retrieval, collection, preparation and interpretation of data for monitoring and evaluation | | | | | |
| Q10 | Limited resources and budgetary allocations for monitoring and evaluation | | | | | |
| Q11 | Lack of Process for project knowledge management and capturing lessons learned | | | | | |
| | **Project Scope Management challenges** | | | | | |
| Q12 | Changing requirements late in the project and continuing change requests | | | | | |
| Q13 | Incomplete, wrong or not defined Requirements and Specifications | | | | | |
| Q14 | Design discrepancies | | | | | |
| Q15 | Project requirements inadequately documented | | | | | |
| Q16 | Using a poor technical design that does not allow for modification | | | | | |
| | **Project Schedule Management challenges** | | | | | |
| Q17 | Project schedule delays | | | | | |
| Q18 | Too tight project schedule and unrealistic deadlines | | | | | |
| Q19 | Inaccurate time estimations | | | | | |

| | | Strongly Disagree | Disagree | Neither Agree nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| | **Project Cost Management challenges** | | | | | |
| Q20 | Inaccurate cost estimation. | | | | | |
| Q21 | Cash flow difficulties | | | | | |
| Q22 | Lack of Cost Control | | | | | |
| Q23 | Inadequate funding/capital or poor use of funding/capital. | | | | | |
| | **Project Quality Management Challenges** | | | | | |
| Q24 | Use of poor initial testing techniques. | | | | | |
| Q25 | Lack of strict quality control measures | | | | | |
| Q26 | Quality checks not performed at satisfactory level | | | | | |
| | **Project Human Resource Management Challenges** | | | | | |
| Q27 | Wrong selection of project team | | | | | |
| Q28 | Lack of skilled personnel with adequate capacity | | | | | |
| Q29 | Inadequate project structure | | | | | |
| Q30 | Lacking clear roles and responsibilities among team members. | | | | | |
| Q31 | Being unable to resolve conflicts. | | | | | |
| | **Project Stakeholder management challenges** | | | | | |
| Q32 | Late identification of stakeholders the project | | | | | |
| Q33 | Low commitment of Stakeholders towards planned projects | | | | | |
| Q34 | Lack involvement of end users of Airport infrastructures | | | | | |
| Q35 | Lack of continuous support from executive | | | | | |
| Q36 | Not obtaining stakeholder approval | | | | | |
| | **Project Communication Management Challenges** | | | | | |
| Q37 | Lack of professional communication support | | | | | |
| Q38 | Lack of effective communication between stakeholders | | | | | |
| | **Project Risk Management Challenges** | | | | | |
| Q39 | Poor risk management | | | | | |
| Q40 | Failure to manage expectations | | | | | |
| Q41 | Unexpected events with no effective response possible | | | | | |
| | **Project Procurement Management Challenges** | | | | | |
| Q42 | Lack of well-prepared procurement planning | | | | | |
| Q43 | Lack of competitive procurement process | | | | | |
| Q44 | Lack of transparency and integrity in the procurement process | | | | | |
| Q45 | Lack of well-prepared contracts with much detail and clear-documentation | | | | | |

## Appendix II

### SECTION II: Interview Questions

1. What are the projects that you have been involved with Airport development projects?
   ……
   ……
   ……
   ……
2. What was your role?
   ……
   ……
3. What are the major challenge/s related to project management practice in Airport development projects that you have been involved?
   ……
   ……
   ……
   ……
4. What is the impact/s of the mentioned challenges in the project you have been involved with?
   ……
   ……
   ……
   ……
5. How does the organization deal with those challenges?
   ……
   ……
   ……
   ……
6. Please mention three of most significant challenging factors among listed in the questionnaire in Airport development projects
   ……
   ……
   ……