St. Mary's University

School of Graduate Studies

MA in Project Management

PROJECT MANAGEMENT OFFICE; A CONTRIBUTARY FACTOR FOR PROJECT SUCCESS: THE CASE OF COMMERCIAL BANK OF ETHIOPIA

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A Thesis Report Submitted to St. Mary's University in Partial Fulfillment of the Requirements for Obtaining the Degree of Masters of Project Management

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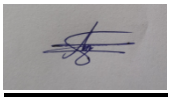
Tibebu Tulu (Ph.D)	
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Last but not least, I would like to offer special thanks to my family and all my friends who has supported me in one way or another towards the completion of this research.

List of Acronyms

ANOVA: Analysis of Variance

CBE:-Commercial Bank of Ethiopia

CSF: Critical Success Factor

FM: Finance Manager

HQ: Head Quarter

IT:-Information Technology

OPMMM: Organizational Project Management Maturity Model

PM: Project Management

PMI:-Project Management Institute

PMM:-Project Management Methodology

PMSDF: Performance Management Systems Design Framework

PMO:-Project Management Office

SPSS:-Statistical Package for Social Sciences

VIF:-Variance Inflation Factor

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Abstract

This study aimed to assess the role of Project Management Office (PMO) as a contributing factor for project success in the case of Commercial Bank of Ethiopia (CBE). To meet the research objective, the researcher predominantly defined hypotheses which dictate their contribution for project success and the validity of these hypotheses has been tested. A qualitative research method has employed and the researcher has adopted a standardized questionnaire to fulfill the research objectives. The questionnaire has constitutes of two parts; the first one is the demographic data of the respondents whereas the second part is the roles of PMO which cause project success and Success measuring factors in which respondents can rate by using 5 points Likert's scale. Accordingly, the questionnaire has distributed to the respondents with the basis of census sampling. A total of 65 questionnaires have distributed and 57 persons has filled and returned. The collected data has analyzed by using Statistical Package for Social Sciences (SPSS 23). To examine the causal-effect relationship, a multiple linear regression analysis has employed. A multiple regression analysis model has used to measure the collective influence of the independent variables on project success. In so doing, it has obtained the value of Adjusted $R^2 = 0.267$ which indicates that the five independent variables in the model explain 26.7% of the variations in project success. However, in due course of the research it has tested the significance of each independent variable on project success. Accordingly, it has observed that Monitoring and Controlling roles of PMO and Multi-Project Management roles of PMO have a significant effect on project success. Whereas, Development of Project Management Competencies and Methodologies, Strategic Management of Projects and Organizational Learning of Projects roles of PMO has no significant effect on project success for the PMO under investigation organization.

Key Words: PMO, Project Success, CBE, Construction Project, Contribution

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Projects are launched to guarantee the nation's economy grows sustainably and to build vast economic links. To effectively implement these projects and accomplish the functional goals of the projects within their service period, an efficient project management approach must be used from the planning stage to the finish (Haron et al., 2017). Beside this, building projects have become much more complicated in recent years, necessitating the use of carefully integrated process management tools and methodologies to ensure project success (Chan, 2001).

In response to these problems, organizations have created new, more adaptable organizational structures (Pettigrew, 2003), where initiatives are more frequent and have more strategic significance (Jamieson & Morris, 2004). In light of this, organizations have shifted their focus to project management science in order to cope with project time and expense overruns and obtain standard criterion for project success and failure. As a result, project management science was developed in order to achieve project objectives (Kiani et al., 2015).

Having project management within a company, will enable to deliver planned and controlled results at the organizational level as projects are powerful tool for creating economic value and competitive advantage (Oliveira & Martins, 2018).

Aubry, Hobbs, & Thuillier, (2009) suggests that organizations have been seeing over the past several years that they are operating in a new environment that is marked by higher rates of product, service, and process innovation as well as a growing focus on time to market. In response to these new issues and as part of the drive to increase the number and strategic relevance of projects, some firms have developed a new organizational unit known as the Project Management Office (PMO).

Kiani et al., (2015) also emphasizes that given the rise of project management and its procedures, it was necessary to establish an organizational unit known as the Project Management Office, which is responsible for centralizing and coordinating management of projects in progress in order to ensure project success.

A Project Management Office (PMO) is a group within an organization that provides project management support to projects. The importance of implementing PMO in organizations is that it helps projects to stay on schedule and within the budget by enhancing planning and control over the project, manage, regulate, and supervise construction processes. A centralized PMO also improves cooperation and effective communication.

Accordingly, this study was done on the basis of assessing project management practice of Commercial Bank of Ethiopia in its Project Management Office. It has discussed the role and objectives of the PMO, project success factor of the PMO in the company, the tools and methodologies implemented by the PMO and the contribution of PMO for project success.

1.2. Statement of the Problems

According to Sinesilassie et al. (2017), project management knowledge is the foundation for people's competency in Ethiopian public construction projects, although project management knowledge is not given as much attention as it should. PDC (2015) explained that the poor project management of the country's construction industry was identified as a challenge of project success.

Management challenges such as capacity constraint, lack of integration, financial scarcity, lack of good governance, technological gaps, lack of monitoring, and execution were identified by the GTP (2015) as concerns to be addressed in the national development plan (Hailemeskel, 2020). Among other the major causes for the problems in the construction projects success are; shortage of qualified and experienced workers and intense competition (Ingle & Mahesh, 2020; Kumar et al., 2023b).

In order to minimize the costly impact of problems faced in construction project, the existence of Project Management Office plays great role. Accordingly, the CBE has established Project Management Office with the aim of addressing the issues mentioned above. When the PMO established in the Commercial Bank of Ethiopia 15 years back, the intended goal of the PMO is to manage projects in a standardized, centralized and well organized manner so that it enables to achieve the objectives of seven projects including the HQ.

When compared to other nations in the world the practice of Project Management Office (PMO) in our country is in the infant stage. Because of this reason the number of researches produced on the subject of PMO is limited and few in number, meanwhile it requires sufficient inputs.

Previously Teshale Alemayehu has conducted a research on the Role of PMO on project success on the focus of IT projects in the CBE in 2021. On the other hand Rediet Getahun has conducted a research with the same tittle on Abyssinia Bank in 2021. Similarly, Biruk Dage has conducted a research on assessment of PMO on IT projects of Bank of Abyssinia in 2020.

Apart to reveal the performance of PMO on project success, these researches didn't conduct on the basis of construction project offices of the companies and these researches had suggested the roles of PMO on the basis of construction project success shall be covered by other researchers.

Therefore, this research aimed to fill this gap of focus area that previous researches has done, which focuses on construction project offices of the CBE. In addition the researches mentioned above have a minimum of 3 years age. Accordingly, this research has needed to fill this gap.

1.3. Research Questions

The study states the following questions which help in achieving the research objectives and it gives a brief on the methodology to address these questions;

1. What functions is the PMO mandated with in the CBE construction projects?
2. What are the factors for project success of the PMO in CBE?
3. How does the PMO fulfill its purpose in achieving project success?
4. What value is added by and the contributions of PMO on project success?

1.4. Objectives of the Study

1.4.1. General Objective

The major purpose of this study is to reveal the contribution of Project Management Office for the success of construction projects in Commercial Bank of Ethiopia.

1.4.2. Specific Objectives

Through the process of achieving the overall purpose, the study has targeted to accomplish the following specific objectives;

- To assess the role and functions of PMO in the Commercial Bank of Ethiopia.
- To identify the general success factors for construction projects.
- To identify the value adding factors that influences the construction project success in the PMO.

1.5. Significance of the Study

Although the benefits of project management are widely known, there are still many projects that fail. This means that in order to foster strong project performance, further research into unique process models and organizational structures is necessary. The Project Management Office (PMO) is a key contender for improvement in this continuous process (Dai & Wells, 2004).

Recently, the Commercial Bank of Ethiopia has accomplished a skyscraper building for its Head Quarter, which is the first and the largest high rise building in east Africa. The company is also currently executing various building construction projects through its Project Management Office (PMO).

In contrast to the existing construction project performance of the country, it has observed that the CBE is implementing a successful project execution. This is may be as result of the company's Project Management Office (PMO). This implies that the Project Management Office (PMO) contributes for the success of projects that to timely completion, within the budget, quality, satisfaction of end user, and stakeholder satisfaction.

Based on these observations the study has needed to reveal that what are project success factors, what does PMO contributes for project success and the impact of managing projects within Project Management Office.

Therefore, it has seen that to study the project management practice of the PMO in the company which enable to exploit the opportunities and improve the weaknesses is very important in achieving project success.

Moreover, the outcomes of this study may be useful to academics conducting in-depth research on this specific subject and related cases.

The last but not the least importance of this study is that the need for partial fulfillment of the requirements for MA degree in project management.

1.6. Research Hypothesis

Given the research was conducted using a quantitative manner, assumptions related to the main question of the research were created, which will be accepted or rejected based on the findings.

- **Null Hypothesis (H0):** PMO functions/role has no direct impact on project success.
- **Alternative Hypothesis (Ha):** PMO functions/role has direct effect on project success.

Similarly, additional alternative hypothesis are also associated to the specific objectives of the research as follows:

H-1a: Monitoring and controlling project performance role has direct effect on project success.

H-2a: Development of project management competencies and methodologies role has direct effect project success.

H-3a: Multi-project management role has direct effect project success.

H-4a: Strategic management role has direct effect on project success.

H-5a: Organizational learning role has direct effect and project success

1.7. Scope of the Study

This study is submitted as a thesis for partial fulfillment of the requirements for MA degree in project management and hence, it covers duration of 4months. Moreover, the research has targeted to collect data from the total population of the PMO which is 65 in number.

The object of the study has focused on the roles of Project Management Office of construction project in the Commercial Bank of Ethiopia. It has addressed the roles and functions of PMO, the tools and techniques used by the PMO in order to achieve project success.

Finally, the researcher has collected and analyzed the data and discussed the findings obtained from the result of the study.

1.8. Limitations of the Study

In order to conduct a detailed investigation, a longer period of time is needed. Thus, the study period of time is short and limited.

The research has taken into consideration the role of PMO only in the CBE while the research couldn't ensure the validity of the findings on other organizations.

Due to organizations' confidentiality, the available sourced documents are not satisfactory and are limited.

1.9. Organization of the Study

Based on the information they convey and for the purpose of easy understanding the main body of the research has structured in five sections denoted by chapters.

Chapter one: Introduction

In this section the general overview of the research has been discussed. The sub topics included in this chapter are; background of the study, statement of the problem, research questions, objectives of the study, significance of the study, scope of the study, and limitations of the study.

Chapter two: Review of Related Literature

In this section literature of previous studies which are related to the subject of this study has discussed. This includes; articles, journals, books, research papers which supports the propositions and assumptions made on the study.

Chapter three: Research Design and Methodology

This part of the study discusses and explains the data collection and analysis methods used. It also explains what the study has done and how it has been done.

Chapter four: Data Presentation, Results and Discussion

This part summarizes and discusses the findings and results of the study briefly.

Chapter five: Summary, Conclusions and Recommendations

In this chapter the issues discussed in the study has concluded and suggestions for improvement has proposed on the basis of the results obtained.

CHAPTER TWO

2. REVIEW OF RELATED LITERATURE

Different literatures have reviewed to get up-to-date knowledge on the subject under investigation. This has enabled the researcher to frame the research and make a basis for the logics, assumptions and scenarios incorporated on the research.

2.1. Theoretical Review

A various definitions have been given to projects by different authors and literatures. Among these definitions, PMI defines project as: “A project is a temporary endeavor undertaken to create a unique product, service, or result” (PMI, 2013).

Due to exceeding time and cost overrun of a project, organizations incur great expense, in addition to wasting national resources resulting in project failure. However, since there is not any certain definition for success and failure, exceeding time and cost overrun is considered as failure in all projects, whereas exceeding time and cost overrun may not be adequate for assessment of success and failure of projects (Kiani et al., 2015).

Building projects are in high demand and operations are booming in many nations as a result of the world's growing population, increasing land pressure, and expanding economic activity (Zhang et al., 2014). (Kiani et al., 2015) therefore, infers that in view of the growth of project management and its processes, it appeared necessary to craft an organizational unit accountable for centralizing and coordinating management of the projects ongoing.

2.1.1. Project Success

Baker, Murphy, and Fisher (1974) has investigated over 650 projects and produced a definition of project success as: “If the project meets the technical performance specifications and/or mission to be performed, and if there is a high level of satisfaction concerning the project outcome among key people in the parent organization, key people in the client organization, key people on the project team, and key users or clientele of the project effort, the project is considered an overall success” which is cited in Hughes et al., (2004).

The "Iron Triangle," which places cost, time, and quality at the center of project success, is perhaps the most well-known measure of project success criteria. However, key stakeholders may not perceive projects that are delivered on time, within budget, and meet scope specifications as successful (Stojcetovic, 2013).

In recent research, the term "Success" in project management science is considered in two dimensions; measurement indexes and key factors, and project success may be measured through obtaining the overall purposes of the project, such as output, project quality, scheduling, compliance with budget and the level of customer satisfaction (Kiani et al., 2015).

As cited on Silva et al., 2016, Project success is an abstract concept and determining whether a project is successful and it is subjective and extremely complex (Parfitt & Sanvido, 1993; Chan, 2002). Freeman and Beale (1992) illustrate that architects usually place emphasis on aesthetic aspect of a building while the engineers usually focus on the structural aspect of a building.

2.1.2. Criteria of Project Success

According to De Wit (1988), measuring success is complex because it depends on the stakeholders' points of view, and it is time dependent. Belout (1998) pointed out that a synonym for success is effectiveness: the degree of achievement of objectives. Furthermore, Chan et al. (2004) states that in the early 90s', project success was fundamentally knotted to performance measures, which in turn were tied to project objectives.

Chan et al. (2004), defined criteria of project success by combining different terms as: "the set of principles or standards by which favorable outcomes can be completed within a set specification".

Silva et al., (2016) has identified and stressed on ten subjective and objective criteria for construction project success which are Time, Cost, Quality, Safety, Client's Satisfaction, Employees' Satisfaction, Cash-flow Management, Profitability, Environment Performance and Learning and Development.

PMI, (2014) defined project success factors and project success criteria as follows;

- Project success factors are elements of a project, which, when influenced, increase the likelihood of success; these are the independent variables that make success more likely (Turner, 1999).
- Project success criteria are the measures used to judge on the success or failure of a project; these are the dependent variables that measure success (Morris & Hough, 1988).

Following analysis of previous studies, Chan et al. (2004) proposed a comprehensive framework for the measure of project success, which supported later by Silva et al., (2016). The following figure represents this consolidated framework for the measure of project success Chan et al. (2004).

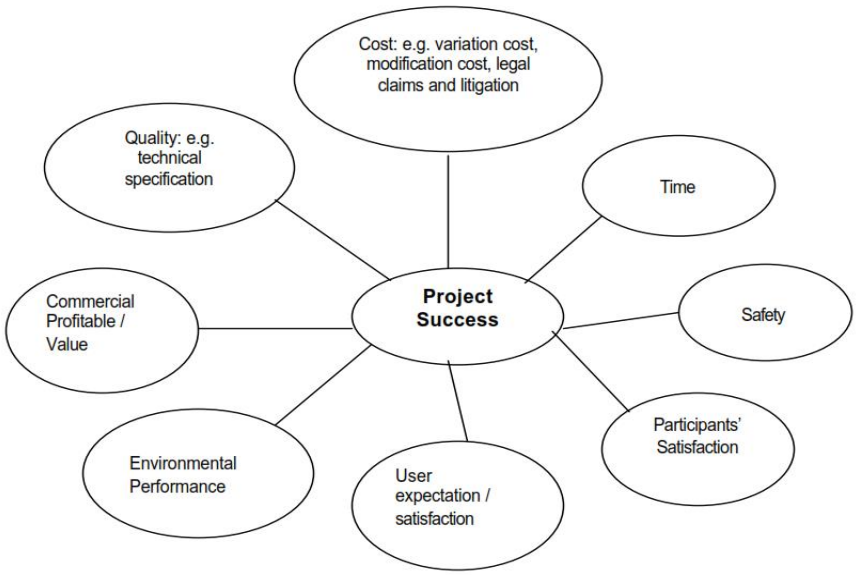


Figure 1: Project success Criterion (source: Silva et al., 2016)

2.1.3. Project Management Office (PMO)

According to PMI (2013) "A 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."

PMOs are tasked with aligning projects with organizational strategy, ensuring project success, and creating value for the organization. However, PMOs often struggle to create sufficient value for the organization (He & Wong, 2004).

2.1.4. Functions of PMO

The recognized PMBOK (2013) viewed the PMO through three definitions among several types of PMO structures in organizations, which are as follows:

- **Supportive -** Supportive PMOs provide a consultative role to projects by supplying templates, best practices, training, access to information and lessons learned from other projects. This type of PMO serves as a project repository. The degree of control provided by the PMO is low.
- **Controlling -** Controlling PMOs provide support and require compliance through various means. Compliance may involve adopting project management frameworks or methodologies, using specific templates, forms and tools, or conformance to governance. The degree of control provided by the PMO is moderate.
- **Directive -** Directive PMOs take control of the projects by directly managing the projects. The degree of control provided by the PMO is high.

The three categories of PMO on the basis of their influence are summarized in the figure below;

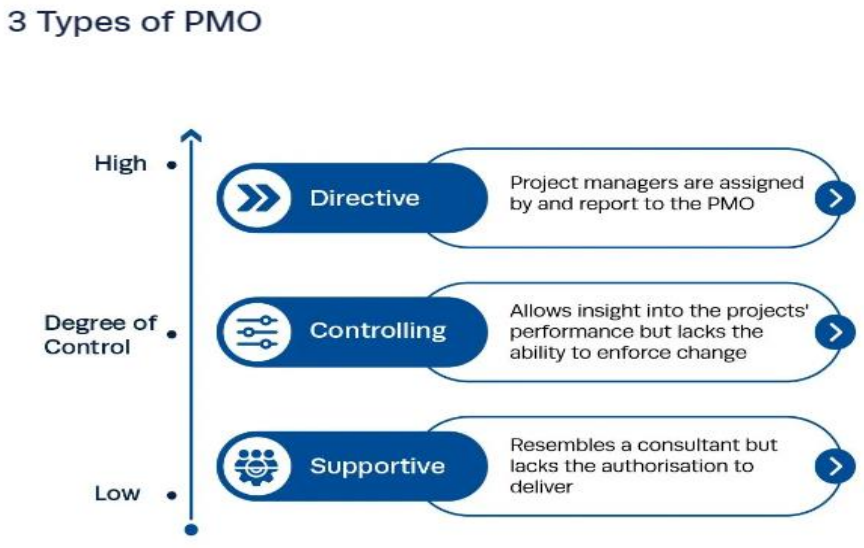


Figure 2: Categorization of PMO based on their influence

2.1.5. Roles of PMO

Dai and Wells, (2004) suggests that although a standard set of PMO roles has yet to be agreed upon in theory or practice, literature reviews led to the identification of the categories enumerated below.

Dai and Wells, (2004) suggests that although a standard set of PMO roles has yet to be agreed upon in theory or practice, literature reviews led to the identification of the categories enumerated below;

1. **Formulate and maintain PM standards and methods**: This includes; proposal development, change management, risk assessment, documentation standards and project closeout.
2. **Develop and record project historical archives**: Representative areas include records of project performance such as status reports, variance analysis and changes to the baseline plan, risk lists and other risk management documents, information on prior successful and unsuccessful projects and a database of lessons learned.
3. **Provide project administrative support**: Administrative work often is not reflected directly in project deliverables and thus can represent a distraction to the core project team. Representative work areas in this category include maintenance of a project binder or web site, assistance in generating standardized reports, provision of a ‘‘war room’’ for reviews and meetings and standardization and assistance with PM software.
4. **Provide human resource/staffing assistance**: Assistance can be provided in identifying the proper person to manage a project and the proper skill requirements for the project team, in gathering data to conduct performance evaluations, in recruiting project staff outside the organization and in granting awards or other types of extraordinary recognition.
5. **PM consulting and mentoring**: A PMO can contribute by providing the following areas of consulting and mentoring: assistance in employing PM methodologies and responding to risk events, mentoring on unique measures that must sometimes be taken to foster project success (and sharing those same ideas with upper management) and group sharing sessions for project managers.

6. **Provide PM training**: As organizations devote more resources to conducting business on a project basis, the need for PM training grows. APMO can take a leadership role in working with a human resource department in the areas of skill set identification, training on PM and related software, financial support to conduct training and one-on-one coaching.

The well-known researchers on PMOs, Hobbs & Aubry, (2007) also has identified and categorized roles of PMO under five main groups. Furthermore, each group has distinct functions which have impact on the success of project as described below;

- **Project Monitoring and Controlling**

This function of PMO is responsible for monitoring, controlling, and reporting on project performance, as well as managing computer-based technologies used to complete tasks. PMOs with these functions address the information managers' need to maintain visibility and control over the performance of projects for which they are accountable. In so doing, the PMO is supporting project governance functions. The tools and techniques used by the PMO to accomplish this task are under mentioned below;

- ❖ Report project status to upper management
- ❖ Monitoring and control of project performance
- ❖ Implement and operate a project information system
- ❖ Develop and maintain a project scoreboard.

Kumar and Bansal, (2010) further elaborate the roles and responsibilities undertaken during monitoring and controlling project as; Conducting various meetings concerning PMC process, Monitoring various threshold parameters, Prepare and submit “Weekly Status”/”Iteration Review” Reports, Issue Cause Analysis, Maintaining and updating Action List, and Project Closure.

The relationship between Project Monitoring and Controlling Vs Project Success

Han et al. (2012) define success factors as: “those factors that influence constitute as well as determine the success of a project” as cited on Silva et al., (2016). Chan et al. (2004) mentioned that the main factors leading to the success of construction projects, referred to as critical success factors (CSFs).

Consequently, filtering a total of 65 pertinent publications and categorizing according to their year of publication, the methodologies used, the kinds of projects, the semantics that were found and thought to be related to project controls, it has inferred rankings of "effective project monitoring and controls methods" as a critical success factors (CSF) (Demachkieh and Abdul-Malak 2018).

- **Development of Project Management Competencies and Methodologies of PMO on Project Success**

The group of functions most traditionally associated with PMOs includes functions dealing with tools and methodologies and with competency development. This group is composed of the following functions:

- Develop and implement a standard methodology
- Promote project management within the organization
- Develop competency of personnel, including training
- Provide mentoring for project managers
- Provide a set of tools without an effort to standardize.

The relationship between Project Management Competencies and Methodologies Vs Project Success

Joslin R. & Muller R., (2015) concludes that project success factors can be categorized into environmentally related (meaning where the project resides), people-related, processes-related and tools-related, and just generally context-related based on the reference of different scholars.

Forty years ago, the first formal project management methodologies (PMMs) were set up by government agencies to control budget, plans, and quality which are referred to as the three iron triangles of success factors. Standardization is one of the topics in PMM in which “Owners” of project management practices often perceive projects as a means to attain corporate goals and therefore follow the path of corporate control and standardization (Packendorff, 1995). Project Management Offices (PMOs) are often focused on standardizing organizational PMM and project management for itself (Joslin R. & Muller R., 2015).

- **Multi-Project Management of PMO on Project Success**

These have become essential parts of project management, as shown by PMI with the publishing of the Organizational Project Management Maturity Model (OPM3®) (PMI, 2003) and the publication of standards on program and portfolio management. (PMI, 2006a, 2006b). The coordination of interdependences within programs and portfolios is a central issue in multi-project management, as can be seen from the functions in this group:

- Coordinate between projects
- Identify, select, and prioritize new projects
- Manage one or more portfolios
- Manage one or more programs
- Allocate resources between projects

The relationship between Multi-Project Management Vs Project Success

The multi-project environment has created new challenges that companies need to address, beyond the challenges associated with single-project realization. The shift to a multi-project management environment has introduced new challenges that have contributed to a decline in overall project success rates, and the PMO is positioned as a mechanism to help address these challenges and improve project outcomes in this complex multi-project context (Spalek, S. 2012).

- **Project Strategic Management of PMO on Project Success**

In recent years, there has been a trend for project management and PMOs in particular, to become more involved in strategic alignment issues and more closely tied to upper management. The factor analysis suggests that the following set of functions connected to strategic management forms one of the underlying characteristics of PMO roles:

- Provide advice to upper management
- Participate in strategic planning
- Benefits management
- Network and provide environmental scanning.

The relationship between Project Strategic Management Vs Project Success

Project management offices are responsible for managing and coordinating multiple simultaneous projects within companies. Traditionally, PMOs have focused on simplifying project indicators and controlling the "iron triangle" of scope, cost and time, without accounting for organizational strategy, stakeholder interests, and other specific indicators. It has recommended using operations management approaches, such as the Performance Management Systems Design Framework (PMSDF), which address these issues by better integrating project performance with organizational strategy.

Therefore, by using a more comprehensive performance management system, the PMO can ensure that project success is aligned with and supports the company's overall strategic objectives (Duarte et al. 2019)

- **Organizational Learning of PMO on Project Success**

Organizational learning has become a hot topic in management research and practice in recent years. Some PMOs actively engage in organizational learning through the following functions:

- Monitor and control the performance of the PMO
- Manage archives of project documentation
- Conduct post-project reviews

The relationship between Project Strategic Management Vs Project Success

The four constructs of organizational learning identified by Huber (1991) are knowledge acquisition, information distribution, information interpretation, and organizational memory. An effective organization will ensure a clear line of authority and that each team member knows their role in making the project a success (J.G, M., 1991).

2.2. Empirical Review

Under the investigation of project success, it has observed that a combination of both good and negative developments from 2000 to 2002. The positive was that the level of successfully completed projects climbed from 28% to 33% and, additionally, there was a fall in the number of unsuccessful ones from 23% to 15%. However, the incidence of "challenged" projects grew from 49% to 52%, indicating the first warning indications. All completed projects that entered the

operational phase with budget overruns, timeline overruns, or functional limitations relative to original specifications are referred to as "challenged projects." (Jørgensen & Moløkken Østvold, 2006).

Spalek, S. (2012) also suggests that in the years, 2002–2009, successful project completion witnessed a minor increase to 35% in the year 2006. However, it dropped to 32% in 2009. The negative trend was also evident in failed projects, which grew from 15% in 2002 to 19% in 2006 and eventually reached a considerable 24% in 2009 (a worse outcome than in 2000). The percentage of contested projects declined modestly, from 52% in 2002 to 44% in 2009, indicating a favorable trend.

It has believed that altering the unfavorable trends in the success and failure rates of projects would be a more significant task in project management today. But the issue remains: What are the causes of this situation? One of the most significant aspects, in our opinion, is that businesses have been dealing with new organizational issues pertaining to how they operate in multi-project environments (Spalek, 2012).

Andersen (2010) discussed the progress of project management in the years 2000 and 2008. He found that there was a development of practices which were improved, such as:

1. Defining project objectives
2. Adapting the organization to project needs
3. Teamwork improvement.

Therefore, it has suggested that, in order to deal with the problem of adapting the organization to project needs, the company should establish the PMO (Spalek, 2012).

2.3. Conceptual Framework

Commercial Bank of Ethiopia is the largest and the only state owned retail bank in Ethiopia, which holds the highest market share in the banking industry. Beside the financial operation CBE is involved in putting capital expenditure on fixed assets, such as building construction. In this regard, CBE has implemented various building projects and others are under progress.

Head Quarter, Magenagna, Paulos, Bole, Sebeta and Lideta Branch are among the building projects that CBE have. These projects were managed by Project Management Office of the bank. Therefore, this research has intended to investigate the overall project management practice of the PMO in the CBE. Organizational structure of the Project Management Office of the CBE has presented as follows;

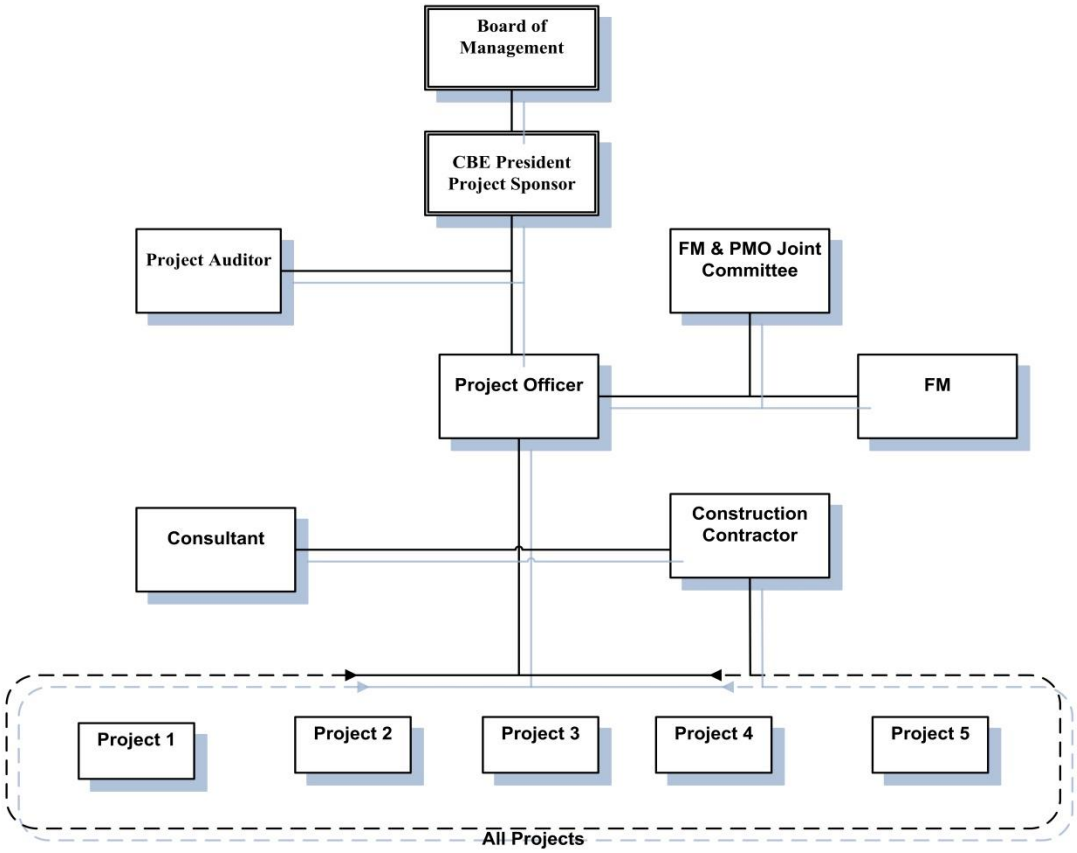


Figure 3: Organizational Structure of PMO in the CBE

The above figure of organizational structure of the PMO in the CBE illustrates the chain of subordination and hierarchy of job position which indicates the reports and reported to relationship of works.

The research has meant to address the research questions stated previously by gathering survey data through questionnaire. The research questionnaire encompasses both independent variables which encompasses the roles of Project Management Office and dependent variable which is Project Success. These variables dictate the success factors of Project Management Office in the CBE. The following figure represents a typical conceptual framework in the PMO.

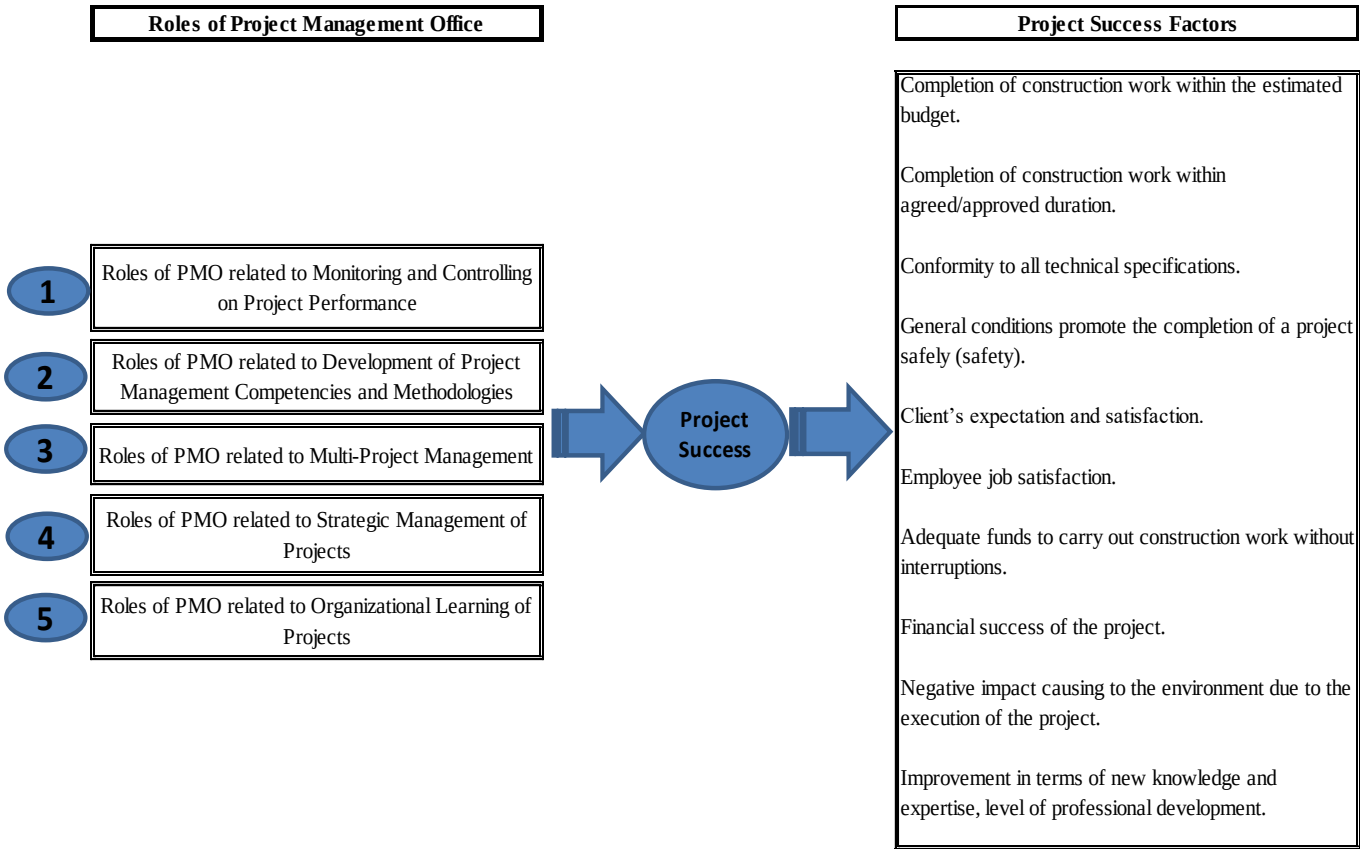


Figure 4: Conceptual framework for the research (source: self-developed)

CHAPTER THREE

3. RESEARCH DESIGN AND METHODOLOGY

3.1. Introduction

This part simply discusses the practical "how" of the research study. More specifically, it's about how the research is systematically designed to ensure the validity and reliability of the results that address the research aims, objectives and research questions.

3.2. Research Design

A quantitative research method has selected for this typical research. The quantitative method used descriptive method which summarizes frequencies, percentages, mean values, and standard deviations of the demographic data and inferential statistical analysis (regression) has used to analyze the statistical data of the questionnaire.

Quantitative research is a type of research that collects and analyzes numerical data to test hypotheses and answer research questions. This research naturally contains a small sample size and uses statistical analysis to make inferences based on the results data collected.

Quantitative often involves the use of surveys, experiments, or other structured data collection methods to gather quantitative data. The purpose of quantitative research is to systematically investigate and measure the relationships between the variables or phenomena using numerical data and statistical analysis.

3.3. Research Approach

The goal of this research is to uncover the roles of Project Management Office which influence project success by putting possible hypotheses, and finally these hypotheses will be tested for their validity. The research has begun its inference by putting hypothesis, hence, deductive research approach is used, which implies it proceeds from generalization to valid conclusion.

Deductive reasoning is the most solid type of reasoning since it allows drawing specific conclusions about whether or not the stated hypothesis was correct. When employing this type of reasoning, its intention is to look for specific information, facts, and evidence on which to base the next step in the process.

3.4. Sample Design

The finite population of the PMO in the CBE is 65 in number. This relatively small size of the population has favored the researcher to distribute a questionnaire to all population. Therefore, the study has used census data. Census technique refers to a statistical study in which data are collected for every element/unit of the population. It's also called 'full enumeration', '100% enumerations', or 'complete survey'. It's useful for case-intensive studies or limited areas.

The main advantages of using census sampling are; comprehensive data collection, detailed information, identification of rare or specialized populations, reduced sampling Error and Flexibility for Analysis.

3.5. Sources of data

The study has used both primary and secondary source of data as they are essential for conducting comprehensive and impactful study. Consequently, the primary and secondary sources of data in the study are discussed as follows;

Secondary Sources of Data: In order to address the research questions and achieve its objectives, the research has used secondary sources of data such as; literature of previous study results, articles, journals, books and documentation for other researches.

Primary Sources of Data: The primary source of data employed in this study has obtained from questionnaire and which reflects the intended objectives of the in CBE's Project Management Office. Primary sources of data provide raw information and first-hand evidence for the research.

3.6. Data Analysis and Interpretation

In this section of the research, the captured data will be analyzed in light of hypothesis or research questions and organized to yield answers to the research questions. SPSS software has used to analyze the data collected through questionnaire.

The use of significance values (p) for each variable leads to acceptance or rejection of the hypothesis. The following special research model has been provided for the purpose of explanation.

$$Ys = a + Ax + Bx + Cx + Dx + Ex + \varepsilon$$

Where:

- *Ys =Dependent variable (Project Success)*
- a *= Unstandardized coefficient constant*
- *Ax = Monitoring and Control*
- *Bx=Development of Methodologies and Standard*
- *Cx=Multi Project Management*
- *Dx=Strategic Management*
- *Ex=Organizational Learning*
- ε*= Residual (error)*

3.7. Validity and Reliability

Validity and reliability are vital for research findings to be valuable and useful. Both are essential components of scientific research methods. The researcher has checked for the validity and reliability to evaluate the quality of the research, since they indicate how well a method, technique or test measures used in the study.

Reliability is about the consistency of a measure. The items incorporated in the questionnaire have checked for their reliability which measures the internal consistency among the items in each category. Cronbach's Alpha value has computed to check for internal consistency by using SPSS 23. The rule of thumb mostly used for this is that Cronbach's Alpha value greater than 0.7 is acceptable. The Cronbach's Alpha value for each item is shown in the table below;

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item Total Correlation	Cronbach's Alpha if Item Deleted
Monitoring and Controlling of PMO	18.6418	7.462	.409	.868
Develop Project Management Competency and Methodology of PMO	19.0947	5.858	.832	.792
Multi Project Management of PMO	18.7237	6.528	.670	.825
Strategic Project Management of PMO	19.2281	5.855	.762	.806
Organizational Learning of PMO	19.1982	6.326	.733	.813
Project Success Factors	19.1485	7.245	.454	.862

The above table indicates that each items incorporated in the questionnaire have Cronbach's Alpha value of greater than 0.7. Therefore, the researcher has found no need to update (or amend) the variables.

3.8. Ethical Considerations

A set of principles that guide the research design and practices has strictly followed; such as; clarifying to the respondents about the objectives of the study and explain that the information is used only for research and academic purposes, honesty and respect for the rights of the respondents during data gathering, and asking for a consent of the respondents.

CHAPTER FOUR

4. DATA PRESENTATION, RESULTS AND DISCUSSION

4.1.Introduction

In this part of the research the data collected through questionnaire is analyzed and discussed briefly. Based on the research questions stated in the previous section, a questionnaire has developed by using a 5 points Likert's scale method. To facilitate the analysis and discussion of the study, Statistical Package for the Social Sciences (SPSS) software has used. Accordingly, all the required parameter indicators of the research has computed by using the SPSS software and further justifications has given by the researcher. However, since the research is quantitative research, more emphasis has given to the outputs results obtained from the software (SPSS).

4.2. Demographic Data Analysis

The first part of the questionnaire constitutes of background information also called demographic data of the respondents. This includes respondent's Gender, Age, Educational level, Job position in the CBE and Years of service in the CBE. It has distributed 65 questionnaire and 57 respondents have filled and returned, which is 87.7% response rate of the target population. Therefore, it has noted that the response rate is said to be responsive and acceptable.

4.2.1. Sex composition of respondents

The number of male respondents is greater than female respondents which accounts 71.9% whereas female respondents is 26.3% and one respondent (1.8%) missed to fill sex information. The sample result indicates the ratio of male employee is greater than that of female in the PMO in the CBE.

4.2.2. Age composition of respondents

Age of the respondents has categorized into 5 stages as shown in the summary table below (table 4.1). However, it has found that the age of all the respondents is in three categories. Among the respondents 10.5% is found at the age of 18 – 25, and 87.7% is found at the age of 26 – 35, whereas 1.8% respondents found at the age of 36 – 45. Most of the respondents are found in adultery age stage, and this suggests the respondents are assumed to actively working in the company.

4.2.3. Educational Level of respondents

Four educational levels have incorporated in the questionnaire to measure the educational background of the respondents. Thus, 57.9% of the respondents are BA/BSc holder while the rest respondents that 42.1% are MA/MSc holder. This may indicates that the respondents are educated and capable to understand and respond the questionnaire.

4.2.4. Position in the Organization of respondents

Most of respondents are technical experts which accounts to 77.2%, whereas the rest respondents which holds 22.8% are in team leader position in the organization.

4.2.5. Year of Experience of respondents

The respondents have various waiting time (experience) in the CBE. From the result obtained it has understood that 31.6% of the respondents has less than 1 Year of experience, similarly 42.1% has 1 - 5 years of experience, 24.5% of the respondents has 5 - 10 years of experience, whereas 1.8% has missed to fill the information. Finally, the results of demographic data of the respondents are summarized in the table below.

Table 1: Summary of background information of the respondents (source: survey data)

Variable	Indicator	Value	Percent
Sex	Male	41	71.90
	Female	15	26.30
	Missing value	1	1.80
	Total (N)	**57**	**100%**
Age	18 – 25	6	10.50
	26 – 35	50	87.70
	36 – 45	1	1.80
	Missing value	0	-
	Total (N)	**57**	**100%**
Education Level	BA/BSc	33	57.90
	MA/MSc	24	42.10
	Missing value	0	-
	Total (N)	**57**	**100%**
Position in the CBE	Team Leader	13	22.80
	Technical Expert	44	77.20
	Missing value	0	-
	Total (N)	**57**	**100%**
Year of Experience in the CBE	Less than 1 Year	18	31.60
	1 - 5 years	24	42.10
	5 - 10 years	14	24.50
	Missing value	1	1.80
	Total (N)	**57**	**100%**

4.3.Statistical Analysis

The second part of the questionnaire has contained survey questions which identify the roles of Project Management Office and factors to measure project success in the CBE. The relationship between the roles of Project Management Office and project success has been described in the previous section of review of related literature. A continuous and categorical survey data has constituted two types of variables which are the dependent and independent variables. The dependent variables are success factors whereas; independent variables are the roles of Project Management Office.

Furthermore, in order to make it easier for analysis, the variables are transformed to their respective categories by adding their values. In doing so, it has found a total of six categories of variables which are five independent variables and one dependent variable, and all the analysis has performed by using these transformed categorical data. The transformed variable data is summarized as follows;

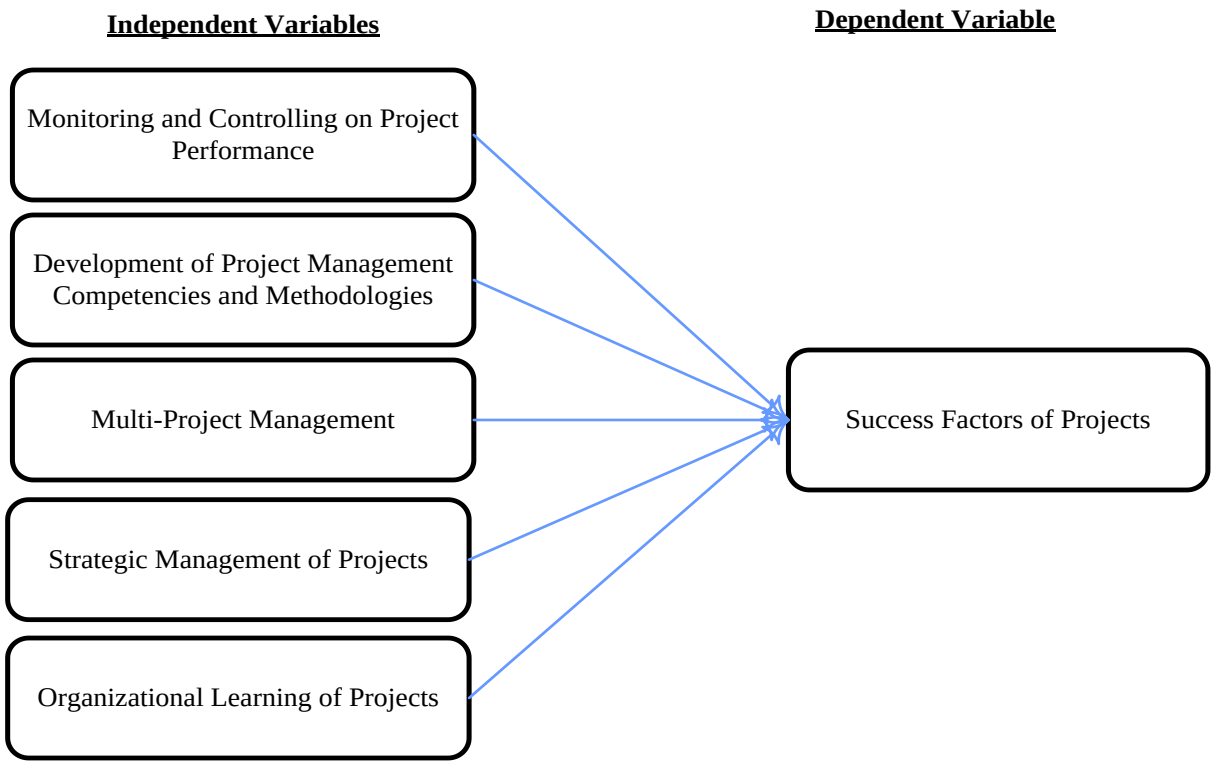


Figure 5: Independent variables Vs Dependent Variable (source: questionnaire)

4.3.1. Analysis of Variance (ANOVA) Result

Table 2: ANOVA result (source: SPSS output)

ANOVA[a]					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	7.243	5	1.449	5.072	.001b
Residual	14.567	52	.286		
Total	21.810	57			

a. Dependent Variable: Construction Project Success

b. Predictors: (Constant), Organizational Learning Role of PMO , Monitoring and Controlling of PMO on Project Performance, Multi-Project Management Role of PMO, Strategic Management Role of PMO, Project Management Competencies and Methodologies

ANOVA Table: Table 3 shows whether the complete multiple regression model is a good match for the data and the model's overall significance (Field 2009). The model yields a significant result F (5, 52) = 7.243, p = 0.001), indicating that the independent variables studied have a significant impact on the dependent variable of Construction Project Success. Hence, the result has revealed that the regression model is a good fit of the data that independent variables taken together have a significant relationship with the dependent variable.

4.4.Hypothesis Test

The validity of hypotheses stated in chapter 1 of the study has tested by using the regression coefficient of significance value (p-value). In addition a significance value is used to measure the impact of each independent variable on the outcome variable.

A research with 95% level of confidence, the level of influence (p value) has to be less than 5% (or $p < 0.05$) to be significance. From the analysis result of the data it has observed that two independent variables (Project Management Competencies and Methodologies and Organizational Learning Role of PMO) are significant variables whereas, the remaining three variables (Monitoring and Controlling of PMO, Multi-Project Management Role of PMO and Strategic Management Role of PMO) are not statistically considered as significant. The following coefficient table (table 4) summarizes the significance of each variable in the research;

Table 3: Coefficients table (source: SPSS output)

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.022	.618		3.270	**.002**
	Monitoring and Controlling Role of PMO	-.011	.136	-.011	-.083	**.935**
	Project Management Competencies and Methodologies	.580	.168	.649	3.447	**.001**
	Multi-Project Management Role of PMO	.013	.161	.013	.080	**.936**
	Strategic Management Role of PMO	.066	.166	.079	.395	**.694**
	Organizational Learning Role of PMO	-.210	.187	-.220	-1.122	**.0267**

a. Dependent Variable: Construction Project Success

The following detail illustrates the impact of each independent variable on the dependent variable as well as the test result of the stated hypothesis;

H-1a: Monitoring and controlling project performance role has linear effect on project success.

The significance value for this hypothesis which is (β = -.011, p = .935) indicates that the variable has no significant effect on the outcome variable (project success), hence it has rejected.

H-2a: Development of project management competencies and methodologies role has linear effect project success.

The significance value for this hypothesis which is (β = .58, p = .001) indicates that the variable has significant effect on the outcome variable (project success), hence it has accepted.

H-3a: Multi-project management role has linear effect project success.

The significance value for this hypothesis which is (β = .013, p = .936) indicates that the variable has no significant effect on the outcome variable (project success), hence it has rejected.

H-4a: Strategic management role has linear effect on project success.

The significance value for this hypothesis which is (β = .066, p = .694) indicates that the variable has no significant effect on the outcome variable (project success), hence it has rejected.

H-5a: Organizational learning role has linear effect and project success

The significance value for this hypothesis which is (β = -.210, p = .0267) indicates that the variable has significant effect on the outcome variable (project success), hence it has accepted.

Due to two basic reasons the rejected hypothesizes has not excluded from the regression model. These are:

Reason 1: The sample size of the research is relatively small.
Reason 2: The objective of the research (model) is to generate good predictions of the dependent variable, given that all the independent variables.

Hence, taking into consideration all the variables in the regression model is aligned with the research objectives and the sample size is small, the data for all variables is analyzed. The overall result of the model is found by substituting the results of all variables into previously defined model equation given by:

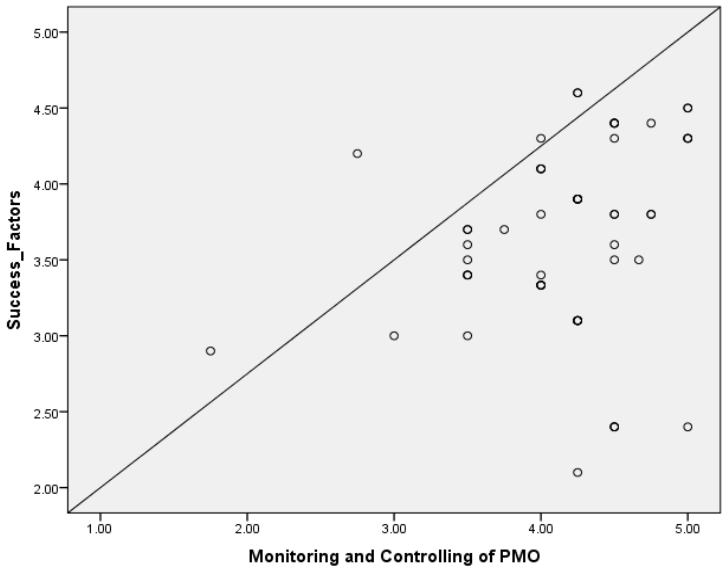
$$Ys = a + Ax + Bx + Cx + Dx + Ex + \varepsilon$$

Project Success = -0.138(Monitoring & Control) + 1.392(Development Methodology) + 0.064(Multi project Mgt) + 0.169(Strategic Mgt) + (-0.849)(Organizational Learning)

4.5.Regression Analysis Test

In order to perform regression analysis six basic assumptions have to be met. These are;

1. **Linear relationship**: There exists a linear relationship between the independent variable, x, and the dependent variable, y. This has checked by plotting the scatter plot graph of the dependent variable Vs independent variables data. All the scatter plot graph of a set of independent variables against the set of dependent variables showed that that there is a linear relationship. The scatter plot diagram is attached to annex part of this research.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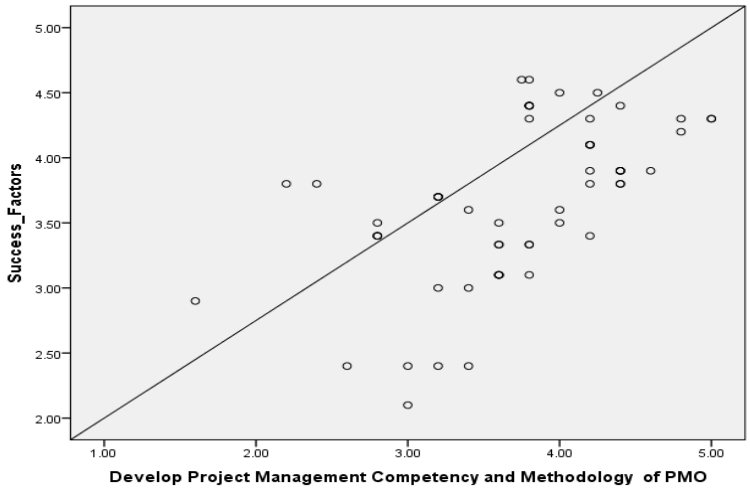
Monitoring and Controlling of PMO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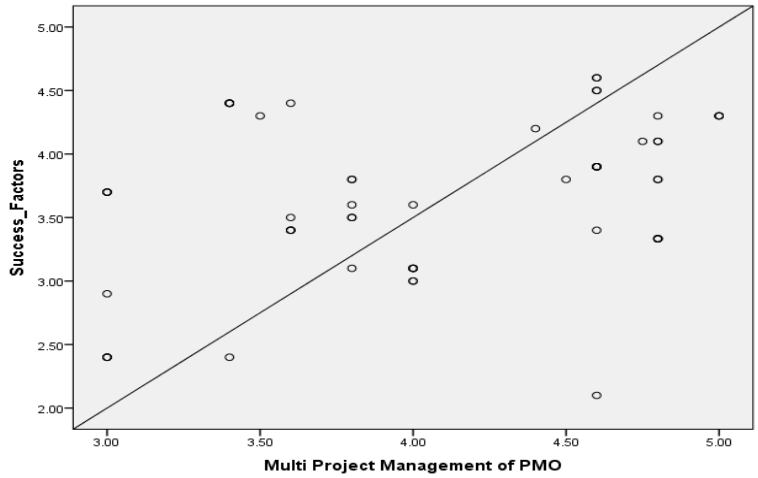
Develop Project Management Competency and Methodology of PMO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Multi Project Management of PMO


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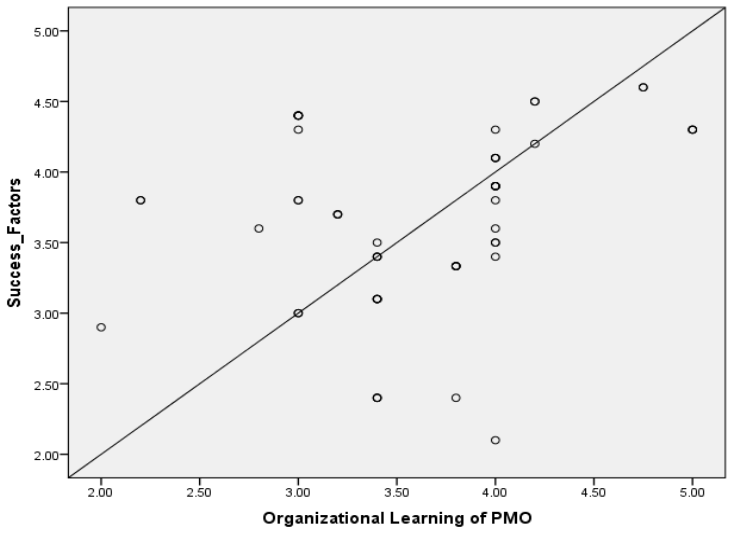
Strategic Project Management of PMO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Organizational Learning of PMO

2. **No multicollinearity**: The independent variables are not highly correlated with each other. This can be checked by computing linear regression analysis and obtaining the tolerance value or VIF. If the tolerance value is < 0.1 and VIF > 10 it indicates there is multicollinearity among the data (Tabachnick and Fidell, 2011). All the set of independent variables has found no multicollinear to each other with a tolerance value of greater than 0.1 and VIF less than 10.

Table 4: Coefficients table (showing Collinearity Statistics source: SPSS output)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.022	.618		3.270	.002		
	Monitoring and Controlling of PMO on Project Performance	-.011	.136	-.011	-.083	.935	.771	1.297
	Project Management Competencies and Methodologies	.580	.168	.649	3.447	.001	.369	2.708
	Multi-Project Management Role of PMO	.013	.161	.013	.080	.936	.470	2.127
	Strategic Management Role of PMO	.066	.166	.079	.395	.694	.332	3.015
	Organizational Learning Role of PMO	-.210	.187	-.220	-1.122	.267	.342	2.926

a. Dependent Variable: Construction Project Success

3. **Independence:** The residuals should have independent. In particular, there is no correlation between consecutive residuals in time series data. This has checked by computing Durbin-Watson coefficient which ranges from 0 to 4, and the regression model is to be more appropriate as the value obtained approaches to 2. Accordingly, it has found Durbin-Watson coefficient of 2.138 which infers to use regression analysis is visible. The result has presented in the table 6 below.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.576[a]	.332	.267	.53443	2.138

a. Predictors: (Constant), Organizational Learning of PMO, Monitoring and Controlling of PMO, Multi Project Management of PMO, Develop Project Management Competency and Methodology of PMO, Strategic Project Management of PMO

b. Dependent Variable: Success_Factors

4. **Homoscedasticity**: The residuals should have constant variance at every level of x. The rationale for this assumption that the variation among the residuals should have similar variance at each point of x. This can be checked by using scatter plot of standardized residual (dependent variable) against standardized predicted value (independent variables). From the scatter plot if the points are distributed fairly or constant the data said to be homoscedasticity, and if it has observed funnel or cone shape of dots representing the variable data said to be heteroscedasticity. Since it has observed that a fair distribution of data in this case which implies that it homoscedasticity, it is appropriate to perform regression analysis. Plot curve for the data is presented in the figure below;

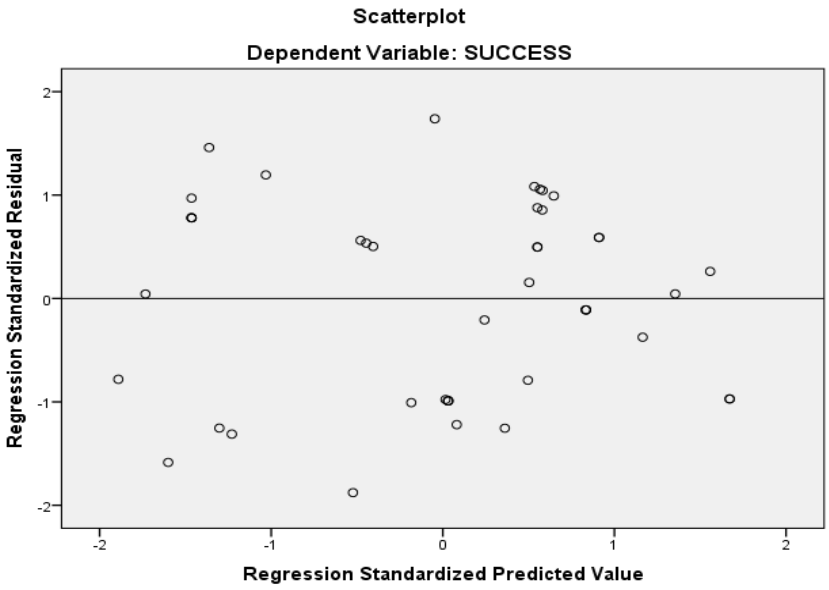

Figure 6: Scatter plot for Homoscedasticity test (source: Own data)

5. **Normality**: The residuals of the model should have normally distributed. This assumption can be checked by various statistical data type and graphical representation. This research has used Kolmogorov-Smirnov significance value, since the sample size used for the research is relatively small. If the significance value of Kolmogorov-Smirnov is greater than alpha level (which is 0.05 at 95% level of confidence interval), the data is to be normal. It has found Kolmogorov-Smirnov significance value of 0.200, which implies normal.

Table 5: Tests of Normality (Source: own data)

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	df	Sig.
Criteria and Measurers of Construction Project Success	.101	53	.200*	.939	53	.009

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

6. **No outlier data**: These concerns to check there are any influential cases biasing the model (there is no outlier data). This can be checked by computing Cook's distance static value. The value with greater than 1 is considered as significant outlier and the data with this value shall be removed and rerun the analysis. In this case the entire Cook's distance static values are less than 1 which implies that there is no outlier data. An observation is considered to have too much effect if Cook's D value is greater than 1.

Since all the assumptions have met, regression analysis has conducted and the results obtained discussed in the following parts of the research;

4.6.Multiple Regression Analysis

Regression analysis model was selected with a confidence interval of 95% for the data. The rationale to use multiple regression analysis is that the research has aimed to reveal the contribution of Project Management Office (PMO) for project success. Hence, this has causal and effect relationship between the dependent variables and independent variable (role of PMO and project success factors). The second reason to use multiple regression analysis of that the research has more than on independent variables.

4.6.1. Descriptive Analysis

The descriptive statistics in the table below (table 6) shows the mean which is the measure of central tendency of average of the data and the standard deviation which is the distance from the average value of each variable.

Table 6: Descriptive statistics of the data (source: own data)

	Mean	Std. Deviation	N
Construction Project Success	4.1652	.59875	57
Monitoring and Controlling of PMO on Project Performance	3.7123	.69855	57
Project Management Competencies and Methodologies	4.0833	.64623	57
Multi-Project Management Role of PMO	3.5789	.74576	57
Strategic Management Role of PMO	3.6088	.65302	57
Organizational Learning Role of PMO	3.6585	.62406	57

To illustrate the values in the table 7; the mean value of the outcome variable (Construction Project Success) is high which is 4.16. This indicates that the average value is not exactly located at the center. Similarly, a high standard deviation value of 0. signifies the values of outcome variable spread out further from the mean. The formulae for mean and standard deviation are presented below;

$$\mu = \frac{\sum X_i}{N} \qquad \sigma = \sqrt{\frac{\sum (X - \mu)^2}{N}}$$

∑xi = sum of values.

δ = population St Dev

N = number of population

Xi = value of each observation

μ = population mean

4.6.2. Correlational Analysis

Correlation analysis has conducted to measure the linear association between the dependent and independent variable data. Predominantly, to identify which independent variable has strong relationship with the outcome variable, a correlation analysis has conducted which is represented by the Pearson correlation coefficient (r value). It always takes on a value between -1 and 1 where: -1 indicates a perfectly negative linear correlation between the two variables, 0 indicates no linear correlation and 1 indicates a perfectly positive linear correlation between two variables.

The general rule used to measure the strength of the relationship between the variables is indicated in the table below (table 8);

Table 7: Rule of thumb for correlation value (source: https://www.statology.org)

Absolute value of *r*	Strength of relationship
r < 0.25	No relationship
0.25 < r < 0.5	Weak relationship
0.5 < r < 0.75	Moderate relationship
r > 0.75	Strong relationship

Accordingly, the correlation analysis result for the data of the research has presented in the simplified form table below (table 9);

Table 8: Correlation coefficient for the data (source: own data)

Correlations		
Factors		Construction Project Success
Monitoring and Controlling of PMO on Project Performance	Pearson Correlation	0.244
	Sig. (2-tailed)	0.067
	N	57
Project Management Competencies and Methodologies	Pearson Correlation	.560**
	Sig. (2-tailed)	0.000
	N	57
Multi-Project Management Role of PMO	Pearson Correlation	.354**
	Sig. (2-tailed)	0.007
	N	57
Strategic Management Role of PMO	Pearson Correlation	.363*
	Sig. (2-tailed)	0.006
	N	57
Organizational Learning Role of PMO	Pearson Correlation	0.283
	Sig. (2-tailed)	0.033
	N	57

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

*. Correlation is significant at the 0.05 level (2-tailed).

The results of the bivariate correlation based on Pearson‘s correlation statistics in table 9 shows that four variables are related to project success and statistically significant at 0.05 level. These are Project Management Competencies and Methodologies (with r = 0.560, p = 0.000) which

have moderate relationship, Multi-Project Management Role of PMO (with r = 0.354, p = 0.007) which have weak relationship, Strategic Management Role of PMO (with r = 0.363, p = 0.006) which have weak relationship and Organizational Learning Role of PMO (with r = 0.283, p = 0.033) which have weak relationship with project success. Since all the values for Pearson Correlation coefficients have positive sign, they have positive relationship with the outcome variable.

On the other hand, Monitoring and Controlling of PMO on Project Performance (with r = 0.244, p = 0.067) variable is not related to project success and not statistically significant at 0.05level.

4.7.Model Summary

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.576a	.332	.267	.53443	**2.138**

a. Predictors: (Constant), Organizational Learning Role of PMO , Monitoring and Controlling of PMO on Project Performance, Multi-Project Management Role of PMO, Strategic Management Role of PMO, Project Management Competencies and Methodologies

b. Dependent Variable: Construction Project Success

The result summarized in the table above shows the overall effects of the model produced by the research. The correlation coefficient (R) in the model represents the correlation between the observed values of the response variable and the predicted values of the response variable made by the model. The value R = 0.576 indicates that the association between the independent variables with project success is 57.6%.

Correspondingly, the coefficient of determination (R^2) is a measure of the proportion of the variance in the dependent variable that is predictable from the independent variables. The value of R^2 ranges 0 to 1 in which 0 indicates the response variable cannot be explained by the predictor variable at all. In this research it has obtained a value of $R^2 = 0.332$ which implies that 33.2% of the response variables are explained by the predictor variables. The remaining 66.8% of the changes observed are due to factors other than the predictors included in this model.

Adjusted R-squared measures how well a set of predictor variables (the independents) can explain variance in the response variable, after accounting for the number of predictors in a model. Because of how it is calculated, adjusted R-squared can be used to compare the fit of regression models with varying numbers of predictor variables. The essential to use adjusted R^2 is that since the data used in the model are transformed for the purpose of computation, the adjust R^2 is expected to represent the more close value of the data. Therefore, the value Adjusted R^2 = 0.267 indicates the independent variables kept in the model explain 26.7% of the variations in project success.

The Durbin-Watson coefficient is used to determine the presence of correlation between the residuals. It is a statistical test for detecting autocorrelation among the residuals in the model. Autocorrelation is the correlation between the error terms in a regression model.

The test statistic ranges 0 to 4, with values close to 2 suggesting no autocorrelation, values below 2 indicating positive autocorrelation, and values above 2 indicating negative autocorrelation. Regarding the result obtained from model table, Durbin Watson test 2.138 represents that there is no auto correlation among the residuals.

4.8.Discussion on the Findings

In order to fulfill the research objectives, the researcher has referred various literatures to design the tools and techniques used by PMOs that contribute for the success of construction projects. In this regard it has used a standardized questionnaire from previously published literatures.

Thus, the roles of PMO which constitute the independent variables have taken from Hobbs & Aubry, (2007) the one who has published numerous literatures in the subject of PMO. Whereas, the success measuring factors (project success criterion) are taken from Silva et al., (2016) which have published literature with the subject of criteria for construction project success.

Based on the results obtained from the data analysis, the causal and effect relationship as well as the overall impact of the tools used which constitute the dependent and independent variables are discussed below;

The Contribution of Project Monitoring and Controlling for Project Success

The correlation result of this specific variable which is ($r = 0.244$, $p = 0.067$) demonstrates that there is no association between Project Monitoring and Controlling of PMO and Project Success

as per the predetermined range. On the other hand the regression result of this specific variable which is (B = -.011, p = .935) indicates that the variable have not significant effect on project success.

However, Han et al. (2012) stated the variable as its one of critical project success factor, taking into consideration the kinds of projects. Finally, the researcher has inferred that **Project Monitoring and Controlling of PMO** have no relationship and not have statistically significant effect on project success for this specific research.

The Contribution of Project Management Competencies and Methodologies of PMO for Project Success

The correlation result of this specific variable which is (r = 0.560, p = 0.000) demonstrates that there is a moderate association between Project Management Competencies and Methodologies of PMO and Project Success as per the predetermined range. On the other hand the regression result of this specific variable which is (B = 0.58, p = .001) indicates that the variable have significant effect on project success.

Joslin R. & Muller R., (2015) concludes that project success factors can be categorized into environmentally related (meaning where the project resides), people-related, processes-related and tools-related, and just generally context-related. Besides, Project Management Methodology has set to control the iron triangle of project which implies project success criteria.

So, the researcher has inferred that **Project Management Competencies and Methodologies of PMO** have relationship and have statistically significant effect on project success for this specific research. Hence, the variable has significant contribution for project success and even could be used to produce a best fit model for similar researches.

The Contribution of Multi-Project Management Role of PMO for Project Success

The correlation result of this specific variable which is (r = 0.354, p = 0.007) demonstrates that there is a weak association between Multi-Project Management Role of PMO and Project Success as per the predetermined range. On the other hand the regression result of this specific variable which is (B = .013, p = .936) indicates that the variable not have significant effect on project success.

Spalek, S. (2012) states that multi-project management environment has contributed to a decline in overall project success rates, and the PMO is positioned as a mechanism to help address these challenges and improve project outcomes that may results in project success.

Therefore, the researcher has inferred that **Multi-Project Management Role of PMO** have association with project success. Nevertheless the variable not have statistically significant effect on project success for this specific research (at 95% level confidence interval), it may have significant effect on other similar researches at different level of confidence interval. Hence, the variable has significant contribution for project success.

The Contribution of Strategic Management Role of PMO for Project Success

The correlation result of this specific variable which is (r = 0.363, p = 0.006) demonstrates that there is a weak association between Strategic Management Role of PMO and Project Success as per the predetermined range. On the other hand the regression result of this specific variable which is (B = .066, p = .694) indicates that the variable not have significant effect on project success.

Duarte et al., (2019) recommends being used operations management approaches, such as the Performance Management Systems Design Framework (PMSDF), which address these issues by better integrating project performance with organizational strategy beyond controlling the iron triangle project success parameters.

Therefore, the researcher has inferred that **Strategic Management Role of PMO** have relationship. Nevertheless the variable not have statistically significant effect on project success for this specific research (at 95% level confidence interval), it may have significant effect on other similar researches at different level of confidence interval. Hence, the variable has significant contribution for project success.

The Contribution of Organizational Learning Role of PMO for Project Success

The correlation result of this specific variable which is (r = 0.283, p = 0.033) demonstrates that there is a weak relationship between Organizational Learning Role of PMO and Project Success as per the predetermined range. On the other hand the regression result of this specific variable which is (B = -.210, p = .0267) indicates that the variable have significant effect on project success.

Huber (1991) identified four organizational learning which are knowledge acquisition, information distribution, information interpretation, and organizational memory which enables the team in PMO to know their role for project success.

Finally, the researcher has inferred that **Organizational Learning Role of PMO** doesn't have association with project success and not have statistically significant effect on project success for this specific research (at 95% level confidence interval), it may have significant effect on other similar researches at different level of confidence interval.

Based on the above findings and discussion the researcher has drawn summary, conclusion and recommendation in the subsequent part of the research.

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1.Introduction

In this chapter it has presented summary, conclusion and recommendation of the research. It's consisted of summary which encompasses a general brief of essential components in the research including the research question, objectives, methodology and findings of the research. The conclusion encompasses inferences drawn from the findings, address the research question and the value added by the research to the literature will be discussed here. Recommendations are suggestions that way forwards, policy directions, corrective actions and possible recommendations which are derived from the conclusion has presented.

5.2.Summary

The overall objective of the research is to disclose the contribution of Project Management Office for project success in Commercial Bank of Ethiopia. The research has focused on construction projects of the CBE and it considered as a complementary study to the previous researches conducted on the CBE's Project Management Office. Moreover, the research aimed to assess the roles of PMO in the CBE which influence the success of construction projects and the success factors of PMO.

Quantitative research method has selected to meet the research objectives and data has collected from the PMO through questionnaire. The questionnaire contains of two parts; the first part is demographic data which includes, gender, age, educational level, position in the CBE and years of experience of the respondents and the second part contains questions related to the roles of PMO in the CBE and project success factors. The second part of the questionnaire is categorized in to two based on their impact; these are the independent variables (Monitoring and Controlling of PMO on Project Performance, Development of Project Management Competencies and Methodologies, Multi-Project Management Role of PMO, Strategic Management Role of PMO and Organizational Learning Role of PMO) which includes the roles of PMO that causes project success and dependent variables (project success) which includes the success factors of construction projects. In this regard a 5 point Likert's scale measuring technique is used to measure the role of PMO and success of construction projects.

Two hypotheses have given as a basis for the research; Null hypothesis (Ho): PMO functions/role has no direct impact on project success and Alternative hypothesis (H1): PMO functions/role has direct effect on project success. Furthermore, other assumptions have given in order to meet specific objectives of the research.

It has used linear regression model to test the stated hypothesis and assumptions based on their significance level. Thus, the following major finding has obtained from the analysis;

- Monitoring and Controlling roles of PMO independently have a significant effect on project success.
- Development of Project Management Competencies and Methodologies roles of PMO independently has no significant effect on project success.
- Multi-Project Management roles of PMO independently has a significant effect on project success.
- Strategic Management of Projects roles of PMO independently have a significant effect on project success.
- Organizational Learning of Projects roles of PMO independently have no significant effect on project success.

The hypotheses with not statistically significant variables has incorporated in the model and produced proper fit model in the given dependent and independent variables.

5.3.Conclusion

Based on the findings of the research, regarding meeting the research objectives (general and specific objectives), addressing the research questions and proofing (testing) the hypothesis stated in the research, the researcher has reached at the following important conclusions:

Each independent variables used in the research has found to have different significance and association with project success independently. However, together the variables have formed a valid model to measure the contribution of PMO for project success in the CBE. In this regard the research has met its objectives.

Moreover, the multiple regression analysis result has revealed that the dependent variables are correlated or have a linear relationship of 57.6% with the dependent variable and the coefficient

of determination (R^2) indicates that 33.2% of the response variables are explained by the predictor variables. The modified R-squared is used to compare the fit of regression models with varying numbers of predictor variables and found the five independent variables in the model explains 26.7% of the variations in project success.

5.4.Recommendations

Based on the overall results of the research the following recommendations have given by the researcher;

- This research has limited to CBE's Project Management Office on the basis of construction projects. Therefore, it's recommended to conduct similar research on the contribution of PMO for project success on other companies.
- The contribution of PMO for project success is relatively small, which is only 34.5% variance of success factors are explained by the independent variable. Therefore, in order to get more appropriate model fit other researchers could replace the insignificant variables with significant variables.
- The model used in this specific research is multiple linear regression model, however, one can conduct a research to find out the best fit model by using only significant variables.

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Appendix

Questionnaire

St. Mary's University
School of Graduate Studies
Department of Project Management

Dear Participants,

This questionnaire is intended to collect primary data to be used for thesis entitled "Project Management Office; A Contributory Factor for Project Success: The Case of Commercial Bank of Ethiopia" in partial fulfillment of requirement for Masters of Art Degree in Project Management.

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

Selam Kebede
Phone: 0913118945

Thank you for your cooperation.

Please put "√" mark in the box and circle in the number to the point which highly reflect your idea;

Section 1: Background Information

1.1. Gender 1) Male ☐ 2) Female ☐

1.2. Age 1) 18 – 25 ☐ 2) 26 – 35 ☐ 3) 36 – 45 ☐

4) 46 – 55 ☐ 5) Above 56 ☐

1.3. Educational background

1) Diploma ☐ 2) BA/BSc ☐ 3) MA/MSc ☐ 4) Ph. D ☐

If other, please specify…….

1.4. Position in the organization

1. Top Management ☐
2. Middle Management ☐
3. Team Leader ☐
4. Project Manager ☐
5. Technical Expert ☐

If other, please specify……..……

1.5. Year of experience in the CBE

1) Less than 1 year ☐ 2) 1 – 5 year ☐ 3) 5 – 10 year ☐

4) Above 10 year ☐

Section 2: Questions Related with Project Management office role

Dear respondent based on your experience with the project-related activities, please rate the activities of the PMO roles and functions in your organization with the rating scale given below.

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

		1	2	3	4	5
1. Questions Related with Monitoring and Controlling of PMO on Project Performance…						
1	Report project status to upper management.					
2	Monitor and control project performance.					
3	Implement and operate a project information system.					
4	Develop and maintain a project scoreboard.					
2. Development of Project Management Competencies and Methodologies…						
1	Develop and implement a standard methodology.					
2	Promote project management within the organization.					
3	Develop competency of personnel, including organizing through training and mentoring for project managers.					
4	Provide a set of tools without an effort to standardize.					
5	Provide mentoring for project managers.					
3. Questions Related to Multi-Project Management Role of PMO…						
1	Coordinate between projects.					
2	Identify, select, and prioritize new projects.					
3	Manage one or more portfolios.					
4	Manage one or more programs.					
5	Allocate resources between projects.					

4. Questions related to Strategic Management Role of PMO…						
1	Provide advice to upper management.					
2	Participate in strategic planning.					
3	Manage benefits.					
4	Conduct networking and environmental scanning.					
5. Questions Related to Organizational Learning Role of PMO…						
1	Monitor and control the performance of the PMO.					
2	Manage archives of project documentation.					
3	Conduct post-project reviews.					
4	Conduct project audits.					
5	Implement and manage database of lessons learned.					
6. Criteria and Measurers of Construction Project Success…						
1	Completion of construction work within the estimated budget.					
2	Completion of construction work within agreed/approved duration.					
3	Conformity to all technical specifications.					
4	General conditions promote the completion of a project without major accidents or injuries.					
5	Satisfaction over the achievement of client's expectation in executing the project.					
6	Employee job satisfaction.					
7	Adequate funds to carry out construction work without interruptions.					
8	Financial success of the project.					
9	Negative impact causing to the environment due to the execution of the project.					
10	Improvement in terms of new knowledge and expertise, level of professional development and exploitation of new technology.					